

Ni-Zn Soft Ferrite Cores

EMI Suppression Ferrite Cores

	RH	Series	103
	T	Series	104
	SH	Series	105
	CU	Series	106
	RU	Series	107
	TU	Series	108

SMD Power Inductor Cores

	DR	Series	109
	DRS	Series	111

Ni-Zn Soft Ferrite Cores

Material Characteristics

■ Material type

材料 Material	實用頻率 Practical frequency	初透磁率 Initial Permeability μ_i	相對損失 因子 Relative loss factor $\tan \delta / \mu$	溫度系數 Temperature coefficient $\alpha \mu r$	飽和磁束 密度 Saturation Flux density B_m	殘留磁束密度 Remanence B_r	保磁力 Coercivity H_c	居里溫度 Curie temperature T_c	表面阻抗 Resistivity ρ	密度 Density δ
	MHz	μi	$\times 10^{-4}$	$\times 10^{-4} / ^\circ C$	Gauss	Gauss	Oersted	$^\circ C$	Ωcm	g / cm^3
M4S	1~30	650 $\pm$ 25%	13(1.0) 90(5.0)	30	3900	4000	0.45	180	$>10^5$	5.0
M6D	0.1~2.0	250 $\pm$ 25%	13(0.1) 90(2.0)	25	3900	2400	0.3	220	$>10^5$	5.0
M11F	0.05~1	800 $\pm$ 25%	10(0.05) 60(1.0)	20	3500	2000	0.4	160	$>10^5$	5.0
M13D	0.05~3	400 $\pm$ 25%	15(0.05) 80(2.0)	25	4100	2400	0.3	200	$>10^5$	5.0
M15D	0.05~3	400 $\pm$ 25%	15(0.05) 80(2.0)	20	4400	2700	70	230	$>10^5$	5.0
M20T	0.01~0.5	1700 $\pm$ 25%	10(0.01) 60(0.5)	3~5	2700	1500	16	110	$>10^5$	5.0

Ni-Zn Soft Ferrite Cores

RH Series

Features

- EMI suppression for noise generated from round cable in digital equipment.

Applications

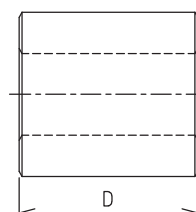
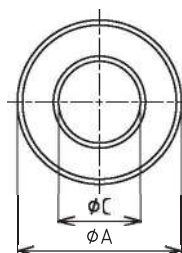
- Portable communication equipment.
- Notebook PC.
- camcorder.
- LCD television set.

Product Identifications

$$\frac{RH}{(1)} \quad \frac{\square}{(2)} \times \frac{\square}{(3)} \times \frac{\square}{(4)}$$

- Type
- Diameter = A
- Height = D
- Diameter = C

Shapes



Electrical Characteristics

M11F

Part Number	Dimensions in m/m			Typical Inductance (mH)	Resistance (Ω)
	A	D	C	25 MHz	100 MHz
RH 2.5 x 5.0 x 0.8	2.50	5.00	0.80	20	45
RH 3.5 x 3.0 x 1.2	3.50	3.00	1.20	10	30
RH 4.0 x 10.0 x 2.0	4.00	10.00	2.00	35	60
RH 6.0 x 25 x 3.0	6.00	25.00	3.00	70	140
RH 7.5 x 7.5 x 2.4	7.50	7.50	2.40	40	80
RH 8.0 x 10.0 x 6.4	8.00	10.00	6.40	65	90
RH 9.5 x 10.0 x 5.0 N	9.50	10.00	5.00	30	70
RH 10.0 x 15.0 x 5.0	10.00	15.00	5.00	55	95
RH 11.5 x 18.5 x 5.0	11.50	18.50	5.00	80	130
RH 12.0 x 15.0 x 7.3	12.00	15.00	7.30	25	50
RH 12.7 x 12.7 x 7.9	12.70	12.70	7.90	35	60
RH 13.6 x 14.0 x 9.3	13.60	14.00	9.30	30	65
RH 14.2 x 28.5 x 7.0	14.20	28.50	7.00	140	230
RH 15.5 x 28.5 x 7.3	15.50	28.50	7.30	100	150
RH 16.0 x 16.0 x 8.0	16.00	16.00	8.00	50	80
RH 17.5 x 28.5 x 9.5	17.50	28.50	9.50	100	140
RH 18.6 x 28.5 x 10.1	18.60	28.50	10.10	90	150
RH 25.9 x 28.5 x 14.0	25.90	28.50	14.00	90	150
RH 28.5 x 28.5 x 14.0	28.50	28.50	14.00	135	240

Ni-Zn Soft Ferrite Cores

T Series

Features

- EMI / RFI suppression.
- Plus and Matching transformer, Choke, Input filters.

Applications

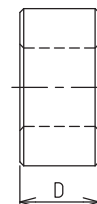
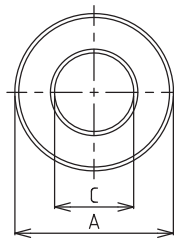
- Portable communication equipment.
- Notebook PC.
- camcorder.
- LCD television set.

Product Identifications

$$\frac{T}{(1)} \quad \frac{\square \times \square \times \square}{(2) \quad (3) \quad (4)}$$

- (1) Type
- (2) Diameter = A
- (3) Height = D
- (4) Diameter = C

Shapes



Electrical Characteristics

M11F

Part Number	Dimensions in m/m			Typical Impedance (Ω)	
	A	D	C	25 MHz	100 MHz
T 3.5x3.2x1.8	3.50	3.20	1.80	10	18
T 4.0x3.0x2.0	4.00	3.00	2.00	10	25
T 6.0x3.0x3.0	6.00	3.00	3.00	15	55
T 7.5x7.5x2.4	7.50	7.50	2.40	30	70
T 8.0x4.0x4.0	8.00	4.00	4.00	20	64
T 9.0x3.0x5.0	9.00	3.00	5.00	10	55
T 10.0x5.0x5.0	10.00	5.00	5.00	15	45
T 12.7x6.35x7.9	12.70	6.35	7.90	20	50
T 14.0x8.0x10.0	14.00	8.00	10.00	30	110
T 16.0x8.0x9.5	16.00	8.00	9.50	25	70
T 17.5x12.7x9.5	17.50	12.70	9.50	65	135
T 18.0x12.0x10.0	18.00	12.00	10.00	20	55
T 20.0x18.0x10.0	20.00	18.00	10.00	70	130
T 21.2x6.0x12.7	21.20	6.00	12.70	20	45
T 22.5x6.4x13.8	22.50	6.40	13.80	20	45
T 25.0x12.0x15.0	25.00	12.00	15.00	40	120
T 28.0x6.0x16.0	28.00	6.00	16.00	20	50
T 29.0x7.6x19.0	29.00	7.60	19.00	30	110
T 31.5x16.0x19.0	31.50	16.00	19.00	50	150
T 35.6x7.5x25.4	35.60	7.50	25.40	25	85

Ni-Zn Soft Ferrite Cores

SH Series

Features

- EMI suppression for noise generated from flat cable in digital equipment.

Applications

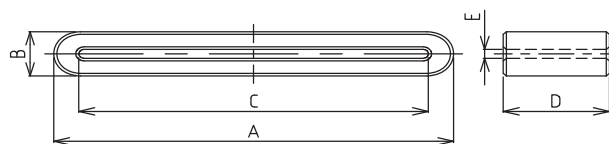
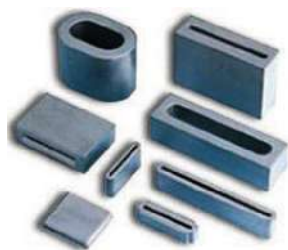
- Portable communication equipment.
- Notebook PC.
- camcorder.
- LCD television set.

Product Identifications

SH □ × □ × □
(1) (2) (3) (4)

- (1) Type
(2) Length = A
(3) Height = D
(4) Thickness = B

Shapes



Electrical Characteristics

M11F

Part Number	Dimensions in m/m					Typical Impedance (Ω)	
	A	B	C	D	E	25 MHz	100 MHz
SH 10.0x10.0x7.0	10.00	7.00	7.00	10.00	4.00	20	50
SH 16.0x12.0x5.0	16.00	5.00	11.50	12.00	1.20	30	65
SH 19.0x12.0x6.5	19.00	6.50	13.45	12.00	1.50	30	60
SH 23.5x15.0x6.3	23.50	6.30	19.00	15.00	1.00	37	90
SH 25.0x12.0x5.0	25.00	5.00	21.50	12.00	1.00	30	85
SH 26.0x15.0x5.0	26.00	5.00	22.00	15.00	1.20	30	90
SH 28.0x12.0x3.5	28.00	3.50	24.00	12.00	0.70	20	60
SH 28.5x12.0x5.0	28.50	5.00	23.70	12.00	1.00	25	67
SH 28.5x15.0x6.5	28.50	6.50	23.00	15.00	1.00	30	70
SH 31.0x12.0x3.0	31.00	3.00	27.00	12.00	1.00	12	35
SH 32.5x18.0x4.0	32.50	4.00	27.50	18.00	0.80	25	80
SH 33.5x12.0x6.5	33.50	6.50	27.00	12.00	1.50	15	45
SH 33.5x20.0x6.5	33.50	6.50	27.00	20.00	1.50	35	95
SH 34.0x12.0x6.0	34.00	6.00	30.00	12.00	0.85	45	180
SH 38.5x12.0x4.0	38.50	4.00	34.50	12.00	0.60	15	55
SH 38.5x18.0x4.0	38.50	4.00	34.50	18.00	0.60	20	120
SH 40.0x12.0x6.5	40.00	6.50	34.80	12.00	1.40	30	90
SH 44.0x16.0x5.0	44.00	5.00	40.00	16.00	1.00	30	80
SH 49.6x12.0x6.5	49.60	6.50	44.00	12.00	1.30	25	85
SH 57.6x12.0x6.5	57.60	6.50	52.00	12.00	1.70	20	50

Ni-Zn Soft Ferrite Cores CU Series

Features

- EMI suppression for noise generated from round cable in digital equipment.

Applications

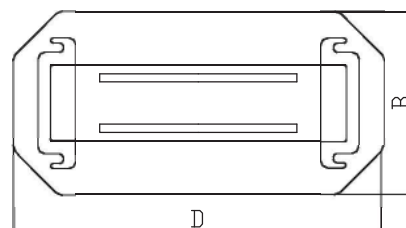
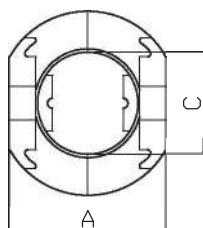
- Portable communication equipment.
- Notebook PC.
- camcorder.
- LCD television set.

Product Identifications

CU □□□□
(1) (2)

- (1) Type
(2) Diameter = C

Shapes



Electrical Characteristics

M11F

Part Number	Dimensions in m/m				Typical Inductance (Ω)	
	A	B	C	D	25 MHz	100 MHz
CU 35	15.00 max	15.00 max	4.00 max	25.20 max	55	150
CU 50	17.00 max	16.50 max	5.50 max	30.50 max	70	145
CU 75	20.40 max	20.50 max	7.70 max	39.00 max	100	200
CU 0530	12.50 max	11.50 max	5.00 max	25.00 max	60	210
CU 0730	15.50 max	22.30 max	7.30 max	18.50 max	35	155
CU 0930	18.50 max	20.50 max	9.00 max	35.00 max	105	104
CU 0931	20.50 max	19.00 max	9.00 max	31.50 max	110	182
CU 0932	19.20 max	19.00 max	8.00 max	38.00 max	110	170
CU 0933	19.50 max	31.50 max	9.00 max	35.50 max	100	175
CU 1130	20.50 max	32.00 max	11.00 max	36.00 max	60	120
CU 1330	23.50 max	24.00 max	13.00 max	37.00 max	70	163

Ni-Zn Soft Ferrite Cores

RU Series

Features

- Internal and external power cables.
- Internal cables between PC boards and data.
- connectors.

Applications

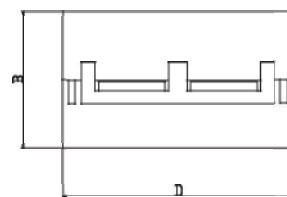
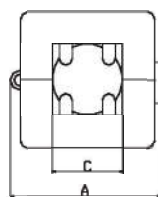
- Portable communication equipment.
- Notebook PC.
- camcorder.
- LCD television set.

Product Identifications

RU □□□
(1) (2)

- (1) Type
(2) Diameter = C

Shapes



Electrical Characteristics

M11F

Part Number	Dimensions in m/m				Typical Impedance (Ω)	
	A	B	C	D	25 MHz	100 MHz
RU 50	16.50 max	15.00 max	6.00 max	24.00 max	75	105
RU 65	23.00 max	21.00 max	6.50 max	34.00 max	80	195
RU 100	25.50 max	23.50 max	11.50 max	32.50 max	110	170
RU 130	33.00 max	31.50 max	13.00 max	33.00 max	75	185

Ni-Zn Soft Ferrite Cores

TU Series

Features

- EMI suppression for noise generated from round cable in digital equipment.

Applications

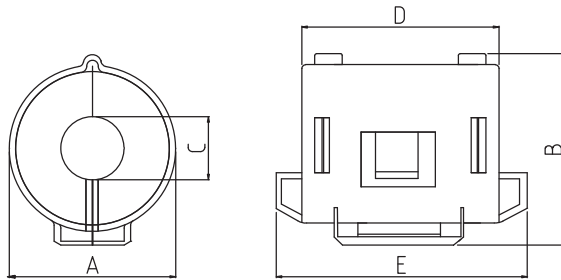
- Portable communication equipment.
- Notebook PC.
- camcorder.
- LCD television set.

Product Identifications

TU □□□
(1) (2)

(1) Type
(2) Diameter = C

Shapes



Electrical Characteristics

M11F

Part Number	Dimensions in m/m			Typical Impedance (Ω)	
	A	D	C	25 MHz	100 MHz
TU 101	25.00 max	14.00 max	10.30 max	50	145
TU 120	28.50 max	17.80 max	12.10 max	150	320
TU 131	19.90 max	17.30 max	8.30 max	48	150
TU 150	29.50 max	105.80 max	13.90 max	35	135
TU 160	19.50 max	20.30 max	8.30 max	50	160

Ni-Zn Soft Ferrite Cores

DR Series

Features

- Surface mount cores offer high B_m , low DC resistance.

Applications

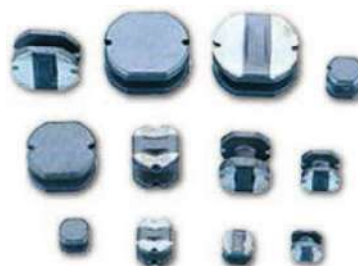
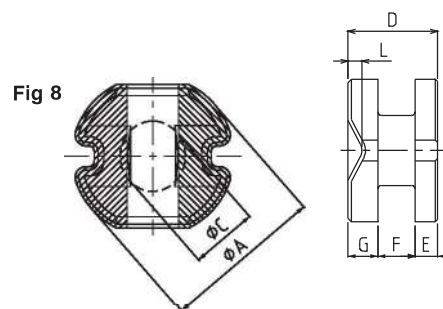
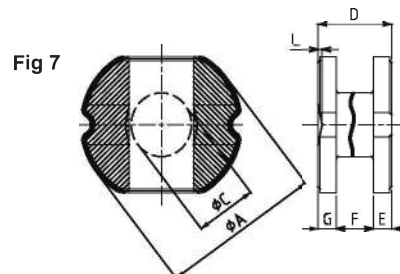
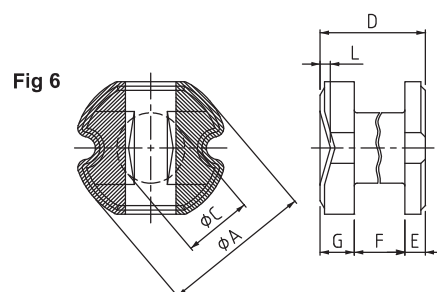
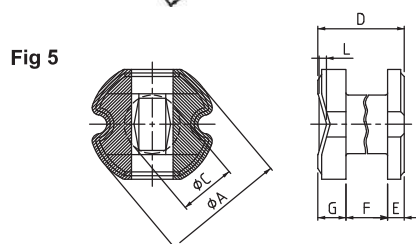
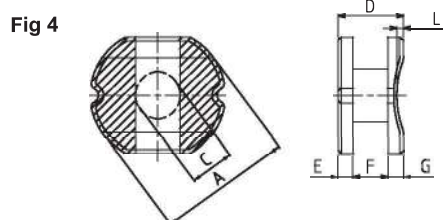
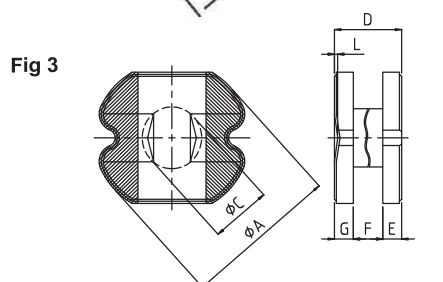
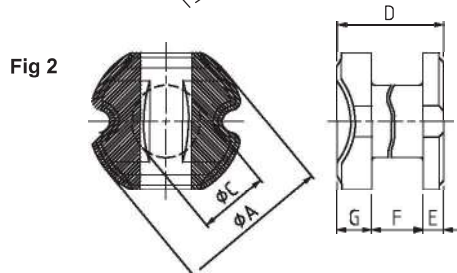
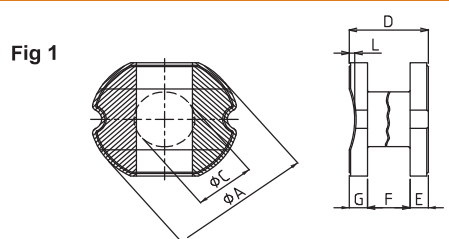
- Portable communication equipment.
- Notebook PC.
- camcorder.
- LCD television set.

Product Identifications

DR	$\square \times \square$	$\square 1M$	$\square$	$\square$	鍍銀
(1)	(2)	(3)	(4)	(5)	(6)

- | | |
|------------------|------------------|
| (1) Type | (4) Shape Symbol |
| (2) Diameter = A | (5) Diameter = C |
| (3) Height = D | (6) Width = F |

Shapes



Ni-Zn Soft Ferrite Cores

DR Series

Electrical Characteristics

M6D

Part Number	Dimensions in m/m						Fig.
	A	C	D	E	F	G	
DR 2.60x1.00 D1M T C1.20 F0.35 鍍銀	2.60	1.20	1.00	0.325	0.35	0.325	1
DR 2.07x1.15 D1M C1.00 F0.30 鍍銀	2.70	1.00	1.15	0.425	0.30	0.425	2
DR 3.20x1.15 D1M A C1.00 F0.35 鍍銀	3.20	1.00	1.15	0.40	0.35	0.40	3
DR 3.50x1.15 D1M C1.50 F0.35 鍍銀	3.50	1.50	1.15	0.40	0.35	0.40	2
DR 3.50x1.45 D1M F C1.30 F0.65 鍍銀	3.50	1.30	1.45	0.40	0.65	0.40	4
DR 3.50x1.60 D1M F C1.30 F0.60 鍍銀	3.50	1.30	1.60	0.45	0.60	0.55	4
DR 3.50x1.70 D1M F C1.30 F0.80 鍍銀	3.50	1.30	1.70	0.40	0.80	0.50	4
DR 3.50x1.95 D1M C1.50 F1.00 鍍銀	3.50	1.50	1.95	0.475	1.00	0.475	2
DR 3.50x2.10 D1M C1.50 F1.00 鍍銀	3.50	1.50	2.10	0.45	1.00	0.65	2
DR 3.50x2.30 D1M C1.40 F1.20 鍍銀	3.50	1.40	2.30	0.50	1.20	0.60	2
DR 4.20x1.00 D1M C2.15 F0.30 鍍銀	4.20	2.15	1.00	0.34	0.30	0.34	2
DR 4.50x1.75 D1M A C1.35 F0.80 鍍銀	4.50	1.35	1.75	0.475	0.80	0.475	3
DR 4.50x2.00 D1M C1.70 F0.80 鍍銀	4.50	1.70	2.00	0.50	0.80	0.70	2
DR 4.50x2.10 D1M C2.00 F1.00 鍍銀	4.50	2.00	2.10	0.40	1.00	0.70	2
DR 4.50x2.50 D1M C1.80 F1.35 鍍銀	4.50	1.80	2.50	0.575	1.35	0.575	2
DR 4.50x3.20 D1M C1.70 F1.45 鍍銀	4.50	1.70	3.20	0.60	1.45	1.15	2
DR 4.50x3.20 D1M F C2.00 F1.45 鍍銀	4.50	2.00	3.20	0.60	1.45	1.15	4
DR 4.50x4.00 D1M L C1.50 F2.40 鍍銀	4.50	1.50	4.00	0.65	2.40	0.95	5
DR 5.80x1.05 D1M C3.00 F0.30 鍍銀	5.80	3.00	1.05	0.375	0.30	0.375	2
DR 5.80x1.35 D1M C3.00 F0.40 鍍銀	5.80	3.00	1.35	0.475	0.40	0.475	2
DR 5.80x1.80 D1M C2.60 F0.80 鍍銀	5.80	2.60	1.80	0.50	0.80	0.50	2
DR 5.80x2.00 D1M AB C2.35 F0.55 鍍銀	5.80	2.35	2.00	0.55	0.55	0.90	6
DR 5.80x2.10 D1M V C2.50 F0.55 鍍銀	5.80	2.50	2.10	0.70	0.55	0.85	7
DR 5.80x2.50 D1M C C2.50 F1.05 鍍銀	5.80	2.50	2.50	0.65	1.05	0.80	8
DR 5.80x3.00 D1M C C2.50 F1.60 鍍銀	5.80	2.50	3.00	0.60	1.60	0.80	8
DR 5.80x4.20 D1M C2.50 F2.50 鍍銀	5.80	2.50	4.20	0.75	2.50	0.95	2
DR 5.80x4.50 D1M AB C2.30 F2.30 鍍銀	5.80	2.30	4.50	0.80	2.30	1.40	6
DR 5.80x4.50 D1M C C3.20 F2.50 鍍銀	5.80	3.20	4.50	0.75	2.50	1.25	8
DR 6.20x1.80 D1M C2.20 F0.80 鍍銀	6.20	2.20	1.80	0.50	0.80	0.50	2
DR 6.20x2.40 D1M C2.50 F1.50 鍍銀	6.20	2.50	2.40	0.45	1.50	0.45	2
DR 6.20x2.75 D1M C2.20 F1.45 鍍銀	6.20	2.20	2.75	0.65	1.45	0.65	2
DR 6.20x2.90 D1M C2.20 F1.70 鍍銀	6.20	2.20	2.90	0.60	1.70	0.60	2
DR 7.80x1.70 D1M A C3.90 F0.85 鍍銀	7.80	3.90	1.70	0.425	0.85	0.425	3
DR 7.80x3.50 D1M C C3.00 F1.50 鍍銀	7.80	3.00	3.50	0.80	1.50	1.20	8
DR 7.80x3.80 D1M C3.20 F1.90 鍍銀	7.80	3.20	3.80	0.80	1.90	1.10	2
DR 7.80x5.00 D1M C C3.50 F2.60 鍍銀	7.80	3.50	5.00	0.90	2.60	1.50	8
DR 7.80x5.30 D1M AB C3.00 F2.60 鍍銀	7.80	3.00	5.30	1.20	2.60	1.50	6
DR 10.0x4.00 D1M A C3.80 F1.70 鍍銀	10.00	3.80	4.00	0.95	1.70	1.35	3
DR 10.0x4.50 D1M C4.00 F2.00 鍍銀	10.00	4.00	4.50	1.00	2.00	1.50	2
DR 10.0x5.40 D1M A C3.80 F2.60 鍍銀	10.00	3.80	5.40	1.20	2.60	1.60	3
DR 10.0x6.50 D1M A C4.70 F4.00 鍍銀	10.00	4.70	6.50	1.00	4.00	1.50	3

Ni-Zn Soft Ferrite Cores

DRS Series

Features

- High performance for DC power and signal filtering.

Applications

- Portable communication equipment.
- Notebook PC.
- camcorder.
- LCD television set.

Product Identifications

DRS	$\square \times \square \times \square$	$\square \times \square \times \square$	$\square \times \square \times \square$	$\square \times \square \times \square$	$\square \times \square \times \square$	$\square \times \square \times \square$	$\square \times \square \times \square$	鍍銀
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	

- | | |
|----------------|------------------|
| (1) Type | (5) Shape Symbol |
| (2) Length = A | (6) Diameter = C |
| (3) Width = B | (7) Width = F |
| (4) Height = D | (8) Height = L |

Shapes

Fig 1

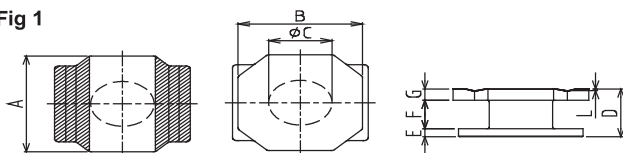


Fig 5

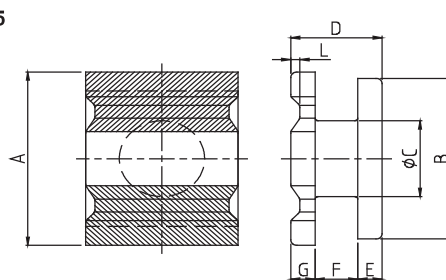


Fig 2

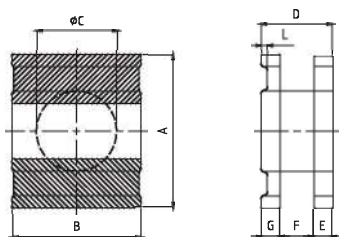


Fig 6

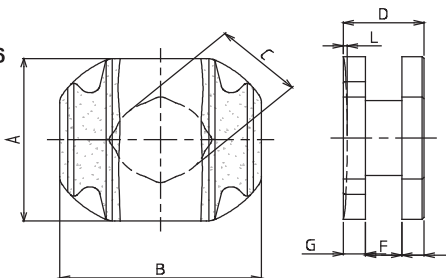


Fig 3

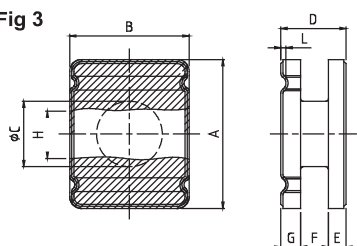


Fig 7

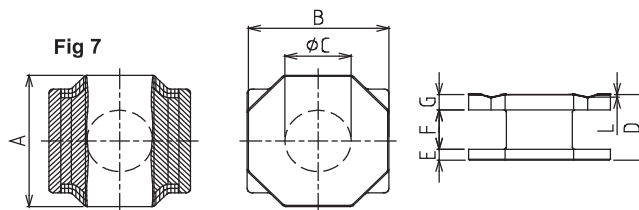
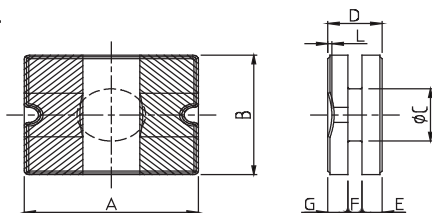


Fig 4



Ni-Zn Soft Ferrite Cores

DRS Series

Electrical Characteristics

M6D / M13D

Part Number	Dimensions in m/m									Fig.
	A	B	C	D	E	F	G	L		
DRS 2.50x2.00x0.85 C1.20 F0.30 L0.10 鍍銀	2.50	2.00	1.20	0.85	0.275	0.30	0.275	0.10	2	
DRS 2.50x2.10x0.90 C1.33 F0.27 L0.10 鍍銀	2.50	2.10	1.33	0.90	0.313	0.275	0.313	0.10	2	
DRS 2.50x2.00x1.10 C1.20 F0.47 L0.08 鍍銀	2.50	2.00	1.20	1.10	0.315	0.47	0.315	0.08	2	
DRS 2.65x2.15x1.15 C1.33 F0.52 L0.10 鍍銀	2.65	2.15	1.33	1.15	0.315	0.52	0.315	0.10	3	
DRS 3.00x3.00x0.90 D3 C1.30 F0.25 L0.12 鍍銀	3.00	2.60	1.30	0.90	0.300	0.25	0.350	0.12	1	
DRS 3.00x3.00x1.05 D3 C1.05 F0.41 L0.10 鍍銀	3.00	2.60	1.05	1.05	0.320	0.41	0.320	0.10	1	
DRS 3.00x3.00x1.35 D3 C1.30 F0.60 L0.10 鍍銀	3.00	2.60	1.30	1.35	0.350	0.60	0.400	0.10	1	
DRS 3.05x2.75x1.15 C1.20 F0.35 L0.07 鍍銀	3.05	2.75	1.20	1.15	0.400	0.35	0.400	0.07	4	
DRS 3.20x2.50x1.50 D3 C1.30 F0.60 L0.15 鍍銀	3.20	2.50	1.30	1.50	0.400	0.60	0.500	0.15	5	
DRS 4.00x4.00x0.90 D3 C2.20 F0.25 L0.12 鍍銀	4.00	3.50	2.20	0.90	0.325	0.25	0.325	0.12	1	
DRS 4.00x4.00x1.05 D3 C2.00 F0.30 L0.12 鍍銀	4.00	3.50	2.00	1.05	0.350	0.30	0.400	0.12	1	
DRS 4.00x4.00x1.35 D3 C1.93 F0.55 L0.10 鍍銀	4.00	3.50	1.93	1.35	0.350	0.55	0.450	0.10	1	
DRS 4.00x4.00x1.65 D3 C1.80 F0.80 L0.10 鍍銀	4.00	3.50	1.80	1.65	0.400	0.80	0.450	0.10	1	
DRS 4.00x3.80x1.70 C1.70 F0.70 L0.10 鍍銀	4.00	3.80	1.70	1.70	0.500	0.70	0.500	0.10	6	
DRS 4.00x4.00x1.80 C1.80 F0.70 L0.30 鍍銀	4.00	3.50	1.80	1.80	0.500	0.70	0.600	0.30	7	
DRS 4.00x4.00x2.50 C1.50 F1.20 L0.25 鍍銀	4.00	3.50	1.50	2.50	0.600	1.20	0.700	0.25	7	
DRS 5.00x5.00x1.05 D3 C3.00 F0.30 L0.10 鍍銀	5.00	4.50	3.00	1.05	0.375	0.30	0.375	0.10	1	
DRS 5.00x5.00x1.80 D3 C2.40 F0.90 L0.20 鍍銀	5.00	4.50	2.40	1.80	0.400	0.90	0.500	0.20	1	
DRS 5.00x4.80x1.85 C2.60 F0.70 L0.20 鍍銀	5.00	4.80	2.60	1.85	0.550	0.70	0.600	0.20	6	
DRS 5.00x5.00x2.30 D3 C2.60 F1.10 L0.15 鍍銀	5.00	4.50	2.60	2.30	0.500	1.10	0.700	0.15	1	
DRS 5.00x5.00x3.80 D3 C2.15 F2.30 L0.35 鍍銀	5.00	4.50	2.15	3.80	0.750	2.30	0.750	0.35	1	
DRS 6.00x6.00x0.90 D3 C4.00 F0.25 L0.10 鍍銀	6.00	5.50	4.00	0.90	0.325	0.25	0.325	0.10	1	
DRS 6.00x6.00x1.05 D3 C3.80 F0.30 L0.10 鍍銀	6.00	5.50	3.80	1.05	0.375	0.30	0.375	0.10	1	
DRS 6.00x6.00x1.80 D3 C3.00 F0.50 L0.20 鍍銀	6.00	5.50	3.00	1.80	0.550	0.50	0.750	0.20	1	
DRS 6.00x6.00x2.65 D3 C3.20 F1.55 L0.10 鍍銀	6.00	5.50	3.20	2.65	0.500	1.55	0.600	0.10	1	
DRS 6.00x6.00x3.35 D3 C2.52 F1.05 L0.25 鍍銀	6.00	5.50	2.52	3.35	1.100	1.05	1.200	0.25	1	
DRS 6.00x6.00x4.00 D3 C2.80 F2.40 L0.25 鍍銀	6.00	5.50	2.80	4.00	0.800	2.40	0.800	0.40	1	
DRS 6.00x5.80x4.10 C2.75 F2.60 L0.40 鍍銀	6.00	5.80	2.75	4.10	0.700	2.60	0.800	0.40	6	
DRS 6.00x6.00x4.25 D3 C3.10 F2.60 L0.30 鍍銀	6.00	5.50	3.10	4.25	0.750	2.60	0.900	0.30	1	
DRS 6.00x6.00x4.30 D3 C2.80 F1.80 L0.40 鍍銀	6.00	5.50	2.80	4.30	1.250	1.80	1.250	0.40	1	
DRS 7.00x7.00x1.85 D3 C3.55 F0.75 L0.30 鍍銀	7.00	6.50	3.55	1.85	0.450	0.75	0.650	0.30	1	
DRS 7.00x7.00x1.95 D3 C3.65 F0.75 L0.30 鍍銀	7.00	6.50	3.65	1.95	0.550	0.75	0.650	0.30	1	
DRS 7.00x7.00x2.20 D3 C3.60 F1.00 L0.40 鍍銀	7.00	6.50	3.60	2.20	0.500	1.00	0.700	0.40	1	
DRS 7.00x7.00x2.80 D3 C3.40 F1.40 L0.40 鍍銀	7.00	6.50	3.40	2.80	0.600	1.40	0.800	0.40	1	
DRS 7.00x7.00x3.60 D3 C3.00 F2.10 L0.40 鍍銀	7.00	6.50	3.00	3.60	0.600	2.10	0.900	0.40	1	
DRS 8.00x8.00x3.65 D3 C3.60 F2.00 L0.40 鍍銀	8.00	7.50	3.60	3.65	0.800	2.00	0.850	0.40	1	
DRS 8.00x7.80x3.70 C3.80 F1.90 L0.50 鍍銀	8.00	7.80	3.80	3.70	0.650	1.90	1.150	0.50	6	
DRS 8.00x8.00x3.75 D3 C3.60 F1.80 L0.40 鍍銀	8.00	7.50	3.60	3.75	0.950	1.80	1.000	0.40	1	
DRS 8.00x8.00x3.80 D3 C4.00 F1.70 L0.60 鍍銀	8.00	7.50	4.00	3.80	0.800	1.70	1.300	0.60	1	
DRS 8.00x8.00x3.90 C3.30 F1.70 L0.60 鍍銀	8.00	8.00	3.30	3.90	1.050	1.70	1.150	0.60	7	

SMD Power Inductors and EMI Beads

SMD Power Inductors

	TP	Series	56
	TPRH-D	Series	60
	TRC	Series	66
	TNR	Series	69

SMD Common Mode Choke

	TLM	Series	72
---	-----	--------	----

Wound Chip Beads and Inductors

	SA	Series	82
	SB	Series	83
	SW	Series	84
	WL	Series	91
	WLC	Series (Large Current)	95

SMD Power Inductors

TP Series

Features

- High current Type.
- Ferrite bobbin core and compact size.
- Low core loss for high frequency power application.
- Large terminal surface for good PCB bonding.

Applications

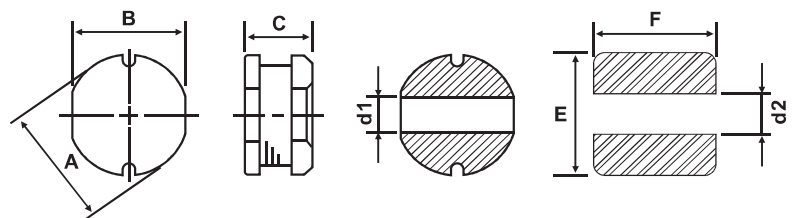
- Portable communication equipment.
- Notebook PC, digital camera, LCD television set.
- Power supply for VTR, OA equipment.
- DC / DC converters.

Product Identifications

TP	□□□□	- □□□	□
(1)	(2)	(3)	(4)

- (1) Type
(2) Dimensions
(3) Inductance value
(4) Inductance tolerance

Shapes and Dimensions



Land Pattern

TYPE	A	B	C	d1	d2	E	F
TP0302	3.50±0.20	3.10±0.20	2.20±0.20	1.0TYP	1.2REF	3.6REF	3.5REF
TP0403	4.50±0.30	4.00±0.30	3.20±0.30	1.3REF	1.5REF	4.7REF	4.2REF
TP0504	5.80±0.30	5.20±0.30	4.50±0.35	1.3REF	1.5REF	6.0REF	5.5REF
TP0705	7.80±0.30	7.00±0.30	5.00±0.40	2.1REF	2.3REF	8.0REF	7.5REF
TP1005	10.0±0.40	9.00±0.40	5.40±0.40	2.1REF	2.5REF	10.0REF	9.5REF

SMD Power Inductors

TP Series

Electrical Characteristics

TP 0302

Part Number	Inductance (μ H)	L Test Frequency	DC Resistance (Ω) MAX.	Rated Current (A) MAX.
TP0302 - R82□	0.82	5.0MHz	0.049	2.80
TP0302 - 1R0□	1.0	5.0MHz	0.055	2.56
TP0302 - 1R5□	1.5	5.0MHz	0.070	2.00
TP0302 - 2R2□	2.2	5.0MHz	0.100	1.60
TP0302 - 3R3□	3.3	5.0MHz	0.131	1.50
TP0302 - 4R7□	4.7	5.0MHz	0.158	1.30
TP0302 - 5R6□	5.6	5.0MHz	0.165	1.20
TP0302 - 6R8□	6.8	5.0MHz	0.188	1.10
TP0302 - 100 □	10	5.0MHz	0.341	1.00
TP0302 - 150 □	15	2.52MHz	0.460	0.90
TP0302 - 220 □	22	2.52MHz	0.685	0.75
TP0302 - 270 □	27	2.52MHz	0.912	0.70
TP0302 - 330 □	33	2.52MHz	0.951	0.60
TP0302 - 470 □	47	2.52MHz	1.582	0.45
TP0302 - 680 □	68	2.52MHz	2.033	0.30
TP0302 - 820 □	82	2.52MHz	2.319	0.20
TP0302 - 101 □	100	1KHz	2.558	0.10

Electrical Characteristics

TP 0403 Type

Part Number	Inductance (μ H)	L Test Frequency	C Resistance (Ω) MAX.	Rated Current (A) MAX.
TP0403 - R50 □	0.50	7.96MHz	0.022	3.00
TP0403 - R60□	0.60	7.96MHz	0.040	2.80
TP0403 - 1R0□	1.0	7.96MHz	0.049	2.56
TP0403 - 1R2□	1.2	7.96MHz	0.055	2.54
TP0403 - 1R4□	1.4	7.96MHz	0.057	2.52
TP0403 - 1R8□	1.8	7.96MHz	0.064	1.95
TP0403 - 2R2□	2.2	7.96MHz	0.072	1.75
TP0403 - 2R4□	2.4	7.96MHz	0.076	1.65
TP0403 - 2R7□	2.7	7.96MHz	0.079	1.58
TP0403 - 3R3□	3.3	7.96MHz	0.087	1.44
TP0403 - 3R9□	3.9	7.96MHz	0.094	1.33
TP0403 - 4R1□	4.1	7.96MHz	0.100	1.20
TP0403 - 4R7□	4.7	7.96MHz	0.109	1.15
TP0403 - 5R2□	5.2	7.96MHz	0.118	1.05
TP0403 - 5R6□	5.6	7.96MHz	0.126	0.99
TP0403 - 6R8□	6.8	7.96MHz	0.132	0.95
TP0403 - 8R2□	8.2	7.96MHz	0.147	0.84
TP0403 - 100 □	10	2.52MHz	0.182	0.80
TP0403 - 120 □	12	2.52MHz	0.210	0.78
TP0403 - 150 □	15	2.52MHz	0.235	0.76
TP0403 - 180 □	18	2.52MHz	0.280	0.74
TP0403 - 200 □	20	2.52MHz	0.312	0.70
TP0403 - 220 □	22	2.52MHz	0.378	0.68
TP0403 - 270 □	27	2.52MHz	0.522	0.62
TP0403 - 330 □	33	2.52MHz	0.540	0.56

□ Tolerance K $\pm 10\%$, M $\pm 20\%$, N $\pm 30\%$

SMD Power Inductors

TP Series

Electrical Characteristics

TP 0403 Type

Part Number	Inductance (μH)	L Test Frequency	C Resistance (Ω) MAX.	Rated Current (A) MAX.
TP0403 - 390 □	39	2.52MHz	0.587	0.52
TP0403 - 470 □	47	2.52MHz	0.844	0.44
TP0403 - 560 □	56	2.52MHz	0.937	0.42
TP0403 - 680 □	68	2.52MHz	1.117	0.37
TP0403 - 820 □	82	2.52MHz	1.170	0.35
TP0403 - 101 □	100	1KHz	1.200	0.32

Electrical Characteristics

TP 0504

Part Number	Inductance (μH)	L Test Frequency	DC Resistance (Ω) MAX.	Rated Current (A) MAX.
TP0504 - 1R0 □	1.0	7.96MHz	0.025	4.00
TP0504 - 1R2 □	1.2	7.96MHz	0.027	3.90
TP0504 - 2R0 □	2.0	7.96MHz	0.030	3.80
TP0504 - 2R2 □	2.2	7.96MHz	0.035	3.50
TP0504 - 2R4 □	2.4	7.96MHz	0.040	3.30
TP0504 - 3R3 □	3.3	7.96MHz	0.045	3.00
TP0504 - 3R9 □	3.9	7.96MHz	0.050	2.70
TP0504 - 4R7 □	4.7	7.96MHz	0.054	2.50
TP0504 - 5R2 □	5.2	7.96MHz	0.055	2.40
TP0504 - 5R6 □	5.6	7.96MHz	0.065	2.20
TP0504 - 6R8 □	6.8	7.96MHz	0.070	2.00
TP0504 - 8R2 □	8.2	7.96MHz	0.075	1.56
TP0504 - 100 □	10	2.52MHz	0.100	1.44
TP0504 - 120 □	12	2.52MHz	0.120	1.40
TP0504 - 150 □	15	2.52MHz	0.140	1.30
TP0504 - 180 □	18	2.52MHz	0.150	1.23
TP0504 - 220 □	22	2.52MHz	0.180	1.11
TP0504 - 270 □	27	2.52MHz	0.200	0.97
TP0504 - 300 □	30	2.52MHz	0.220	0.92
TP0504 - 330 □	33	2.52MHz	0.230	0.88
TP0504 - 390 □	39	2.52MHz	0.320	0.80
TP0504 - 470 □	47	2.52MHz	0.370	0.72
TP0504 - 560 □	56	2.52MHz	0.420	0.68
TP0504 - 680 □	68	2.52MHz	0.460	0.61
TP0504 - 820 □	82	2.52MHz	0.600	0.58
TP0504 - 101 □	100	1KHz	0.700	0.52

□ Tolerance : K = ±10%, M = ±20%, N = ±30%

SMD Power Inductors

TP Series

Electrical Characteristics

TP 0705

Part Number	Inductance (μ H)	L Test Frequency	DC Resistance (Ω) MAX.	Rated Current (A) MAX.
TP0705 - 1R0 □	1.0	5MHz	0.012	7.00
TP0705 - 2R2 □	2.2	5MHz	0.020	4.50
TP0705 - 3R3 □	3.3	5MHz	0.023	4.00
TP0705 - 4R7 □	4.7	5MHz	0.025	3.50
TP0705 - 5R6 □	5.6	5MHz	0.034	3.30
TP0705 - 6R8 □	6.8	5MHz	0.042	3.20
TP0705 - 100 □	10	2.52MHz	0.070	2.30
TP0705 - 120 □	12	2.52MHz	0.080	2.00
TP0705 - 150 □	15	2.52MHz	0.090	1.80
TP0705 - 180 □	18	2.52MHz	0.100	1.60
TP0705 - 220 □	22	2.52MHz	0.110	1.50
TP0705 - 270 □	27	2.52MHz	0.120	1.30
TP0705 - 330 □	33	2.52MHz	0.130	1.20
TP0705 - 390 □	39	2.52MHz	0.160	1.10
TP0705 - 470 □	47	2.52MHz	0.180	1.10
TP0705 - 560 □	56	2.52MHz	0.240	0.94
TP0705 - 680 □	68	2.52MHz	0.280	0.85
TP0705 - 820 □	82	2.52MHz	0.370	0.78
TP0705 - 101 □	100	1KHz	0.430	0.72

Electrical Characteristics

TP 1005

Part Number	Inductance (μ H)	L Test Frequency	DC Resistance (Ω) MAX.	Rated Current (A) MAX.
TP1005 - 3R3 □	3.3	5MHz	0.030	5.84
TP1005 - 4R7 □	4.7	5MHz	0.035	4.50
TP1005 - 5R6 □	5.6	5MHz	0.040	3.88
TP1005 - 6R0 □	6.0	5MHz	0.050	3.64
TP1005 - 100 □	10	2.52MHz	0.060	2.60
TP1005 - 120 □	12	2.52MHz	0.070	2.45
TP1005 - 150 □	15	2.52MHz	0.080	2.27
TP1005 - 180 □	18	2.52MHz	0.090	2.15
TP1005 - 220 □	22	2.52MHz	0.100	1.95
TP1005 - 270 □	27	2.52MHz	0.110	1.76
TP1005 - 330 □	33	2.52MHz	0.120	1.50
TP1005 - 390 □	39	2.52MHz	0.140	1.37
TP1005 - 470 □	47	2.52MHz	0.170	1.28
TP1005 - 560 □	56	2.52MHz	0.190	1.17
TP1005 - 680 □	68	2.52MHz	0.220	1.11
TP1005 - 820 □	82	2.52MHz	0.250	1.00
TP1005 - 101 □	100	1KHz	0.350	0.97

□ Tolerance : K = $\pm 10\%$, M = $\pm 20\%$, N = $\pm 30\%$

SMD Power Inductors

TPRH-D Series

Features

- Ultra low profile.
- Magnetic shielded for low radiation.
- Bobbin ferrite core and compact size.
- Low core loss for high frequency power application.
- Large terminal surface for good PCB bonding.

Applications

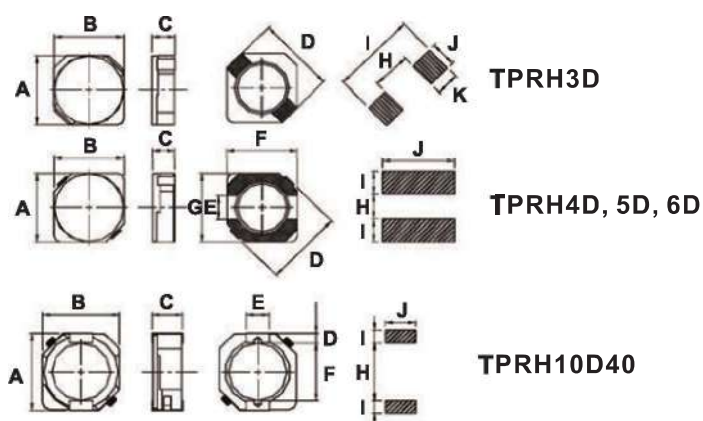
- Portable communication equipment.
- Notebook PC, digital camera, LCD television set.
- Power supply for VTR, OA equipment.
- DC / DC converters.

Product Identifications

TPRH	□□□□	- □□□	□
(1)	(2)	(3)	(4)

- (1) Type
- (2) Dimensions
- (3) Inductance value
- (4) Inductance tolerance

Shapes and Dimensions



TYPE	A	B	C	D	E	F	G	H	I	J
TPRH 3D16	3.80±0.30	3.80±0.30	1.80MAX	4.15MAX	/	/	/	2.4	5.2	1.5
TPRH 4D18	4.70±0.30	4.70±0.30	2.00MAX	6.90MAX	1.50	4.50	4.50	1.5	1.9	5.3
TPRH 4D28	4.70±0.30	4.70±0.30	3.00MAX	6.90MAX	1.50	4.50	4.50	1.5	1.9	5.3
TPRH 5D18	5.70±0.30	5.70±0.30	2.00MAX	8.20MAX	2.00	5.50	5.50	2.0	2.15	6.3
TPRH 5D28	5.70±0.30	5.70±0.30	3.00MAX	8.20MAX	2.00	5.50	5.50	2.0	2.15	6.3
TPRH 6D28	6.70±0.30	6.70±0.30	3.00MAX	9.50MAX	2.00	6.50	6.50	2.0	2.65	7.3
TPRH 6D38	6.70±0.30	6.70±0.30	4.00MAX	9.50MAX	2.00	6.50	6.50	2.0	2.65	7.3
TPRH 10D40	10.1±0.30	10.1±0.50	3.80±0.20	1.20±0.15	3.00±0.10	7.70±0.30	/	7.3	1.6	3.2

SMD Power Inductors

TPRH-D Series

Electrical Characteristics

TPRH 3D16

Part Number	Inductance (μ H)	L Test Frequency	DC Resistance (Ω) MAX.	Rated Current (A) MAX.
TPRH3D16 - 1R5 □	1.5	100KHz	0.052	1.55
TPRH3D16 - 2R2 □	2.2	100KHz	0.072	1.20
TPRH3D16 - 3R3 □	3.3	100KHz	0.085	1.10
TPRH3D16 - 4R7 □	4.7	100KHz	0.105	0.90
TPRH3D16 - 5R6 □	5.6	100KHz	0.160	0.85
TPRH3D16 - 6R8 □	6.8	100KHz	0.170	0.73
TPRH3D16 - 8R2 □	8.2	100KHz	0.188	0.64
TPRH3D16 - 100 □	10	100KHz	0.210	0.55
TPRH3D16 - 120 □	12	100KHz	0.240	0.48
TPRH3D16 - 150 □	15	100KHz	0.295	0.42
TPRH3D16 - 180 □	18	100KHz	0.400	0.40
TPRH3D16 - 220 □	22	100KHz	0.430	0.35
TPRH3D16 - 270 □	27	100KHz	0.650	0.32
TPRH3D16 - 330 □	33	100KHz	0.675	0.30
TPRH3D16 - 470 □	47	100KHz	0.860	0.24
TPRH3D16 - 680 □	68	100KHz	1.580	0.22
TPRH3D16 - 101 □	100	100KHz	2.410	0.17

Electrical Characteristics

TPRH 4D18

Part Number	Inductance (μ H)	L Test Frequency	DC Resistance (Ω) MAX.	Rated Current (A) MAX.
TPRH4D18 - 1R0 □	1.0	100KHz	0.045	1.72
TPRH4D18 - 2R2 □	2.2	100KHz	0.075	1.32
TPRH4D18 - 2R7 □	2.7	100KHz	0.105	1.28
TPRH4D18 - 3R3 □	3.3	100KHz	0.110	1.04
TPRH4D18 - 3R9 □	3.9	100KHz	0.155	0.88
TPRH4D18 - 4R7 □	4.7	100KHz	0.162	0.84
TPRH4D18 - 5R6 □	5.6	100KHz	0.170	0.80
TPRH4D18 - 6R8 □	6.8	100KHz	0.180	0.76
TPRH4D18 - 8R2 □	8.2	100KHz	0.190	0.68
TPRH4D18 - 100 □	10	100KHz	0.200	0.61
TPRH4D18 - 120 □	12	100KHz	0.210	0.56
TPRH4D18 - 150 □	15	100KHz	0.240	0.50
TPRH4D18 - 180 □	18	100KHz	0.338	0.48
TPRH4D18 - 220 □	22	100KHz	0.397	0.41
TPRH4D18 - 270 □	27	100KHz	0.441	0.35

□ Tolerance : K = $\pm 10\%$, M = $\pm 20\%$, N = $\pm 30\%$

SMD Power Inductors

TPRH-D Series

Electrical Characteristics

TPRH 4D18

Part Number	Inductance (μ H)	L Test Frequency	DC Resistance (Ω) MAX.	Rated Current (A) MAX.
TPRH4D18 - 330 □	33	100KHz	0.694	0.32
TPRH4D18 - 390 □	39	100KHz	0.709	0.30
TPRH4D18 - 470 □	47	100KHz	0.900	0.26
TPRH4D18 - 560 □	56	100KHz	0.850	0.23
TPRH4D18 - 680 □	68	100KHz	1.370	0.20
TPRH4D18 - 101 □	100	100KHz	1.800	0.15

Electrical Characteristics

TPRH 4D28

Part Number	Inductance (μ H)	L Test Frequency	DC Resistance (Ω) MAX.	Rated Current (A) MAX.
TPRH4D28 - 1R0 □	1.0	100KHz	0.0200	2.65
TPRH4D28 - 1R2 □	1.2	100KHz	0.0236	2.56
TPRH4D28 - 1R8 □	1.8	100KHz	0.0275	2.20
TPRH4D28 - 2R2 □	2.2	100KHz	0.0313	2.04
TPRH4D28 - 2R7 □	2.7	100KHz	0.0433	1.60
TPRH4D28 - 3R3 □	3.3	100KHz	0.0492	1.57
TPRH4D28 - 3R9 □	3.9	100KHz	0.0648	1.44
TPRH4D28 - 4R7 □	4.7	100KHz	0.0720	1.32
TPRH4D28 - 5R6 □	5.6	100KHz	0.1009	1.17
TPRH4D28 - 6R8 □	6.8	100KHz	0.1089	1.12
TPRH4D28 - 8R2 □	8.2	100KHz	0.1175	1.04
TPRH4D28 - 100 □	10	100KHz	0.1283	1.00
TPRH4D28 - 120 □	12	100KHz	0.1316	0.84
TPRH4D28 - 150 □	15	100KHz	0.1490	0.76
TPRH4D28 - 180 □	18	100KHz	0.1660	0.72
TPRH4D28 - 220 □	22	100KHz	0.2350	0.70
TPRH4D28 - 270 □	27	100KHz	0.2610	0.58
TPRH4D28 - 330 □	33	100KHz	0.3780	0.56
TPRH4D28 - 390 □	39	100KHz	0.3837	0.50
TPRH4D28 - 470 □	47	100KHz	0.5870	0.48
TPRH4D28 - 560 □	56	100KHz	0.6245	0.41
TPRH4D28 - 680 □	68	100KHz	0.6990	0.35
TPRH4D28 - 820 □	82	100KHz	0.9148	0.32
TPRH4D28 - 101 □	100	100KHz	1.0200	0.29

□ Tolerance : K = $\pm 10\%$, M = $\pm 20\%$, N = $\pm 30\%$

SMD Power Inductors

TPRH-D Series

Electrical Characteristics

TPRH 5D18

Part Number	Inductance (μ H)	L Test Frequency	DC Resistance (Ω) MAX.	Rated Current (A) MAX.
TPRH5D18 - 4R1 □	4.1	10KHz	0.057	1.95
TPRH5D18 - 4R7 □	4.7	10KHz	0.068	1.75
TPRH5D18 - 5R0 □	5.0	10KHz	0.076	1.65
TPRH5D18 - 5R4 □	5.4	10KHz	0.080	1.60
TPRH5D18 - 6R2 □	6.2	10KHz	0.096	1.40
TPRH5D18 - 6R8 □	6.8	10KHz	0.110	1.30
TPRH5D18 - 8R9 □	8.9	10KHz	0.116	1.25
TPRH5D18 - 100 □	10	10KHz	0.124	1.20

Electrical Characteristics

TPRH 5D28

Part Number	Inductance (μ H)	L Test Frequency	DC Resistance (Ω) MAX.	Rated Current (A) MAX.
TPRH5D28 - 2R5 □	2.5	10KHz	0.018	2.60
TPRH5D28 - 3R0 □	3.0	10KHz	0.024	2.40
TPRH5D28 - 4R2 □	4.2	10KHz	0.031	2.20
TPRH5D28 - 4R4 □	4.4	10KHz	0.033	2.10
TPRH5D28 - 4R7 □	4.7	10KHz	0.036	2.10
TPRH5D28 - 5R3 □	5.3	10KHz	0.038	1.90
TPRH5D28 - 6R2 □	6.2	10KHz	0.045	1.80
TPRH5D28 - 8R2 □	8.2	10KHz	0.053	1.60
TPRH5D28 - 100 □	10	10KHz	0.065	1.30
TPRH5D28 - 120 □	12	10KHz	0.076	1.20
TPRH5D28 - 150 □	15	10KHz	0.103	1.10
TPRH5D28 - 180 □	18	10KHz	0.110	1.00
TPRH5D28 - 220 □	22	10KHz	0.122	0.90
TPRH5D28 - 270 □	27	10KHz	0.175	0.85
TPRH5D28 - 330 □	33	10KHz	0.189	0.75
TPRH5D28 - 390 □	39	10KHz	0.212	0.70
TPRH5D28 - 470 □	47	10KHz	0.260	0.62
TPRH5D28 - 560 □	56	10KHz	0.305	0.58
TPRH5D28 - 680 □	68	10KHz	0.355	0.52
TPRH5D28 - 820 □	82	10KHz	0.463	0.46
TPRH5D28 - 101 □	100	10KHz	0.520	0.42

□ Tolerance : K = $\pm 10\%$, M = $\pm 20\%$, N = $\pm 30\%$

SMD Power Inductors

TPRH-D Series

Electrical Characteristics

TPRH 6D28

Part Number	Inductance (μ H)	L Test Frequency	DC Resistance (Ω) MAX.	Rated Current (A) MAX.
TPRH6D28 - 1R0 □	1.0	10KHz	0.0132	5.50
TPRH6D28 - 2R0 □	2.0	10KHz	0.021	4.00
TPRH6D28 - 3R0 □	3.0	10KHz	0.024	3.00
TPRH6D28 - 3R3 □	3.3	10KHz	0.025	2.80
TPRH6D28 - 3R9 □	3.9	10KHz	0.027	2.60
TPRH6D28 - 4R7 □	4.7	10KHz	0.030	2.50
TPRH6D28 - 5R0 □	5.0	10KHz	0.031	2.40
TPRH6D28 - 5R6 □	5.6	10KHz	0.035	2.30
TPRH6D28 - 6R0 □	6.0	10KHz	0.040	2.25
TPRH6D28 - 6R8 □	6.8	10KHz	0.054	2.10
TPRH6D28 - 7R3 □	7.3	10KHz	0.056	2.00
TPRH6D28 - 8R6 □	8.6	10KHz	0.058	1.85
TPRH6D28 - 100 □	10	10KHz	0.065	1.70
TPRH6D28 - 120 □	12	10KHz	0.070	1.55
TPRH6D28 - 150 □	15	10KHz	0.084	1.40
TPRH6D28 - 180 □	18	10KHz	0.095	1.32
TPRH6D28 - 220 □	22	10KHz	0.128	1.20
TPRH6D28 - 270 □	27	10KHz	0.142	1.05
TPRH6D28 - 330 □	33	10KHz	0.165	0.97
TPRH6D28 - 390 □	39	10KHz	0.210	0.86
TPRH6D28 - 470 □	47	10KHz	0.238	0.80
TPRH6D28 - 560 □	56	10KHz	0.277	0.73
TPRH6D28 - 680 □	68	10KHz	0.304	0.65
TPRH6D28 - 820 □	82	10KHz	0.390	0.60
TPRH6D28 - 101 □	100	10KHz	0.535	0.54

Electrical Characteristics

TPRH 6D38

Part Number	Inductance (μ H)	L Test Frequency	DC Resistance (Ω) MAX.	Rated Current (A) MAX.
TPRH6D38 - 1R0 □	1.0	10KHz	0.017	7.00
TPRH6D38 - 2R5 □	2.5	10KHz	0.019	5.00
TPRH6D38 - 3R0 □	3.0	10KHz	0.020	3.50
TPRH6D38 - 3R3 □	3.3	10KHz	0.022	3.30
TPRH6D38 - 4R7 □	4.7	10KHz	0.024	3.00
TPRH6D38 - 5R0 □	5.0	10KHz	0.025	2.90
TPRH6D38 - 6R2 □	6.2	10KHz	0.027	2.50
TPRH6D38 - 7R4 □	7.4	10KHz	0.031	2.30
TPRH6D38 - 8R7 □	8.7	10KHz	0.034	2.20
TPRH6D38 - 100 □	10	10KHz	0.038	2.00
TPRH6D38 - 120 □	12	10KHz	0.053	1.70
TPRH6D38 - 150 □	15	10KHz	0.057	1.60
TPRH6D38 - 180 □	18	10KHz	0.092	1.50
TPRH6D38 - 220 □	22	10KHz	0.096	1.30
TPRH6D38 - 270 □	27	10KHz	0.109	1.20

□ Tolerance K $\pm 10\%$, M $\pm 20\%$, N $\pm 30\%$

SMD Power Inductors

TPRH-D Series

Electrical Characteristics

TPRH 6D38

Part Number	Inductance (μ H)	L Test Frequency	DC Resistance (Ω) MAX.	Rated Current (A) MAX.
TPRH6D38 - 330 □	33	10KHz	0.124	1.10
TPRH6D38 - 390 □	39	10KHz	0.138	1.00
TPRH6D38 - 470 □	47	10KHz	0.155	0.95
TPRH6D38 - 560 □	56	10KHz	0.202	0.85
TPRH6D38 - 680 □	68	10KHz	0.215	0.75
TPRH6D38 - 820 □	82	10KHz	0.234	0.70
TPRH6D38 - 101 □	100	10KHz	0.324	0.65

Electrical Characteristics

TPRH 10D40

Part Number	Inductance (μ H)	L Test Frequency	DC Resistance (Ω) MAX.	Rated Current (A) MAX.
TPRH10D40 - R60 □	0.6	100KHz	0.0060	12.0
TPRH10D40 - 1R5 □	1.5	100KHz	0.0081	10.0
TPRH10D40 - 2R0 □	2.0	100KHz	0.0095	8.30
TPRH10D40 - 2R5 □	2.5	100KHz	0.010	7.50
TPRH10D40 - 3R3 □	3.3	100KHz	0.018	6.20
TPRH10D40 - 3R8 □	3.8	100KHz	0.020	6.00
TPRH10D40 - 4R7 □	4.7	100KHz	0.025	5.50
TPRH10D40 - 5R0 □	5.0	100KHz	0.025	5.50
TPRH10D40 - 5R2 □	5.2	100KHz	0.025	5.50
TPRH10D40 - 5R6 □	5.6	100KHz	0.030	5.00
TPRH10D40 - 6R8 □	6.8	100KHz	0.032	4.80
TPRH10D40 - 8R2 □	8.2	100KHz	0.032	4.60
TPRH10D40 - 100 □	10	100KHz	0.035	4.40
TPRH10D40 - 150 □	15	100KHz	0.050	3.60
TPRH10D40 - 220 □	22	100KHz	0.073	2.90
TPRH10D40 - 270 □	27	100KHz	0.082	2.50
TPRH10D40 - 330 □	33	100KHz	0.093	2.30
TPRH10D40 - 380 □	38	100KHz	0.110	2.20
TPRH10D40 - 470 □	47	100KHz	0.128	2.10
TPRH10D40 - 680 □	68	100KHz	0.213	1.50
TPRH10D40 - 820 □	82	100KHz	0.304	1.35
TPRH10D40 - 101 □	100	100KHz	0.380	1.25

□ Tolerance : K = $\pm 10\%$, M = $\pm 20\%$, N = $\pm 30\%$

SMD Power Inductors

TRC Series

Features

- High rated current for circuit design.
- Design by special lead wire to prevent open circuit failure.
- Low cost with rugged reliability and performance fixed inductor.

Applications

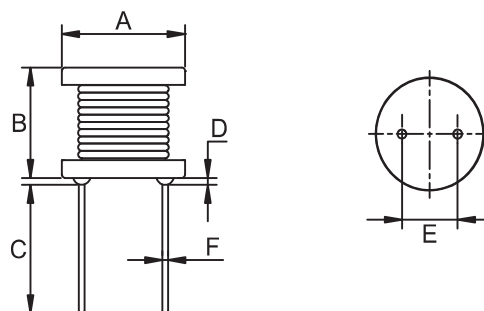
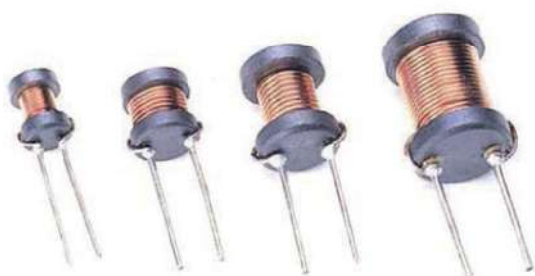
- Excellent as DC/DC converter boost or buck inductor. Also used for filtering application.

Product Identifications

TRC □□□□ - □□□ □
(1) (2) (3) (4)

- (1) Type
(2) Dimensions
(3) Inductance value
(4) Inductance tolerance

Shapes and Dimensions



TYPE	A	B	C	D	E	F
TRC 0608	8.0 max.	9.5 max.	3.5 min.	2.0 max.	3.0±0.5	0.65
TRC 0810	10.0 max.	11.5 max.	3.5 min.	2.5 max.	5.0±0.5	0.65/0.80

SMD Power Inductors

TRC Series

Electrical Characteristics

0608 Type

Part Number	Inductance (nH)	DC Resistance (Ω) MAX.	Rated Current (mA) MAX.
TRC 0608-1R0 □	1.0	15	3,000
TRC 0608-1R5 □	1.5	15	2,800
TRC 0608-1R8 □	1.8	15	2,700
TRC 0608-2R2 □	2.2	15	2,600
TRC 0608-2R7 □	2.7	20	2,500
TRC 0608-3R3 □	3.3	20	2,500
TRC 0608-3R9 □	3.9	25	2,500
TRC 0608-4R7 □	4.7	25	2,300
TRC 0608-5R6 □	5.6	30	2,100
TRC 0608-6R8 □	6.8	30	1,800
TRC 0608-8R2 □	8.2	35	1,200
TRC 0608-100 □	10	45	1,000
TRC 0608-120 □	12	50	1,000
TRC 0608-150 □	15	55	900
TRC 0608-180 □	18	90	900
TRC 0608-220 □	22	95	800
TRC 0608-270 □	27	110	750
TRC 0608-330 □	33	125	700
TRC 0608-390 □	39	140	650
TRC 0608-470 □	47	160	600
TRC 0608-560 □	56	180	600
TRC 0608-680 □	68	200	560
TRC 0608-820 □	82	270	480
TRC 0608-101 □	100	310	450
TRC 0608-121 □	120	370	430
TRC 0608-151 □	150	470	400
TRC 0608-181 □	180	540	400
TRC 0608-221 □	220	730	380
TRC 0608-271 □	270	830	320
TRC 0608-331 □	330	950	300
TRC 0608-391 □	390	1,220	250
TRC 0608-471 □	470	1,630	220
TRC 0608-561 □	560	1,800	200
TRC 0608-681 □	680	2,100	180
TRC 0608-821 □	820	2,900	170
TRC 0608-102 □	1000	3,200	150

□ Tolerance : K = $\pm 10\%$, M = $\pm 20\%$, N = $\pm 30\%$

SMD Power Inductors

TRC Series

Electrical Characteristics

0810 Type

Part Number	Inductance (nH)	DC Resistance (Ω) MAX.	Rated Current (mA) MAX.
TRC 0810-1R0 ☐	1.0	15	4,500
TRC 0810-1R5 ☐	1.5	20	4,200
TRC 0810-2R2 ☐	2.2	20	4,200
TRC 0810-2R7 ☐	2.7	20	4,000
TRC 0810-3R3 ☐	3.3	20	4,000
TRC 0810-3R9 ☐	3.9	20	4,000
TRC 0810-4R7 ☐	4.7	25	4,000
TRC 0810-5R6 ☐	5.6	25	4,000
TRC 0810-6R8 ☐	6.8	25	3,800
TRC 0810-8R2 ☐	8.2	35	3,800
TRC 0810-100 ☐	10	40	3,200
TRC 0810-120 ☐	12	40	2,800
TRC 0810-150 ☐	15	45	2,500
TRC 0810-180 ☐	18	60	2,100
TRC 0810-220 ☐	22	70	2,000
TRC 0810-270 ☐	27	85	1,800
TRC 0810-330 ☐	33	90	1,600
TRC 0810-390 ☐	39	100	1,500
TRC 0810-470 ☐	47	110	1,300
TRC 0810-560 ☐	56	150	1,000
TRC 0810-680 ☐	68	190	900
TRC 0810-820 ☐	82	210	800
TRC 0810-101 ☐	100	240	800
TRC 0810-121 ☐	120	260	750
TRC 0810-151 ☐	150	310	700
TRC 0810-181 ☐	180	380	650
TRC 0810-221 ☐	220	430	630
TRC 0810-271 ☐	270	490	600
TRC 0810-331 ☐	330	660	580
TRC 0810-391 ☐	390	790	520
TRC 0810-471 ☐	470	910	500
TRC 0810-561 ☐	560	1,130	400
TRC 0810-681 ☐	680	1,300	300
TRC 0810-821 ☐	820	1,530	270

☐ Tolerance : K = $\pm 10\%$, M = $\pm 20\%$, N = $\pm 30\%$

SMD Power Inductors

TNR Series

Features

- Low profile construction and miniature size
- Magnetic shielded construction .
- High current saturation.

Applications

- For small DC/DC converter (HDD , DVC , DSC , PDA , LCD display etc).

Product Identifications

TNR	□□□□	- □□□	□
(1)	(2)	(3)	(4)

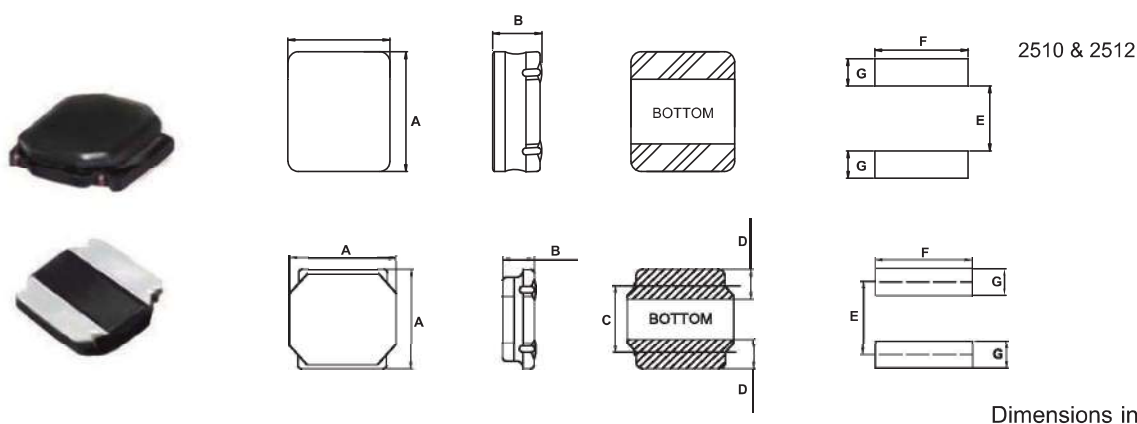
(1) Type

(2) Dimensions

(3) Inductance value

(4) Inductance tolerance

Shapes and Dimensions



Dimensions in mm

TYPE	A	B	C	D	E	F	G
TNR2512	2.5±0.2	1.2max				2.1	0.85
TNR3010	3.0±0.1	1.0max	1.9±0.2	0.9±0.2	2.2	2.7	0.8
TNR3015	3.0±0.1	1.5max	1.9±0.2	0.9±0.2	2.2	2.7	0.8
TNR4018	4.0±0.2	1.8max	2.5±0.2	1.1±0.2	2.8	3.7	1.2
TNR5020	5.0±0.2	2.0max	3.5±0.2	1.5±0.2	3.8	4.7	1.6
TNR6045	6.0±0.2	4.5max	4.0±0.2	1.35±0.2	4.7	5.7	1.6

SMD Power Inductors

TNR Series

Electrical Characteristics

TNR 2512

Part Number	Inductance L (μ H)	Tolerance	Rated Current ※ (A)		DC Resistance (Ω) $\pm$ 30%
			Saaturation current	Temperature current	
			Idc1	Idc2	
TNR2512-R47 □	0.47	N	2.75	2.700	0.047
TNR2512-1R0 □	1.0	N	2.20	2.150	0.073
TNR2512-1R5 □	1.5	N	1.80	1.650	0.105
TNR2512-2R2 □	2.2	N	1.55	1.550	0.129
TNR2512-3R3 □	3.3	N	1.25	1.150	0.227
TNR2512-4R7 □	4.7	M	1.05	1.080	0.338
TNR2512-6R8 □	6.8	M	0.85	0.780	0.510
TNR2512-100 □	10	M	0.73	0.720	0.630

Electrical Characteristics

TNR 3010

Part Number	Inductance L (μ H)	Tolerance	Rated Current ※ (A)		DC Resistance (Ω) $\pm$ 20%
			Saaturation current	Temperature current	
			Idc1	Idc2	
TNR3010-1R0 □	1.0	N	1.300	1.400	0.065
TNR3010-1R5 □	1.5	N	1.200	1.300	0.080
TNR3010-2R2 □	2.2	N	1.100	1.100	0.095
TNR3010-3R3 □	3.3	N	0.870	0.940	0.140
TNR3010-4R7 □	4.7	N	0.750	0.780	0.190
TNR3010-6R8 □	6.8	N	0.610	0.630	0.300
TNR3010-100 □	10	M	0.500	0.510	0.450
TNR3010-150 □	15	M	0.400	0.400	0.740
TNR3010-220 □	22	M	0.350	0.350	1.030
TNR3010-330 □	33	M	0.260	0.275	1.550
TNR3010-470 □	47	M	0.220	0.235	2.050

Electrical Characteristics

TNR 3015

Part Number	Inductance L (μ H)	Tolerance	Rated Current ※ (A)		DC Resistance (Ω) $\pm$ 20%
			Saaturation current	Temperature current	
			Idc1	Idc2	
TNR3015-1R0 □	1.0	N	2.100	2.100	0.030
TNR3015-1R5 □	1.5	N	1.800	1.820	0.040
TNR3015-2R2 □	2.2	N	1.480	1.500	0.060
TNR3015-3R3 □	3.3	N	1.210	1.230	0.080
TNR3015-4R7 □	4.7	N	1.020	1.040	0.120
TNR3015-6R8 □	6.8	N	0.870	0.880	0.160
TNR3015-100 □	10	M	0.700	0.710	0.230
TNR3015-150 □	15	M	0.560	0.560	0.360
TNR3015-220 □	22	M	0.470	0.470	0.520
TNR3015-330 □	33	M	0.390	0.370	0.840
TNR3015-470 □	47	M	0.320	0.300	1.340

□ Tolerance : M = $\pm$ 20%, N = $\pm$ 30%

SMD Power Inductors

TNR Series

Electrical Characteristics

TNR 4018

Part Number	Inductance L (μH)	Tolerance	Rated Current ※ (A)		DC Resistance (Ω)±20%
			Sauration current	Temperature current	
			Idc1	Idc2	
TNR4018-1R0 □	1.0	N	4.000	1.830	0.030
TNR4018-2R2 □	2.2	N	2.700	1.440	0.060
TNR4018-3R3 □	3.3	N	2.000	1.230	0.070
TNR4018-4R7 □	4.7	N	1.700	1.200	0.090
TNR4018-6R8 □	6.8	N	1.450	1.060	0.110
TNR4018-100 □	10	M	1.200	0.840	0.180
TNR4018-150 □	15	M	0.940	0.650	0.250
TNR4018-220 □	22	M	0.800	0.590	0.360
TNR4018-330 □	33	M	0.650	0.490	0.530
TNR4018-470 □	47	M	0.570	0.420	0.650
TNR4018-680 □	68	M	0.470	0.320	1.000
TNR4018-101 □	100	M	0.400	0.270	1.500
TNR4018-151 □	150	M	0.310	0.220	2.500
TNR4018-221 □	220	M	0.270	0.170	4.000

Electrical Characteristics

TNR 5020

Part Number	Inductance L (μH)	Tolerance	Rated Current ※ (A)		DC Resistance (Ω)±20%
			Sauration current	Temperature current	
			Idc1	Idc2	
TNR5020-1R5 □	1.5	N	3.350	3.200	0.026
TNR5020-2R2 □	2.2	N	2.900	2.900	0.035
TNR5020-3R0 □	3.3	N	2.400	2.400	0.048
TNR5020-4R7 □	4.7	N	2.000	2.000	0.060
TNR5020-6R0 □	6.8	N	1.600	1.650	0.090
TNR5020-100 □	10	N	1.300	1.450	0.120
TNR5020-150 □	15	M	1.100	1.200	0.165
TNR5020-220 □	22	M	0.900	1.000	0.260

□ Tolerance : M = ±20%, N = ±30%

SMD Common Mode Chock Coils

TLM Series

Features

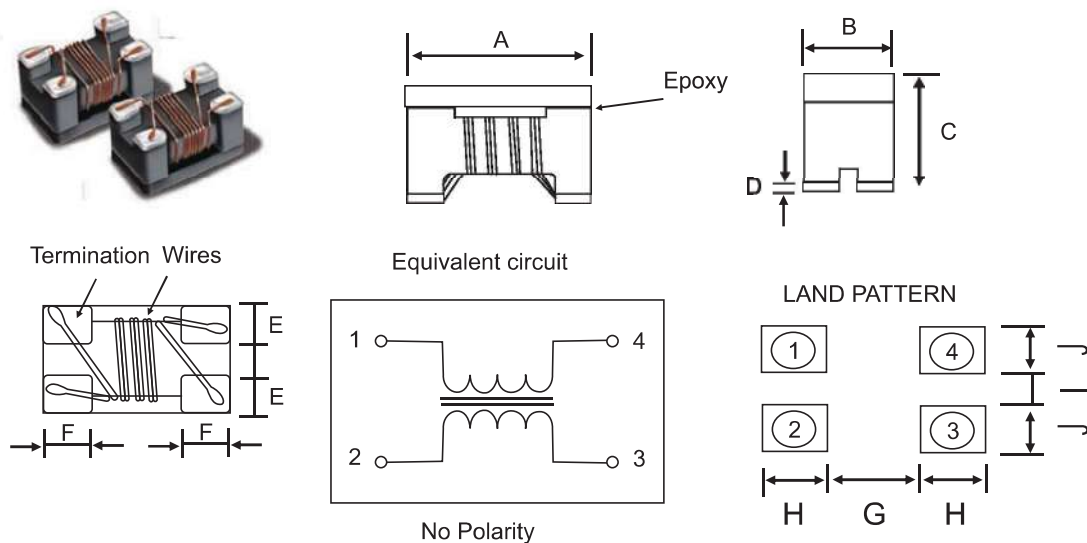
This filter is characterized by small size. Highly effective in noise suppression . High common mode impedance at noise band and low differential mode impedance at signal band . Due to the low differential mode impedance with high coupling factor , there is almost no distortion on high speed transmission of high resolution video signals .

Product Identifications

TLM	□□□□	□	□□□	□
(1)	(2)	(3)	(4)	(5)

- (1) Type
 (2) Dimensions
 (3) Shielding Type A : for 1GHz
 B : for 3.5GHz
 C : for HDMI 1.5Cat2/ 6G
 D : for USB3.0 /7.5G
 (4) Impedance (at 100MHz)
 900 : 90Ω
 (5) Tolerance
 S = ±25% , M = ±20% , N = ±30%

Shapes and Dimensions (unit: mm)



Dimensions (unit: mm)

TYPE	A	B	C	D	E	F	G	H	I	J
TLM1210	1.2±0.2	1.0±0.2	0.90max.	0.15max.	0.36Typ.	0.33Typ.	0.60	0.45	0.30	0.45
TLM1608	1.6±0.1	0.8±0.1	1.1±0.1	0.1±0.1	0.25Typ.	0.33Typ.	0.70	0.70	0.30	0.35
TLM2012	2.0±0.2	1.2±0.2	1.2±0.2	0.2±0.1	0.40Typ.	0.45Typ.	0.80	0.90	0.40	0.40
TLM3216	3.2±0.2	1.6±0.2	1.9±0.2	0.2±0.1	0.60Typ.	0.60Typ.	1.60	1.05	0.40	0.60

SMD Common Mode Chock Coils

TLM Series

Electrical Characteristics

TLM1210A&D Series

Part Number	Impedance (Ω) at 100MHz	DC Resistance (Ω)MAX	Rated Current (mA)MAX	Rated Voltage Vdc (V)Typical	Insulation Resistance IR (MΩ)MIN.	Cut-off Frequency (GHz)	Characteristic Resistance (Ω)
TLM1210A670 □	67	0.40	300	20	10	1.0 typ.	—
TLM1210A900 □	90	0.50	280	20	10	1.0 typ.	—
TLM1210A121 □	120	0.55	270	20	10	1.0 typ.	—
TLM1210A161 □	160	0.58	260	20	10	1.0 typ.	—
TLM1210A181 □	180	0.60	260	20	10	1.0 typ.	—
TLM1210A251 □	250	0.70	230	20	10	1.0 typ.	—
TLM1210A331 □	330	0.80	200	20	10	1.0 typ.	—
TLM1210D250 □	25	0.30	300	20	10	7.5 typ.	90 typ.
TLM1210D600 □	60	0.40	300	20	10	7.5 typ.	90 typ.
TLM1210D900 □	90	0.50	280	20	10	7.5 typ.	90 typ.

Operating temperature: -25 to +85℃

Storage temperature and humidity: -40 to +85℃ , 70%RH max.

If Use Wave soldering is there will be some risk. Re-flow soldering temperatures below 240 degrees, there will be unwitting risk.

Electrical Characteristics

TLM1608A Series

Part Number	Impedance (Ω) at 100MHz	DC Resistance (Ω)MAX	Rated Current (mA)MAX	Rated Voltage Vdc (V)Typical	Insulation Resistance IR (MΩ)MIN.	Withstanding Voltage Vdc (V)Typical
TLM1608A600 □	60	0.30	300	50	10	125
TLM1608A670 □	67	0.30	300	50	10	125
TLM1608A900 □	90	0.30	300	50	10	125
TLM1608A121 □	120	0.36	250	50	10	125
TLM1608A161 □	160	0.40	200	50	10	125
TLM1608A221 □	220	0.42	200	50	10	125

Operating temperature: -25 to +85℃

Storage temperature and humidity: -40 to +85℃ , 70%RH max.

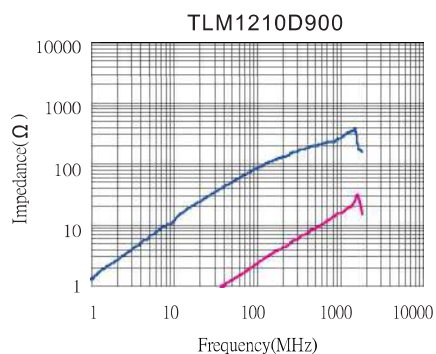
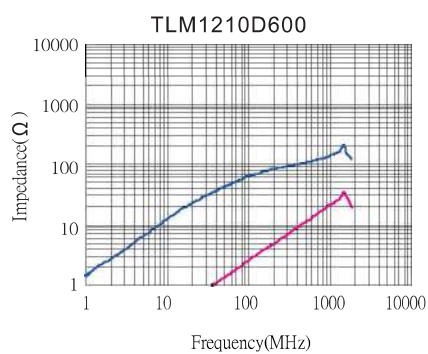
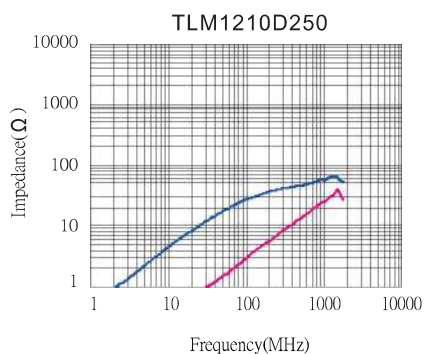
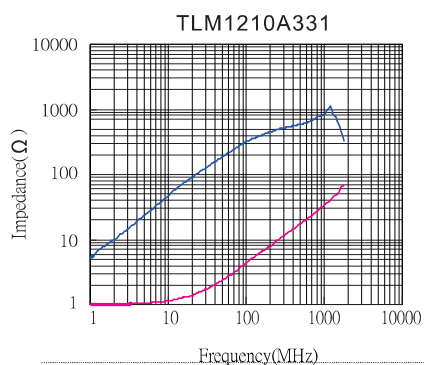
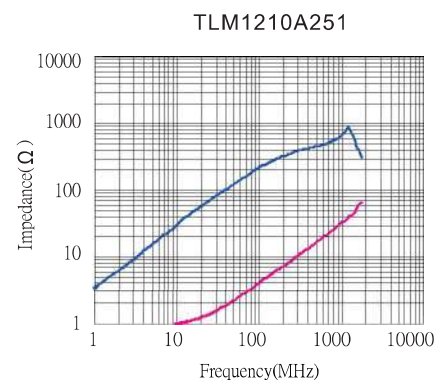
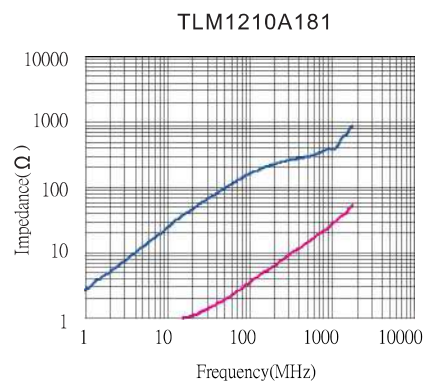
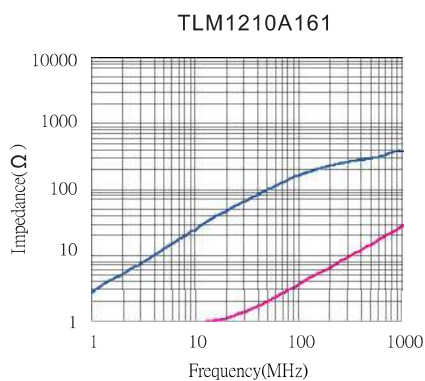
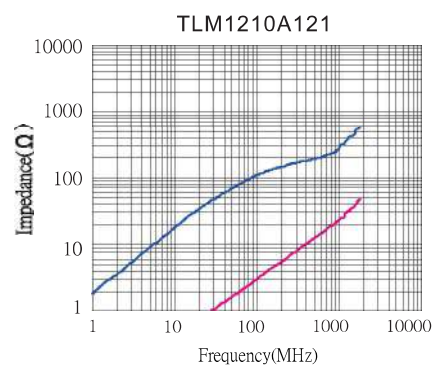
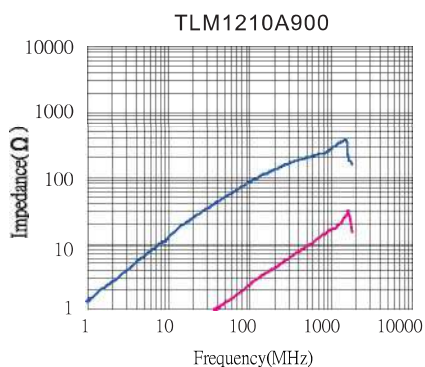
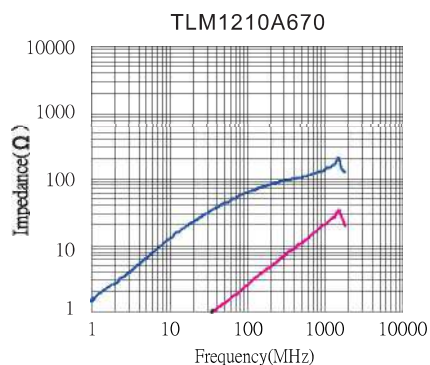
If Use Wave soldering is there will be some risk. Re-flow soldering temperatures below 240 degrees, there will be unwitting risk.

SMD Common Mode Chock Coils

TLM Series

Electrical Characteristics

TLM1210A&D Series

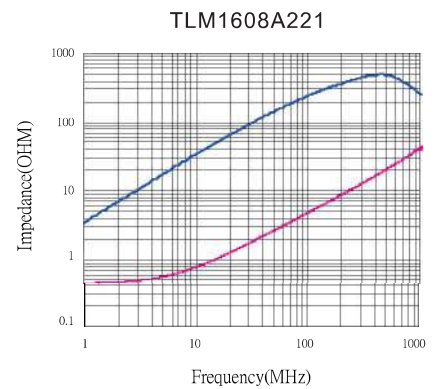
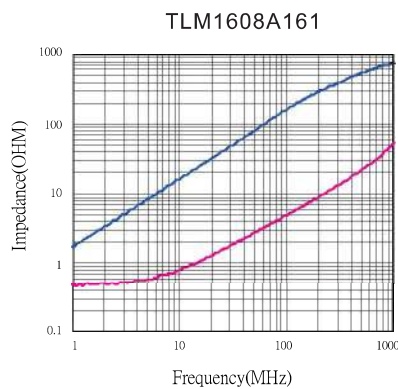
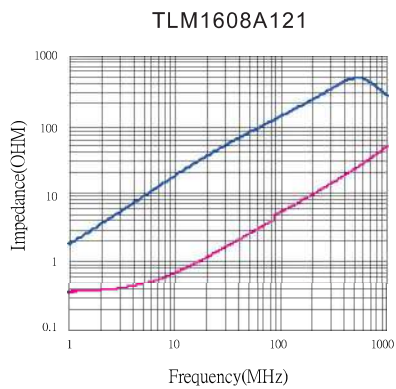
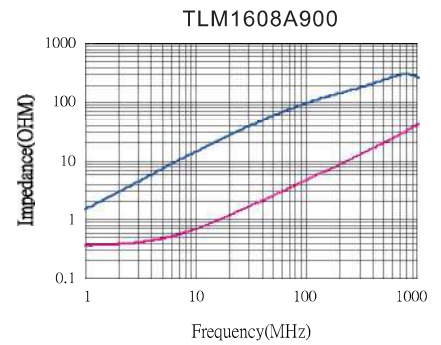
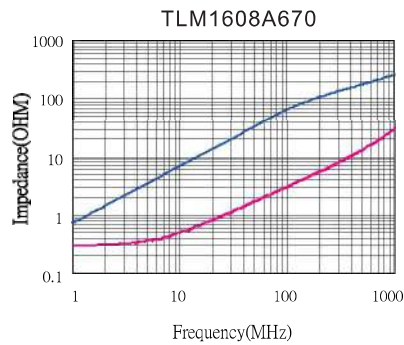
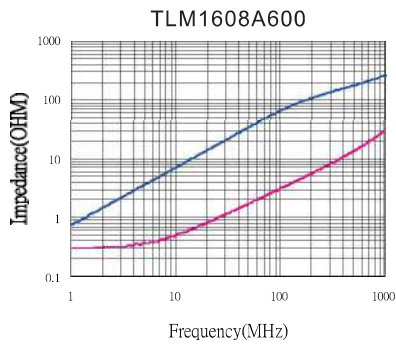


SMD Common Mode Chock Coils

TLM Series

Electrical Characteristics

TLM1608A Series



SMD Common Mode Chock Coils

TLM Series

Electrical Characteristics

TLM2012A Series

Part Number	Impedance (Ω) at 100MHz	DC Resistance (Ω)MAX	Rated Current (mA)MAX	Rated Voltage Vdc (V)Typical	Insulation Resistance IR (MΩ)MIN.	Withstanding Voltage Vdc (V)Typical
TLM2012A670 □	67	0.25	400	50	10	125
TLM2012A900 □	90	0.30	400	50	10	125
TLM2012A121 □	120	0.30	350	50	10	125
TLM2012A161 □	160	0.30	350	50	10	125
TLM2012A181 □	180	0.35	330	50	10	125
TLM2012A221 □	220	0.35	330	50	10	125
TLM2012A261 □	260	0.40	300	50	10	125
TLM2012A361 □	360	0.40	280	50	10	125

Operating temperature: -25 to +85°C

Storage temperature and humidity: -40 to +85°C , 70%RH max.

If Use Wave soldering is there will degbe some risk. Re-flow soldering temperatures below 240 degrees, there will be unwitting risk.

Electrical Characteristics

TLM2012B,C&D Series

Part Number	Impedance (Ω) at 100MHz	DC Resistance (Ω)MAX	Rated Current (mA)MAX	Rated Voltage Vdc (V)Typical	Insulation Resistance IR (MΩ)MIN.	Cut-off Frequency (Ghz)	Characteristic Resistance (Ω)
TLM2012B900 □	90	0.30	300	20	10	3.5 typ.	100 typ.
TLM2012C240 □	24	0.20	300	20	10	6.0 typ.	100 typ.
TLM2012C300 □	30	0.20	300	20	10	6.0 typ.	100 typ.
TLM2012C600 □	60	0.30	300	20	10	6.0 typ.	100 typ.
TLM2012C900 □	90	0.30	300	20	10	6.0 typ.	100 typ.
TLM2012D120 N	12	0.25	420	20	10	1.0 typ.	100 typ.
TLM2012D240 □	24	0.25	420	20	10	7.5 typ.	100 typ.
TLM2012D250 □	25	0.22	420	20	10	7.5 typ.	100 typ.
TLM2012D320 □	32	0.25	400	20	10	7.5 typ.	100 typ.
TLM2012D600 □	60	0.30	300	20	10	7.5 typ.	100 typ.
TLM2012D900 □	90	0.30	300	20	10	7.5 typ.	100 typ.

Operating temperature: -25 to +85°C

Storage temperature and humidity: -40 to +85°C , 70%RH max.

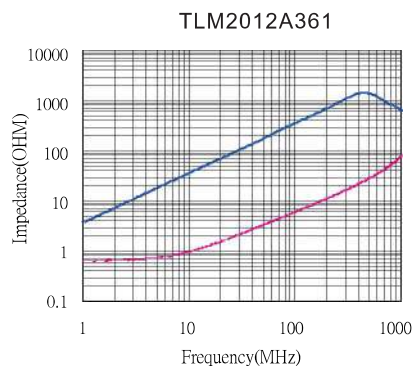
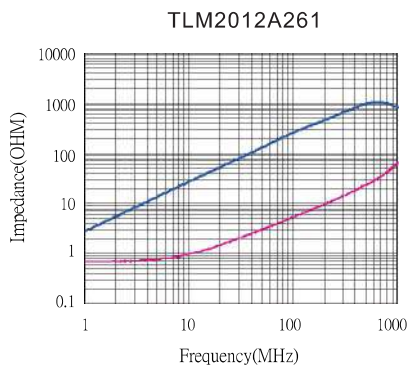
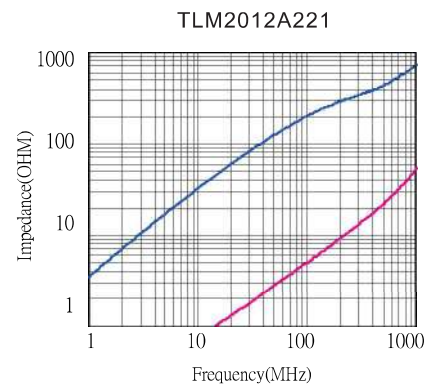
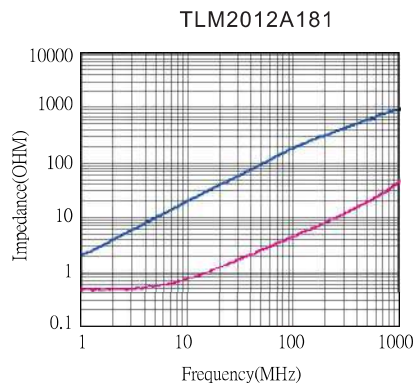
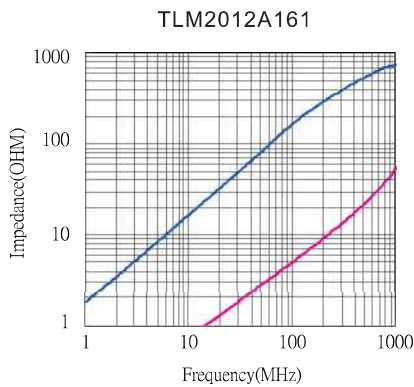
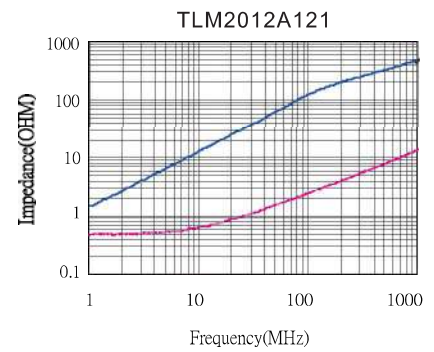
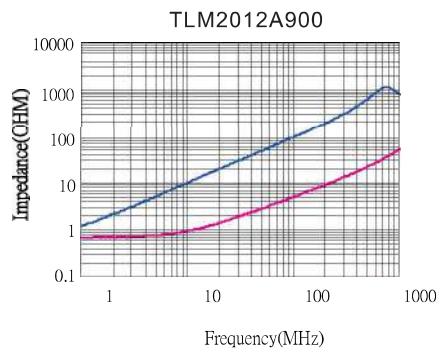
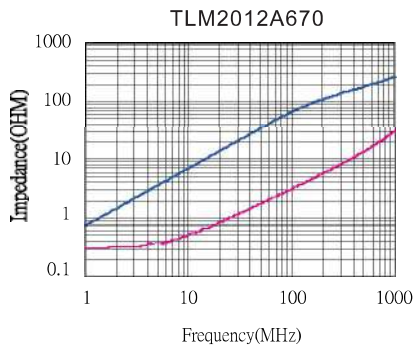
If Use Wave soldering is there will be some risk. Re-flow soldering temperatures below 240 degrees, there will be unwitting risk.

SMD Common Mode Chock Coils

TLM Series

Electrical Characteristics

TLM2012A Series

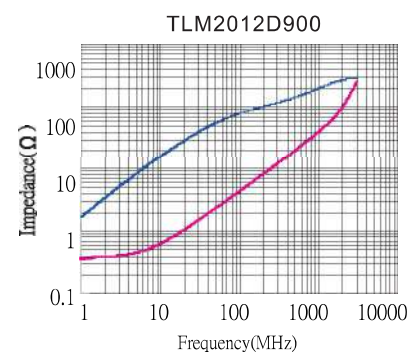
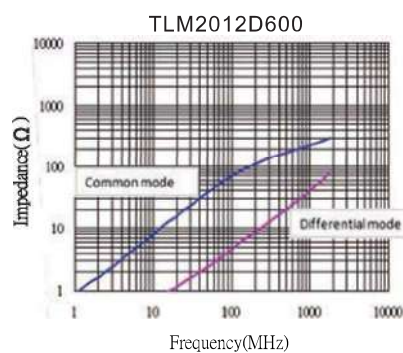
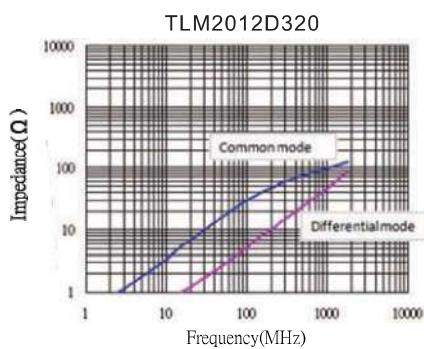
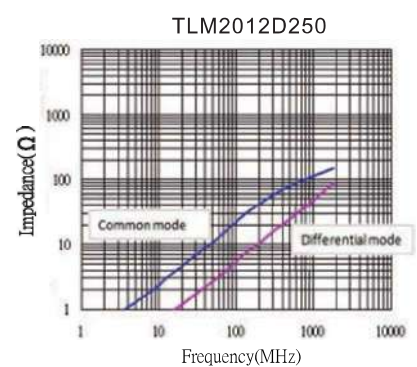
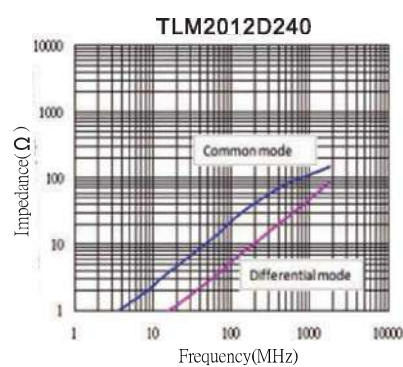
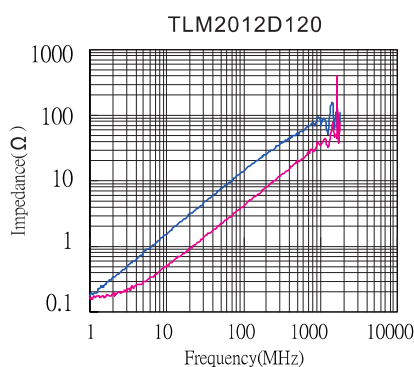
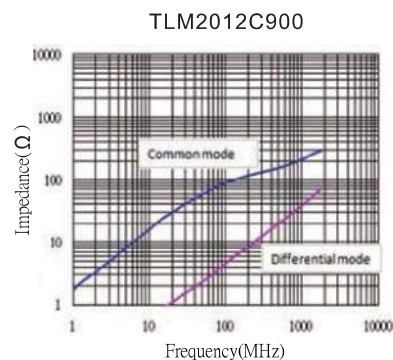
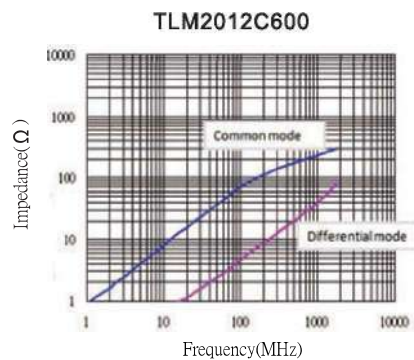
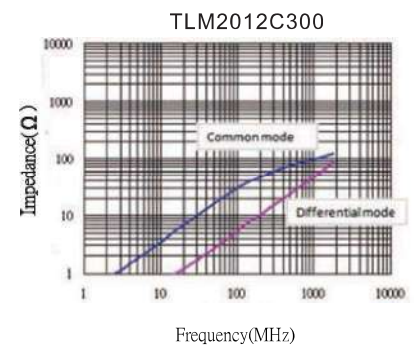
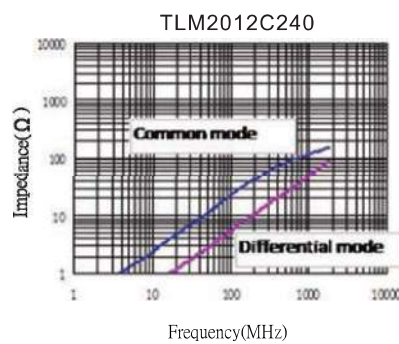
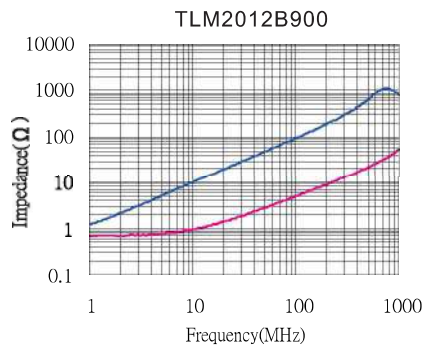


SMD Common Mode Chock Coils

TLM Series

Electrical Characteristics

TLM2012B,C&D Series



SMD Common Mode Chock Coils

TLM Series

Electrical Characteristics

TLM3216A Series

Part Number	Impedance (Ω) at 100MHz	DC Resistance (Ω)MAX	Rated Current (mA)MAX	Rated Voltage Vdc (V)Typical	Insulation Resistance IR (MΩ)MIN.	Withstanding Voltage Vdc (V)Typical
TLM3216A670 □	67	0.25	400	50	10	125
TLM3216A900 □	90	0.30	400	50	10	125
TLM3216A121 □	120	0.35	370	50	10	125
TLM3216A161 □	160	0.40	340	50	10	125
TLM3216A181 □	180	0.40	340	50	10	125
TLM3216A261 □	260	0.50	310	50	10	125
TLM3216A361 □	360	0.60	290	50	10	125
TLM3216A601 □	600	0.80	260	50	10	125
TLM3216A102 □	1000	1.00	230	50	10	125
TLM3216A222 □	2200	1.20	200	50	10	125

Operating temperature: -25 to +85°C

Storage temperature and humidity: -40 to +85°C , 70%RH max.

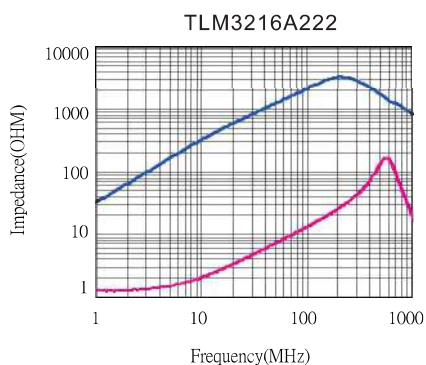
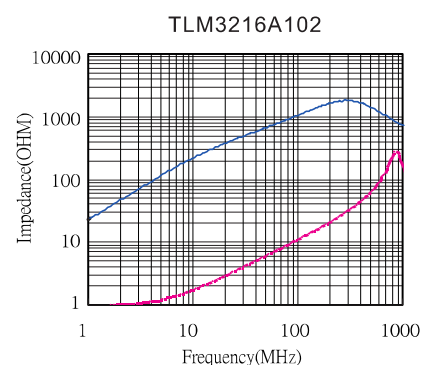
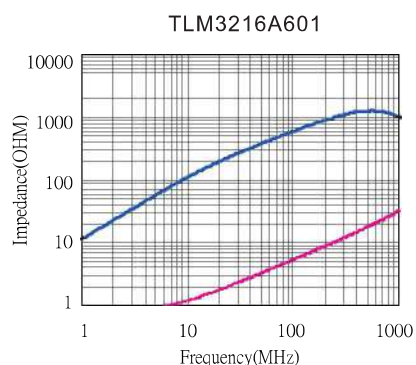
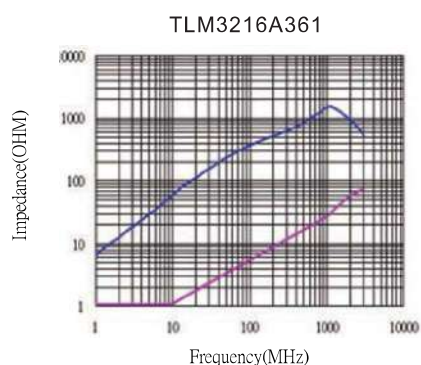
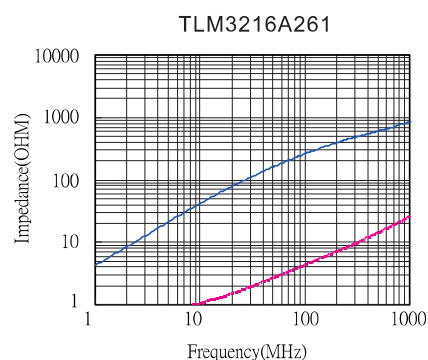
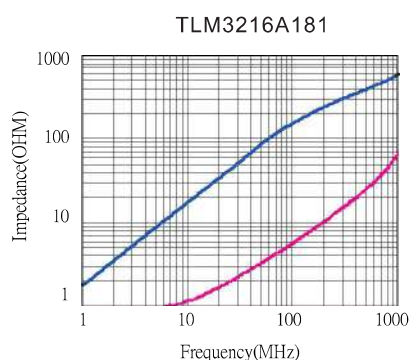
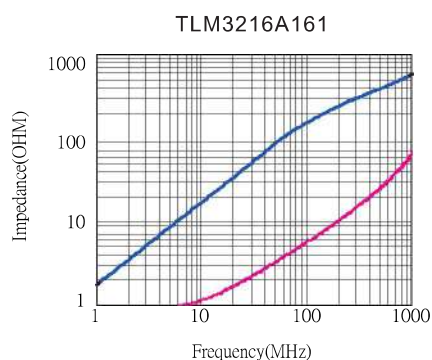
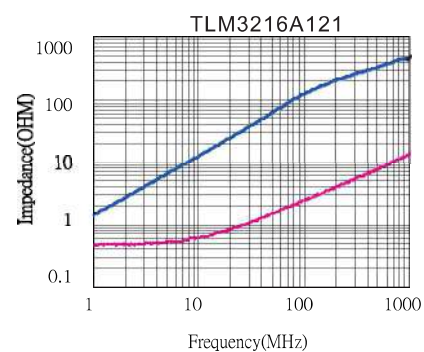
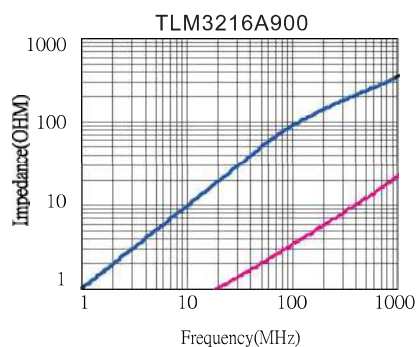
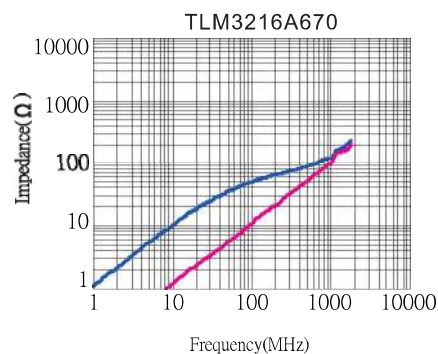
If Use Wave soldering is there will be some risk. Re-flow soldering temperatures below 240 degrees, there will be unwitting risk.

SMD Common Mode Chock Coils

TLM Series

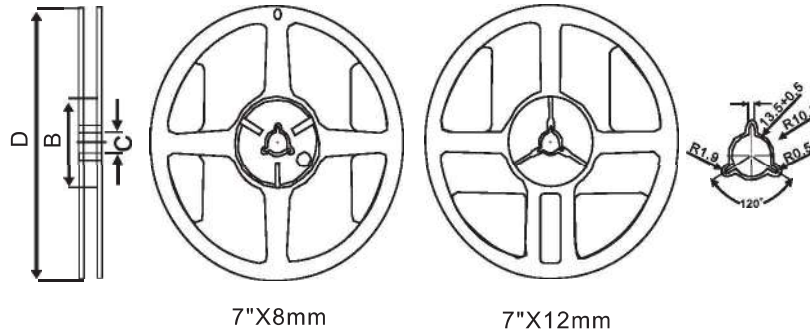
Electrical Characteristics

TLM3216A Series



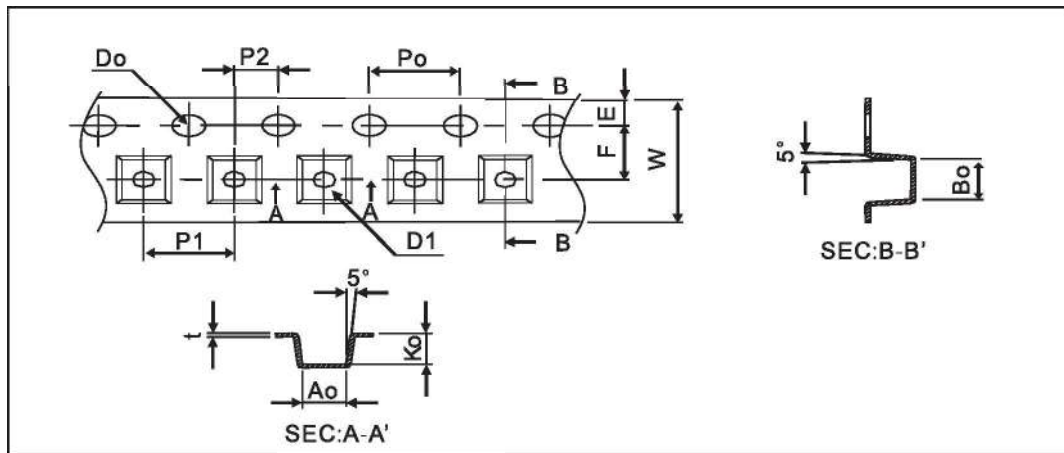
PACKING FOR SMD

Reel Dimension



Type	A(mm)	B(mm)	C(mm)	D(mm)
7" x 8mm	9.0±0.50	60±2.0	13.5±0.50	178±2.0
7" x 12mm	13.5±0.50	60±2.0	13.5±0.50	178±2.0

Tape Dimension



Size	A0(mm)	B0(mm)	K0(mm)	W(mm)	E (mm)	F (mm)	P0(mm)	P1(mm)	D0(mm)
1210	1.15±0.10	1.40±0.10	0.93±0.10	8.00±0.20	1.75±0.10	3.50±0.05	4.0±0.05	4.0±0.10	1.5+0.1,-0
1608	1.00±0.10	1.65±0.10	1.18±0.10	8.00±0.20	1.75±0.10	3.50±0.05	4.0±0.05	4.0±0.10	1.5+0.1,-0
2012	1.50±0.10	2.35±0.10	1.45±0.10	8.00±0.20	1.75±0.10	3.50±0.05	4.0±0.05	4.0±0.10	1.5+0.1,-0
3216	1.88±0.10	3.50±0.10	2.10±0.10	8.00±0.20	1.75±0.10	3.50±0.05	4.0±0.05	4.0±0.10	1.5+0.1,-0

Tape Dimension

Chip Size	1210	1608	2012	3216
φ8mm/Reel/Pcs	3,000	2,000	2,000	2,000

Wound Chip Beads and Inductors

SA Series

Features

- Use flat wire in it and could endure higher current (5 Amps). It is mounted in the boards with surface mounting equipment.

Applications

- Computer products. (Mother board, Hard Disk, TV card, Etc.)
- Communication products. (Cordless Phone, Etc.)
- Modem, OA products, power supplier, Etc.
- Countermeasures for complying with CE, FCC VDE or VCCI radiated emissions.

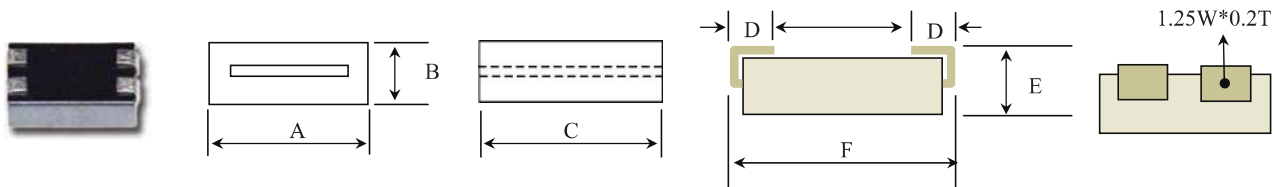
Product Identificationses

SA	□□□□□□
(1)	(2)

(1) Product Symbol

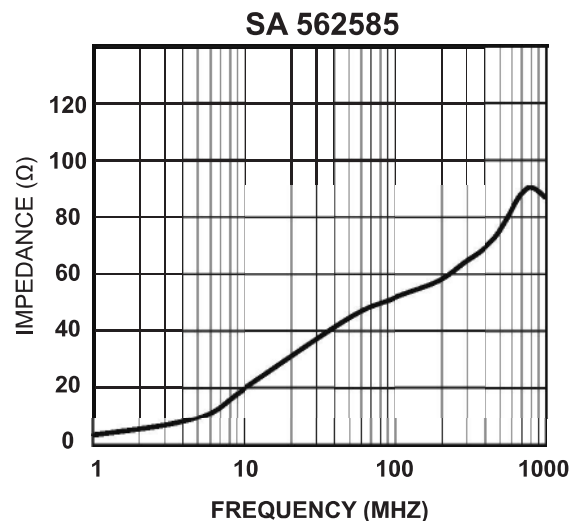
(2) Dimensions: Length (A) x Thickness (C) x Width (B)

Shapes and Dimensions



Dimensions in mm

TYPE	A	B	C	D	E	F	25MHz	100MHz
SA 562585	5.6±0.4	2.5±0.3	8.5±0.4	1.5±0.5	3.2±0	8.9±0.4	30Ω	60Ω



Wound Chip Beads and Inductors

SB Series

Features

- Use flat wire in it and could endure higher current (5 Amps). It is mounted in the boards with surface mounting equipment.

Applications

- Computer products. (Motherboard, Hard Disk, TV card, Etc.)
- Communication products. (Cordless Phone, Etc.)
- Modem, OA products, power supplier, Etc.
- Countermeasures for complying with CE, FCC VDE or VCCI radiated emissions.

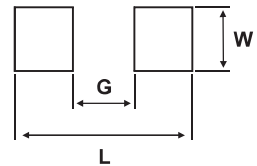
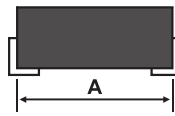
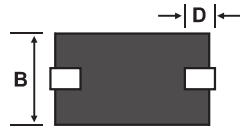
Product Identifications

SB □□□□□□
(1) (2)

(1) Product Symbol

(2) Dimensions: Length (A) x Width (B) x Thickness (C)

Shapes and Dimensions

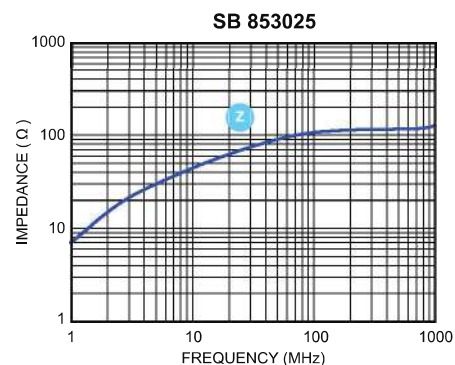
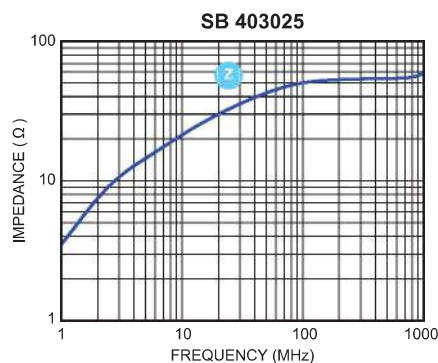


Dimensions in mm

TYPE	A	B	C	D	L	W	G
SB 403025	4.0±0.15	3.1±0.10	2.60±0.10	1.35±0.20	7.00	1.80	2.00
SB 853025	8.5±0.15	3.1±0.10	2.60±0.10	2.00±0.20	10.50	1.80	4.50

Electrical Characteristics

TYPE	Impedance (Ω) At 25MHz	Impedance (Ω) At 100MHz	DC Resistance (mΩ)	Rated Current (mA) MAX.
SB 403025	30±20%	47±20%	6 MAX.	5000
SB 853025	60±20%	90±20%	9 MAX.	5000



Wire Wound Chip Inductors

SW Series

Features

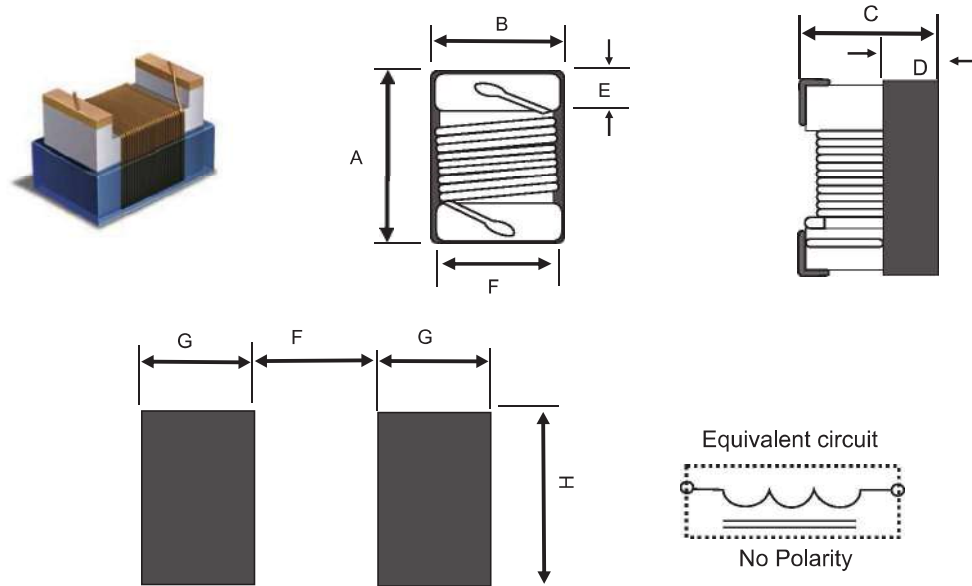
This SW series are wire wound chip inductors widely used in the communication applications such as cellular phones , cable modem, ADSL, repeaters, Bluetooth, and other electronic devices. It is advance in higher self resonate frequency, better Q factor , and much more stable performance.

Product Identifications

SW □□□□ - □□□ □
(1) (2) (3) (4)

- (1) Product Symbol
(2) Dimensions : in (inch)
(3) Inductances
(4) Tolerance: G:±2%, H:±3%, J:±5% , K:±10%

Shapes and Dimensions (unit: mm)



Unit: mm

TYPE	A	B	C	D	E	F	G	H
SW0402	1.19 max.	0.66 max.	0.64 max.	0.23 ref.	0.20±0.10	0.46	0.36	0.66
SW0603	1.80 max.	1.20 max.	1.10 max.	0.45 ref.	0.33±0.10	0.64	0.64	1.02

Wire Wound Chip Inductors

SW Series

Electrical Characteristics

SW0402

Part Number	Inductance (nH)	Inductance Tolerance	Test Frequency (MHz)	Q Min.	SRF(GHz) Min.	DC Resistance (Ω) Max.	Rated Current (mA) Max.
SW0402-1N0 □	1.0	J , K	250	16	12.70	0.045	1360
SW0402-1N2 □	1.2	J , K	250	16	12.90	0.090	740
SW0402-1N8 □	1.8	J , K	250	16	12.00	0.070	1040
SW0402-1N9 □	1.9	J , K	250	16	11.30	0.070	1040
SW0402-2N0 □	2.0	H , J , K	250	16	11.10	0.070	1040
SW0402-2N2 □	2.2	H , J , K	250	19	10.80	0.070	960
SW0402-2N4 □	2.4	H , J , K	250	15	10.50	0.068	790
SW0402-2N7 □	2.7	H , J , K	250	16	10.40	0.120	640
SW0402-3N3 □	3.3	H , J , K	250	19	7.00	0.066	840
SW0402-3N6 □	3.6	H , J , K	250	19	6.80	0.066	840
SW0402-3N9 □	3.9	H , J , K	250	19	6.00	0.066	840
SW0402-4N3 □	4.3	H , J , K	250	18	6.00	0.091	700
SW0402-4N7 □	4.7	H , J , K	250	15	4.77	0.130	640
SW0402-5N1 □	5.1	G , J , K	250	20	4.80	0.083	800
SW0402-5N6 □	5.6	G , J , K	250	20	4.80	0.083	760
SW0402-6N2 □	6.2	G , J , K	250	20	4.80	0.083	760
SW0402-6N8 □	6.8	G , J , K	250	20	4.80	0.083	680
SW0402-7N3 □	7.3	G , J , K	250	20	4.80	0.260	680
SW0402-7N5 □	7.5	G , J , K	250	22	4.80	0.100	680
SW0402-8N2 □	8.2	G , J , K	250	22	4.40	0.100	680
SW0402-8N7 □	8.7	G , J , K	250	18	4.10	0.200	480
SW0402-9N0 □	9.0	G , J , K	250	22	4.16	0.100	680
SW0402-9N1 □	9.1	G , J , K	250	22	4.16	0.100	680
SW0402-9N5 □	9.5	G , J , K	250	18	4.00	0.200	480
SW0402-10N □	10	G , J , K	250	21	3.90	0.200	480
SW0402-11N □	11	G , J , K	250	24	3.68	0.120	640
SW0402-12N □	12	G , J , K	250	24	3.60	0.120	640
SW0402-13N □	13	G , J , K	250	24	3.45	0.210	440
SW0402-15N □	15	G , J , K	250	24	3.28	0.170	560
SW0402-16N □	16	G , J , K	250	24	3.10	0.220	560

Wire Wound Chip Inductors

SW Series

Electrical Characteristics

SW0402

Part Number	Inductance (nH)	Inductance Tolerance	Test Frequency (MHz)	Q Min.	SRF(GHz) Min.	DC Resistance (Ω) Max.	Rated Current (mA) Max.
SW0402-18N □	18	G, J, K	250	25	3.10	0.230	420
SW0402-19N □	19	G, J, K	250	24	3.04	0.200	480
SW0402-20N □	20	G, J, K	250	25	3.00	0.250	420
SW0402-22N □	22	G, J, K	250	25	2.80	0.300	400
SW0402-23N □	23	G, J, K	250	22	2.72	0.300	400
SW0402-24N □	24	G, J, K	250	25	2.70	0.300	400
SW0402-27N □	27	G, J, K	250	24	2.48	0.300	400
SW0402-30N □	30	G, J, K	250	25	2.35	0.300	400
SW0402-33N □	33	G, J, K	250	24	2.35	0.440	400
SW0402-36N □	36	G, J, K	250	24	2.32	0.440	320
SW0402-39N □	39	G, J, K	250	25	2.10	0.550	200
SW0402-40N □	40	G, J, K	250	24	2.24	0.440	320
SW0402-43N □	43	G, J, K	250	25	2.03	0.810	100
SW0402-47N □	47	G, J, K	250	30	2.10	0.830	150
SW0402-51N □	51	G, J, K	250	25	1.75	0.820	100
SW0402-56N □	56	G, J, K	250	22	1.76	0.970	100
SW0402-68N □	68	G, J, K	250	22	1.62	1.120	100
SW0402-82N □	82	G, J, K	250	20	1.26	1.550	50
SW0402-R10 □	100	G, J, K	250	20	1.16	2.000	30
SW0402-R12 □	120	G, J, K	250	20	1.90	2.200	50

1. Tolerance : G = $\pm 2\%$, H = $\pm 3\%$ J = $\pm 5\%$, K = $\pm 10\%$
2. Operating temperature range from -25°C to 105°C.
3. Temperature Rise : Below 15°C at Rated Current

Wire Wound Chip Inductors

SW Series

Electrical Characteristics

SW0603

Part Number	Inductance (nH)	Inductance Tolerance	Test Frequency (MHz)	Q Min.	SRF(MHz) Min.	DC Resistance (Ω) Max.	Rated Current (mA) Max.
SW0603-1N6 □	1.6	J, K	250	24	12500	0.030	700
SW0603-1N8 □	1.8	J, K	250	16	12500	0.045	700
SW0603-1N9 □	1.9	J, K	250	13	12500	0.060	700
SW0603-2N0 □	2.0	J, K	250	13	12500	0.080	700
SW0603-2N2 □	2.2	J, K	250	13	12500	0.150	700
SW0603-3N3 □	3.3	J, K	250	30	5900	0.045	700
SW0603-3N6 □	3.6	J, K	250	22	5900	0.063	700
SW0603-3N9 □	3.9	J, K	250	22	6900	0.080	700
SW0603-4N1 □	4.1	J, K	250	22	6000	0.063	700
SW0603-4N3 □	4.3	J, K	250	22	5900	0.063	700
SW0603-4N7 □	4.7	J, K	250	20	5800	0.085	700
SW0603-5N1 □	5.1	J, K	250	20	5700	0.115	700
SW0603-5N6 □	5.6	J, K	250	20	5800	0.160	700
SW0603-6N0 □	6.0	J, K	250	20	5700	0.115	700
SW0603-6N2 □	6.2	J, K	250	26	5700	0.115	700
SW0603-6N3 □	6.3	J, K	250	26	5700	0.115	700
SW0603-6N8 □	6.8	G, J, K	250	27	2800	0.125	700
SW0603-7N5 □	7.5	G, J, K	250	28	4800	0.115	700
SW0603-8N2 □	8.2	J, K	250	30	4700	0.125	700
SW0603-8N7 □	8.7	J, K	250	28	4600	0.109	700
SW0603-9N1 □	9.1	J, K	250	28	4600	0.120	700
SW0603-9N5 □	9.5	G, J, K	250	28	5400	0.145	700
SW0603-10N □	10	G, J, K	250	31	4800	0.145	700
SW0603-11N □	11	G, J, K	250	30	4000	0.145	700
SW0603-12N □	12	G, J, K	250	35	4000	0.130	700
SW0603-13N □	13	G, J, K	250	30	4000	0.130	700
SW0603-15N □	15	G, J, K	250	35	4000	0.170	700
SW0603-16N □	16	G, J, K	250	34	3300	0.170	700
SW0603-18N □	18	G, J, K	250	35	3100	0.180	700
SW0603-19N □	19	G, J, K	250	35	3000	0.190	700

Wire Wound Chip Inductors

SW Series

Electrical Characteristics

SW0603

Part Number	Inductance (nH)	Inductance Tolerance	Test Frequency (MHz)	Q Min.	SRF(MHz) Min.	DC Resistance (Ω) Max.	Rated Current (mA) Max.
SW0603-20N □	20	G, J, K	250	38	3000	0.180	700
SW0603-22N □	22	G, J, K	250	38	3000	0.190	700
SW0603-23N □	23	G, J, K	250	38	2850	0.205	700
SW0603-24N □	24	G, J, K	250	36	2650	0.205	700
SW0603-25N □	25	G, J, K	250	38	2800	0.210	600
SW0603-27N □	27	G, J, K	250	40	2800	0.220	600
SW0603-30N □	30	G, J, K	250	37	2250	0.220	600
SW0603-33N □	33	G, J, K	250	40	2300	0.220	600
SW0603-36N □	36	G, J, K	250	37	2080	0.250	600
SW0603-39N □	39	G, J, K	250	40	2200	0.260	600
SW0603-43N □	43	G, J, K	250	38	2000	0.280	600
SW0603-47N □	47	G, J, K	200	38	2000	0.280	600
SW0603-51N □	51	G, J, K	200	38	2130	0.300	600
SW0603-56N □	56	G, J, K	200	38	1900	0.310	600
SW0603-62N □	62	G, J, K	200	37	1800	0.330	600
SW0603-68N □	68	G, J, K	200	37	1700	0.340	600
SW0603-72N □	72	G, J, K	150	34	1700	0.490	400
SW0603-75N □	75	G, J, K	150	34	1700	0.430	1000
SW0603-79N □	79	G, J, K	150	34	1700	0.500	400
SW0603-82N □	82	G, J, K	150	34	1700	0.540	400
SW0603-85N □	85	G, J, K	150	34	1600	0.550	400
SW0603-91N □	91	G, J, K	150	34	1500	0.560	400
SW0603-R10 □	100	G, J, K	150	34	1400	0.580	400
SW0603-R11 □	110	G, J, K	150	32	1350	0.610	300
SW0603-R12 □	120	G, J, K	150	32	1300	0.650	300
SW0603-R13 □	130	G, J, K	150	32	1200	0.750	280
SW0603-R14 □	140	G, J, K	150	30	1000	0.900	280
SW0603-R15 □	150	G, J, K	150	28	990	0.920	280
SW0603-R16 □	160	G, J, K	150	28	990	1.050	260
SW0603-R17 □	170	G, J, K	100	25	990	1.150	240

Wire Wound Chip Inductors

SW Series

Electrical Characteristics

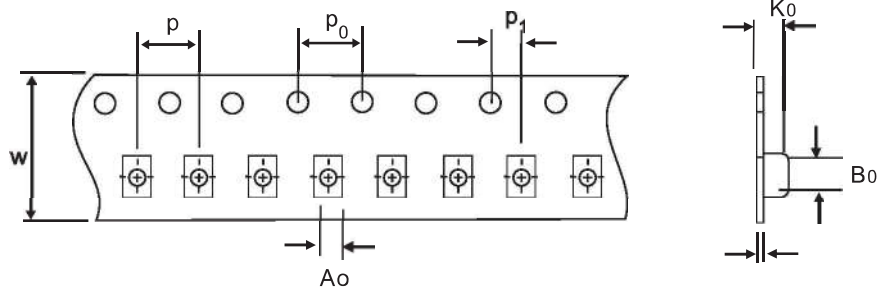
SW0603

Part Number	Inductance (nH)	Inductance Tolerance	Test Frequency (MHz)	Q Min.	SRF(MHz) Min.	DC Resistance (Ω) Max.	Rated Current (mA) Max.
SW0603-R18 □	180	G , J , K	100	25	990	1.250	240
SW0603-R19 □	190	G , J , K	100	25	990	1.350	200
SW0603-R20 □	200	G , J , K	100	25	990	1.500	200
SW0603-R22 □	220	G , J , K	100	25	900	1.600	250
SW0603-R24 □	240	G , J , K	100	25	900	1.900	200
SW0603-R25 □	250	G , J , K	100	25	900	2.340	250
SW0603-R27 □	270	G , J , K	100	24	900	2.000	170
SW0603-R30 □	300	G , J , K	100	25	900	2.700	150
SW0603-R33 □	330	G , J , K	100	25	900	2.750	100
SW0603-R34 □	340	G , J , K	100	25	900	2.900	100
SW0603-R36 □	360	G , J , K	100	25	900	3.070	100
SW0603-R37 □	370	G , J , K	100	25	900	3.100	100
SW0603-R39 □	390	G , J , K	100	25	900	3.150	100
SW0603-R47 □	470	G , J , K	100	25	750	4.000	80

1. Tolerance : G = $\pm 2\%$, J = $\pm 5\%$, K = $\pm 10\%$
2. L , Q , SRF : Agilent/HP E4991A+Agilent/HP16197A
(The electrical specification test by the smallest gap position) or HP16193A
3. Rdc : DIGITAL MILLIOHM METER Chroma 16502, or equivalent.
4. Irms for a 15°C rise above 25°C ambient .
5. Operating temperature range from -40°C to 125°C

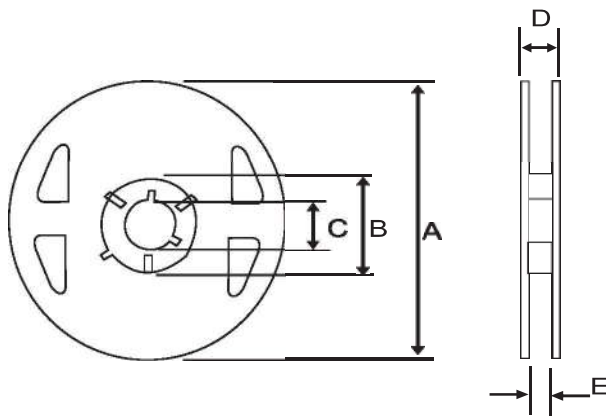
Wire Wound Chip Inductors SW Series

Tape dimensions

(Dimensions in mm ; Tolerance : ± 1)

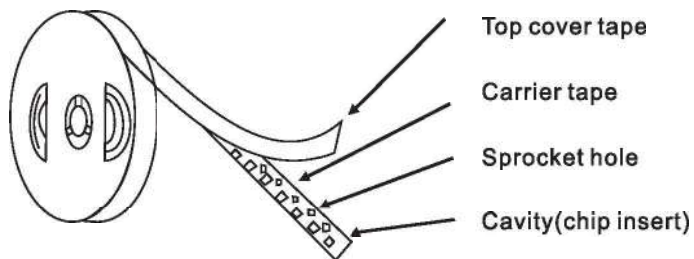
Size	W	P	P ₀	P ₁	A ₀	B ₀	K ₀	t
SW0402	8 $\pm$ 0.2	2.0 $\pm$ 0.1	4.0 $\pm$ 0.1	2.0 $\pm$ 0.1	0.7 $\pm$ 0.1	1.2 $\pm$ 0.1	0.62 $\pm$ 0.05	0.68 $\pm$ 0.03
SW0603	8	4	4	2	1.20	1.90	1.0	0.22

Reel dimensions



Symbol	T
A	180
B	60
C	13
D	14.4
E	8.4

Tapping figure



Packaging Quantity

Chip Size	SW0402	SW0603
Φ180mm/Reel/Pcs	4,000	4,000

Wound Chip Inductors

WL Series

Features

- High resistance to heat and humidity .
- Resistance to mechanical shocks and pressure .
- Accurate dimensions for automatically surface mounted .

Applications

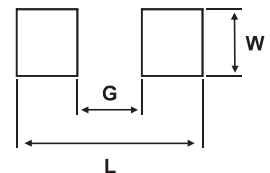
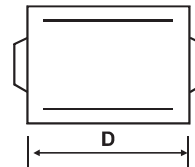
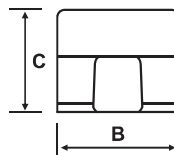
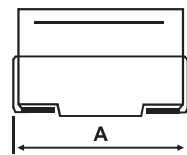
- Computer products . (Hard Disks, Floppy Disks, Etc.)
- Communication Product . (Cordless Phones.. Etc.)
- Modems, OA products, TV set, VCRs, Etc.
- Countermeasures for complying with CE, FCC VDE or VCCI radiated emissions.

Product Identifications

$\frac{WL}{(1)}$ $\frac{\square\square\square\square\square\square}{(2)}$ - $\frac{\square\square\square}{(3)}$ $\frac{\square}{(4)}$

- (1) Product Symbol
- (2) Dimensions: Length(A) × Width(B) × Thickness(C)
- (3) Inductance
- (4) Tolerance

Shapes and Dimensions



Dimensions in mm

TYPE	A	B	C	D	L	W	G
WL322522	3.2±0.4	2.5±0.2	3.2±0.2	2.9±0.2	3.8	1.4	1.8
WL453232	4.5±0.3	3.2±0.2	3.2±0.2	4.2±0.2	5.2	1.6	2.2

Wound Chip Inductors

WL322522-Series

Electrical Characteristics WL Series

Part Number	Inductance (μH)	Inductance Tolerance	Test Frequency (MHz)	Q Min.	SRF (MHz) Min.	DC Resistance (Ω) Max.	Rated Current (mA) Max.
WL322522-R12 □	0.12	M	25.2	30	500	0.22	450
WL322522-R15 □	0.15	M	25.2	30	450	0.25	450
WL322522-R18 □	0.18	M	25.2	30	400	0.28	450
WL322522-R22 □	0.22	M	25.2	30	350	0.32	450
WL322522-R27 □	0.27	M	25.2	30	320	0.36	450
WL322522-R33 □	0.33	M	25.2	30	300	0.40	450
WL322522-R39 □	0.39	M	25.2	30	250	0.45	450
WL322522-R47 □	0.47	M	25.2	30	220	0.50	450
WL322522-R56 □	0.56	M	25.2	30	180	0.55	450
WL322522-R68 □	0.68	M	25.2	30	160	0.60	450
WL322522-R82 □	0.82	M	25.2	30	140	0.65	450
WL322522-1R0 □	1.00	K	7.96	30	120	0.70	400
WL322522-1R2 □	1.20	K	7.96	30	100	0.75	390
WL322522-1R5 □	1.50	K	7.96	30	85	0.85	370
WL322522-1R8 □	1.80	K	7.96	30	80	0.90	350
WL322522-2R2 □	2.20	K	7.96	30	75	1.00	320
WL322522-2R7 □	2.70	K	7.96	30	70	1.10	290
WL322522-3R3 □	3.30	K	7.96	30	60	1.20	260
WL322522-3R9 □	3.90	K	7.96	30	55	1.30	250
WL322522-4R7 □	4.70	K	7.96	30	50	1.50	220
WL322522-5R6 □	5.60	K	7.96	30	45	1.60	200
WL322522-6R8 □	6.80	K	7.96	30	40	1.80	180
WL322522-8R2 □	8.20	K	7.96	30	35	2.00	170
WL322522-100 □	10.0	K	2.52	30	30	2.10	150
WL322522-120 □	12.0	K	2.52	30	20	2.50	140
WL322522-150 □	15.0	K	2.52	30	20	2.80	130
WL322522-180 □	18.0	K	2.52	30	20	3.30	120
WL322522-220 □	22.0	K	2.52	30	20	3.70	110
WL322522-270 □	27.0	K	2.52	30	20	5.00	80
WL322522-330 □	33.0	K	2.52	30	17	5.60	70
WL322522-390 □	39.0	K	2.52	30	16	6.40	65
WL322522-470 □	47.0	K	2.52	30	15	7.00	60
WL322522-560 □	56.0	K	2.52	30	13	8.00	55
WL322522-680 □	68.0	K	2.52	30	12	9.00	50
WL322522-820 □	82.0	K	2.52	30	11	10.0	45
WL322522-101 □	100.0	K	0.796	20	10	11.0	40
WL322522-121 □	120.0	K	0.796	20	10	11.0	70
WL322522-151 □	150.0	K	0.796	20	8	15.0	65

□ Tolerance : K : ±10% , M : ±20%

□ Product weight : 0.05g (ref.)

General Specification

- 1.Storage temperature : -40°C to +125°C
- 2.Operating temperature : -40°C to +125°C (Temp. rise included)
- 3.Terminal pull strength : 1.5kg min.
- 4.Rated current : Current cause inductance drop within 10%

Wound Chip Inductors

WL453232-Series

Electrical Characteristics

Part Number	Inductance (μH)	Inductance Tolerance	Test Frequency (MHz)	Q Min.	SRF (MHz) Min.	DC Resistance (Ω) Max.	Rated Current (mA) Max.
WL453232-R10 □	0.10	M	25.2	35	300	0.18	800
WL453232-R12 □	0.12	M	25.2	35	280	0.20	770
WL453232-R15 □	0.15	M	25.2	35	250	0.22	730
WL453232-R18 □	0.18	M	25.2	35	220	0.24	700
WL453232-R22 □	0.22	M	25.2	40	200	0.25	665
WL453232-R27 □	0.27	M	25.2	40	180	0.26	635
WL453232-R33 □	0.33	M	25.2	40	165	0.28	605
WL453232-R39 □	0.39	M	25.2	40	150	0.30	575
WL453232-R47 □	0.47	M	25.2	40	145	0.32	545
WL453232-R56 □	0.56	M	25.2	40	140	0.36	520
WL453232-R68 □	0.68	M	25.2	40	135	0.40	500
WL453232-R82 □	0.82	M	25.2	40	130	0.45	475
WL453232-1R0 □	1.00	K	7.96	50	100	0.50	450
WL453232-1R2 □	1.20	K	7.96	50	80	0.55	430
WL453232-1R5 □	1.50	K	7.96	50	70	0.60	410
WL453232-1R8 □	1.80	K	7.96	50	60	0.65	390
WL453232-2R2 □	2.20	K	7.96	50	55	0.70	380
WL453232-2R7 □	2.70	K	7.96	50	50	0.75	370
WL453232-3R3 □	3.30	K	7.96	50	45	0.80	355
WL453232-3R9 □	3.90	K	7.96	50	40	0.90	330
WL453232-4R7 □	4.70	K	7.96	50	35	1.00	315
WL453232-5R6 □	5.60	K	7.96	50	33	1.10	300
WL453232-6R8 □	6.80	K	7.96	50	27	1.20	285
WL453232-8R2 □	8.20	K	7.96	50	25	1.40	270
WL453232-100 □	10.0	K	2.52	50	20	1.60	250
WL453232-120 □	12.0	K	2.52	50	18	2.00	225
WL453232-150 □	15.0	K	2.52	50	17	2.50	200
WL453232-180 □	18.0	K	2.52	50	15	2.80	190
WL453232-220 □	22.0	K	2.52	50	13	3.20	180
WL453232-270 □	27.0	K	2.52	50	12	3.60	170

Wound Chip Inductors

WL453232-Series

Electrical Characteristics WL Series

Part Number	Inductance (μH)	Inductance Tolerance	Test Frequency (MHz)	Q Min.	SRF (MHz) Min.	DC Resistance (Ω) Max.	Rated Current (mA) Max.
WL453232-330 □	33.0	K	2.52	50	11	4.00	160
WL453232-390 □	39.0	K	2.52	50	10	4.50	150
WL453232-470 □	47.0	K	2.52	50	10	5.00	140
WL453232-560 □	56.0	K	2.52	50	9.0	5.50	135
WL453232-680 □	68.0	K	2.52	50	9.0	6.00	130
WL453232-820 □	82.0	K	2.52	50	8.0	7.00	120
WL453232-101 □	100	K	0.796	40	8.0	8.00	110
WL453232-121 □	120	K	0.796	40	6.0	8.00	110
WL453232-151 □	150	K	0.796	40	5.0	9.00	105
WL453232-181 □	180	K	0.796	40	5.0	9.50	102
WL453232-221 □	220	K	0.796	40	4.0	10.0	100
WL453232-271 □	270	K	0.796	40	4.0	12.0	92
WL453232-331 □	330	K	0.796	40	3.5	14.0	85
WL453232-391 □	390	K	0.796	40	3.0	18.0	80
WL453232-471 □	470	K	0.796	40	3.0	26.0	62
WL453232-561 □	560	K	0.796	30	3.0	30.0	50
WL453232-681 □	680	K	0.796	30	3.0	30.0	50
WL453232-821 □	820	K	0.796	30	2.5	35.0	30
WL453232-102 □	1000	K	0.252	20	2.5	40.0	30

□ Tolerance : K : ±10% , M : ±20%

□ Product weight : 0.110g (ref.)

General Specification

1. Storage temperature : -40°C to +125°C
2. Operating temperature : -40°C to +125°C (Temp. rise included)
3. Terminal pull strength : 1.5kg min.
4. Rated current : Current cause inductance drop within 10%

Wound Chip Inductors

WLC- Series (Large Current)

Features

- High resistance to heat and humidity .
- Resistance to mechanical shocks and pressure .
- Accurate dimensions for automatically surface mounted .

Applications

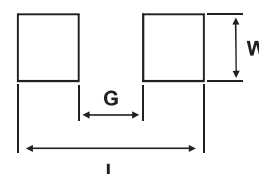
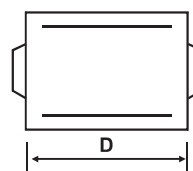
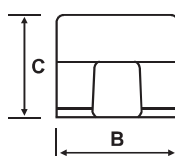
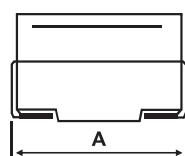
- Computer products . (Hard Disks, Floppy Disks, Etc.)
- Communication Product . (Cordless Phones.. Etc.)
- Modems, OA products, TV set, VCRs, Etc.
- Countermeasures for complying with CE, FCC VDE or VCCI radiated emissions.

Product Identifications

$\frac{\text{WLC}}{(1)}$ $\frac{\square\square\square\square\square\square}{(2)}$ $\frac{-\square\square\square}{(3)}$ $\frac{\square}{(4)}$

- (5)Product Symbol
- (6)Dimensions: Length(A) × Width(B) × Thickness(C)
- (7)Inductance
- (8)Tolerance

Shapes and Dimensions



Dimensions in mm

TYPE	A	B	C	D	L	W	G
WLC322522	3.2±0.4	2.5±0.2	3.2±0.2	2.9±0.2	3.8	1.4	1.8
WLC453232	4.5±0.3	3.2±0.2	3.2±0.2	4.2±0.2	5.2	1.6	2.2

Wound Chip Inductors

WLC- Series (Large Current)

Electrical Characteristics

Part Number	Inductance (μH)	Inductance Tolerance	Test Frequency (MHz)	Q Min.	SRF (MHz) Min.	DC Resistance (Ω) Max.	Rated Current (mA) Max.
WLC322522-1R0□	1.00	M	7.96	10	100	0.156	770
WLC322522-1R5□	1.50	M	7.96	10	80	0.195	580
WLC322522-2R2□	2.20	M	7.96	10	65	0.260	480
WLC322522-3R3□	3.30	M	7.96	10	55	0.325	400
WLC322522-4R7□	4.70	M	7.96	10	45	0.520	320
WLC322522-6R8□	6.80	M	7.96	10	35	0.650	280
WLC322522-100□	10.0	K	2.52	15	28	1.105	220
WLC322522-150□	15.0	K	2.52	15	25	1.690	180
WLC322522-220□	22.0	K	2.52	15	20	2.600	145
WLC322522-270□	27.0	K	2.52	15	17	3.000	125
WLC322522-330□	33.0	K	2.52	15	15	3.640	115
WLC322522-470□	47.0	K	2.52	20	13	5.460	105
WLC322522-680□	68.0	K	2.52	20	10	8.450	85
WLC322522-820□	82.0	K	2.52	20	9	8.710	80
WLC322522-101□	100.0	K	0.796	20	8	10.140	75

□ Tolerance : K : ±10% , M : ±20%

□ Product weight : 0.045 (ref.)

General Specification

1. Storage temperature : -40°C to +125°C
2. Operating temperature : -40°C to +125°C (Temp. rise included)
3. Terminal pull strength : 1.5kg min.
4. Rated current : Current cause inductance drop within 10%

Wound Chip Inductors

WLC453232-Series (Large Current)

Electrical Characteristics

Part Number	Inductance (μH)	Inductance Tolerance	Test Frequency (MHz)	Q Min.	SRF (MHz) Min.	DC Resistance (Ω) Max.	Rated Current (mA) Max.
WLC453232-1R0□	1.00	K	7.96	10	180	0.11	1050
WLC453232-1R2□	1.20	K	7.96	10	160	0.12	1000
WLC453232-1R5□	1.50	K	7.96	10	130	0.15	950
WLC453232-1R8□	1.80	K	7.96	10	100	0.16	900
WLC453232-2R2□	2.20	K	7.96	10	80	0.18	850
WLC453232-2R7□	2.70	K	7.96	10	60	0.20	800
WLC453232-3R3□	3.30	K	7.96	10	45	0.22	750
WLC453232-3R9□	3.90	K	7.96	10	40	0.24	700
WLC453232-4R7□	4.70	K	7.96	10	35	0.27	650
WLC453232-5R6□	5.60	K	7.96	10	30	0.30	650
WLC453232-6R8□	6.80	K	7.96	10	28	0.35	600
WLC453232-8R2□	8.20	K	7.96	10	25	0.40	600
WLC453232-100□	10.0	K	2.52	10	22	0.50	550
WLC453232-120□	12.0	K	2.52	10	21	0.60	500
WLC453232-150□	15.0	K	2.52	10	20	0.70	450
WLC453232-180□	18.0	K	2.52	10	19	0.80	400
WLC453232-220□	22.0	K	2.52	10	18	0.90	370
WLC453232-270□	27.0	K	2.52	10	16	1.20	330
WLC453232-330□	33.0	K	2.52	10	14	1.40	300
WLC453232-390□	39.0	K	2.52	10	12	1.60	280
WLC453232-470□	47.0	K	2.52	10	11.5	1.90	260
WLC453232-560□	56.0	K	2.52	10	11.0	2.20	240
WLC453232-680□	68.0	K	2.52	10	10.0	2.60	220
WLC453232-820□	82.0	K	2.52	10	9.0	3.50	200
WLC453232-101□	100.0	K	0.796	20	8.0	4.00	180
WLC453232-121□	120.0	K	0.796	20	7.5	4.50	160
WLC453232-151□	150.0	K	0.796	20	7.0	6.50	140
WLC453232-181□	180.0	K	0.796	20	6.5	7.50	120
WLC453232-221□	220.0	K	0.796	20	5.5	9.00	120
WLC453232-271□	270.0	K	0.796	20	5.0	11.00	100
WLC453232-331□	330.0	K	0.796	20	4.0	13.00	90
WLC453232-391□	390.0	K	0.796	20	3.0	14.00	85
WLC453232-471□	470.0	K	0.796	20	3.0	16.00	75
WLC453232-561□	560.0	K	0.796	20	3.0	21.00	70
WLC453232-681□	680.0	K	0.796	20	2.5	24.20	65

□ Tolerance : K : ±10% , M : ±20%

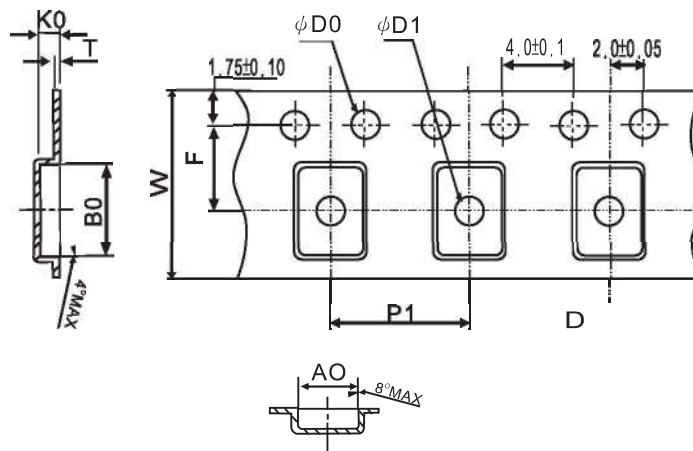
□ Product weight : 0.110g (ref.)

General Specification

- 1.Storage temperature : -40°C to +125°C
- 2.Operating temperature : -40°C to +125°C (Temp. rise included)
- 3.Terminal pull strength : 1.5kg min.
- 4.Rated current : Current cause inductance drop within 10%

Packaging Information (WL & WLC)

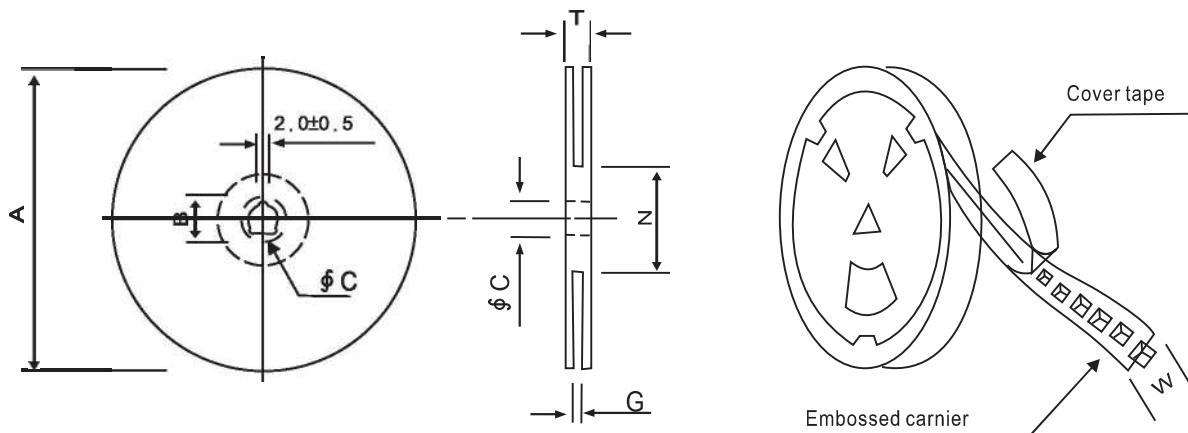
Carrier tape Dimensions



Dimensions in mm

Size	W	P1	B0	K0	A0	F	T	ΦD0	ΦD1
322522	8.0±0.3/-0.1	4.0±0.10	3.71±0.10	2.57±0.10	2.84±0.10	3.50±0.05	0.28±0.02	1.50±0.1/-0	1.0 Min
453232	12.0±0.3/-0.1	8.0±0.10	4.90±0.10	3.51±0.10	3.61±0.10	5.50±0.05	0.36±0.10	1.50±0.1/-0	1.50Min

Reel Dimensions



※Carrier tape width:W

Dimensions in mm

STYLE	A	B	C	D	G	N	T
07 - 08	178	21±0.8	13	8	10+0	50-0	12.5
07 - 12	178	21±0.8	13	12	14+0	50-0	18.4

Packaging Quantity

Chip Size	WL322522	WL453232	WLC322522	WLC453232
REEL/PCS	2,000	500	2,000	500

Multilayer Chip Beads and Inductors

Multilayer Ferrite Chip Beads

	TB Series	7
	TI Series (Large Current)	24

Multilayer Chip Inductors

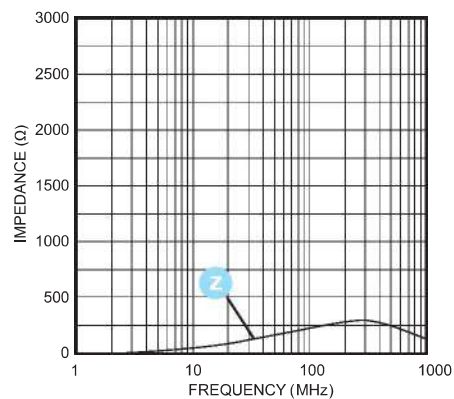
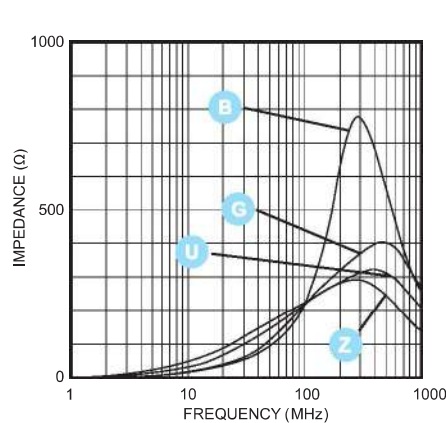
	TL Series (Ferrite)	39
	TF Series (High Frequency)	47

Multilayer Ferrite Chip Beads

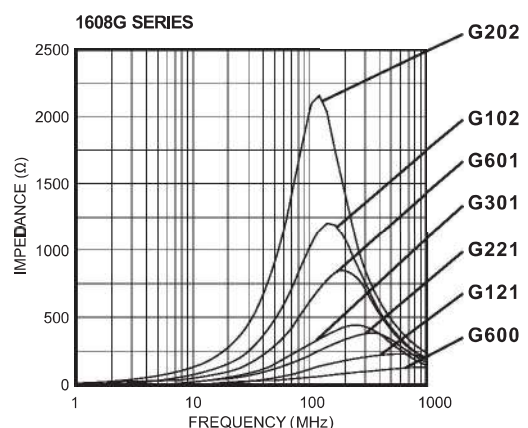
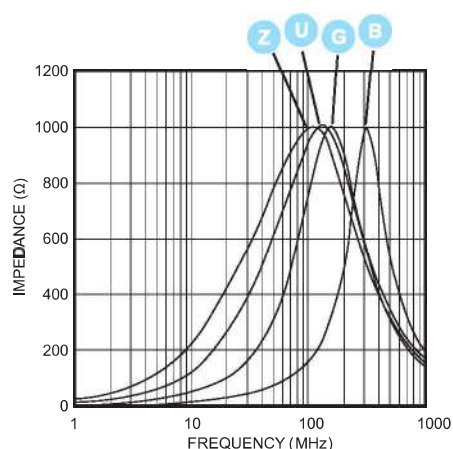
Material Characteristics

ITEM	UNIT	Material Code			
		B	G	U	Z
Initial permeability	μ_{iac}	45	110	200	500
Maximum Permeability	μM	125	250	450	900
Saturation Flux Density at 10 Oe	Bs	2000	1700	1400	1500
Curie Temperature	Tc	>200	>130	>130	>100
Volume Resistivity	ρ	10^5	10^5	10^5	10^5
Temperature Coefficient (Inductance)	$10^{-4}/^{\circ}C$	10	12	13	5
Density	g/cm^3	4.8	4.8	4.8	4.8

IMPEDANCE CHARACTERISTICS OF MATERIALS



- Z Material is for applications whose blocking region is near 100 MHz.
- G material is for application whose signal frequency is far from the cut off region. Suitable for application requires low insertion loss at high frequency.
- Please confirm the signal waveform to choose suitable products.



- Different materials are available for different application range.
- With one material, higher impedance has sharper characteristics.

Multilayer Ferrite Chip Beads

TB Series

Features

- High density packaging with a pitch of 2.54 mm (0.1 inch) max. is possible. This series requires less space and has greater EMI suppression effects.
- Different types with the same shape are available.
- Excellent in physical properties, such as terminal strength, flexure strength, soldering resistance and solderability.
- **Applicable to both flow and reflow soldering.**
- High impedance cover wide frequency ranges.

Applications

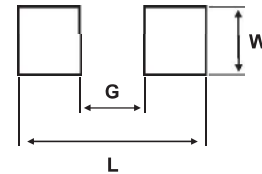
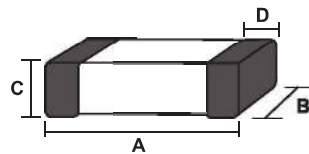
- Computers and peripheral devices, personal computers, VCR and cameras.
- Noise suppression in digital equipments, car stereo, car engines controllers and OA electronic instruments.
- Communication equipment.

Product Identifications

TB	□□□□□□	□	□□□
(1)	(2)	(3)	(4)

- (1) Product Symbol
- (2) Dimensions: Length (A) x Width (B) x Thickness (C)
- (3) Material Code
- (4) Impedance

Shapes and Dimensions / Recommended PC Board Pattern



Dimensions in mm (inch)

TYPE	A	B	C	D	L	W	G
100505	1.0±0.1 (0.040±0.004)	0.5±0.1 (0.020±0.004)	0.5±0.1 (0.020±0.004)	0.25±0.15 (0.010±0.006)	2.20 (0.086)	0.70 (0.028)	0.40 (0.016)
160808	1.6±0.2 (0.063±0.008)	0.8±0.2 (0.031±0.008)	0.8±0.2 (0.031±0.008)	0.3±0.2 (0.012±0.008)	2.80 (0.110)	1.00 (0.039)	0.60 (0.024)
201209	2.0±0.2 (0.079±0.008)	1.2±0.2 (0.047±0.008)	0.9±0.2 (0.035±0.008)	0.5±0.3 (0.020±0.012)	3.20 (0.126)	1.50 (0.059)	0.60 (0.024)
321611	3.2±0.2 (0.126±0.008)	1.6±0.2 (0.063±0.008)	1.1±0.2 (0.043±0.008)	0.5±0.3 (0.020±0.012)	4.40 (0.173)	1.80 (0.071)	1.20 (0.047)
322513	3.2±0.2 (0.126±0.008)	2.5±0.2 (0.098±0.008)	1.3±0.2 (0.051±0.008)	0.5±0.3 (0.020±0.012)	4.40 (0.173)	2.70 (0.106)	1.20 (0.047)
451616	4.5±0.2 (0.177±0.008)	1.6±0.2 (0.063±0.008)	1.6±0.2 (0.063±0.008)	0.5±0.3 (0.020±0.012)	5.80 (0.228)	1.80 (0.071)	2.00 (0.079)
453215	4.5±0.2 (0.177±0.008)	3.2±0.2 (0.126±0.008)	1.5±0.2 (0.059±0.008)	0.5±0.3 (0.020±0.012)	5.80 (0.228)	3.40 (0.134)	2.00 (0.079)

Multilayer Ferrite Chip Beads

TB Series

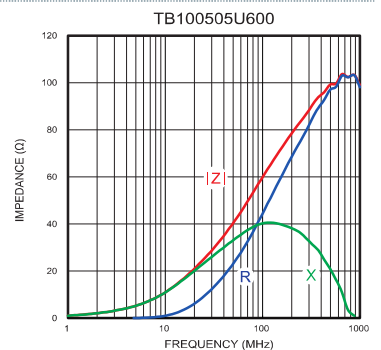
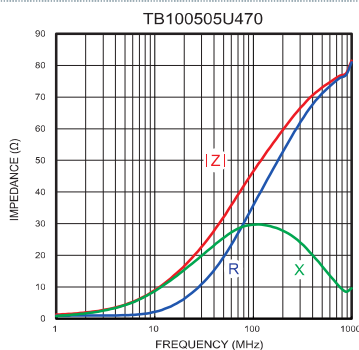
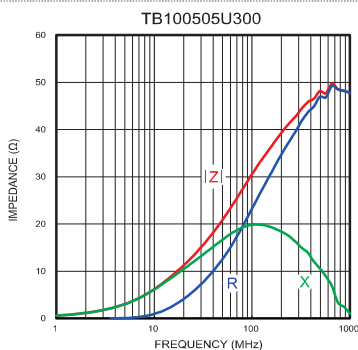
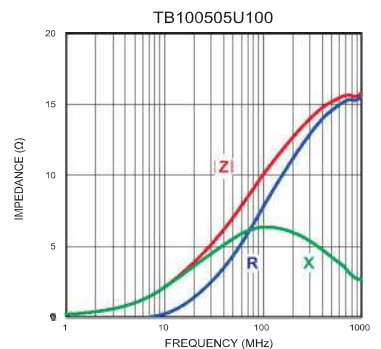
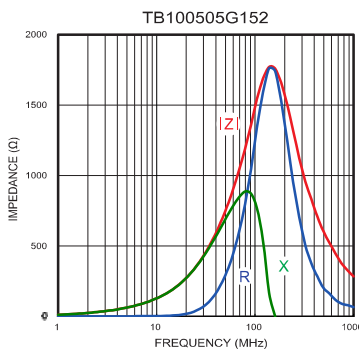
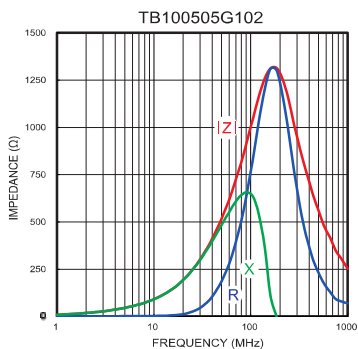
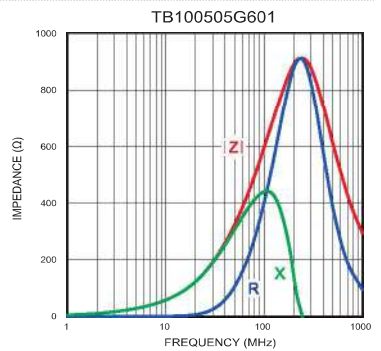
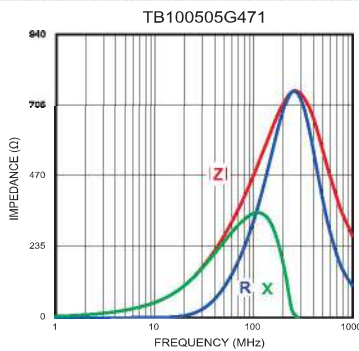
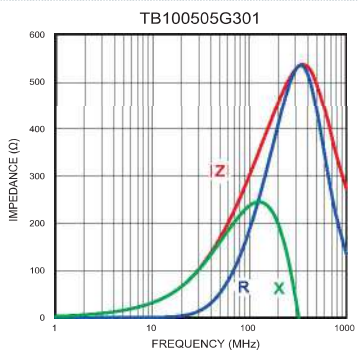
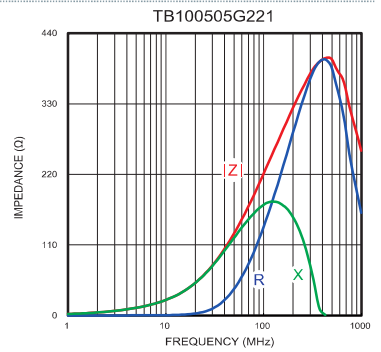
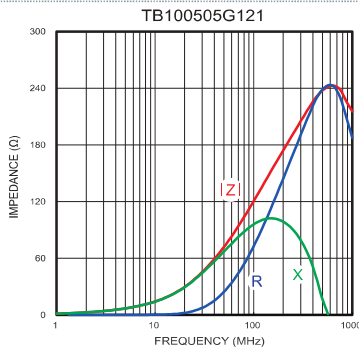
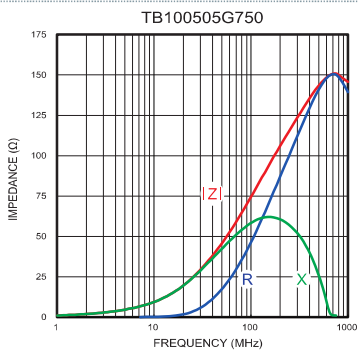
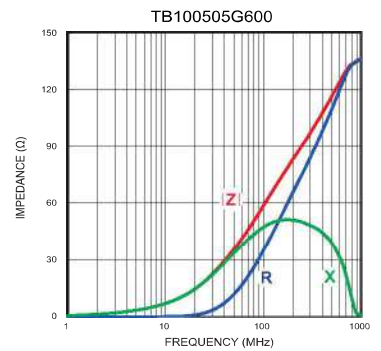
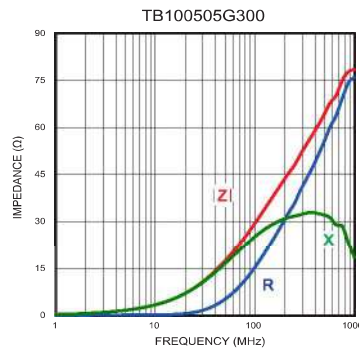
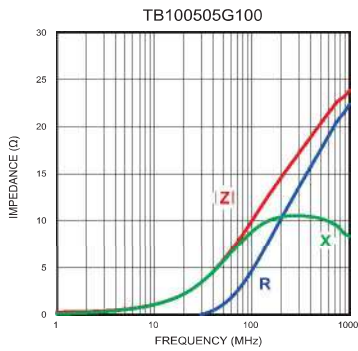
Electrical Characteristics

0402 Type

Part Number	Impedance (Ω) $\pm 25\%$ At 100MHz	DC Resistance (Ω) MAX.	Rated Current (mA) MAX.
TB 100505 G100	10	0.05	500
TB 100505 G300	30	0.30	500
TB 100505 G600	60	0.40	200
TB 100505 G750	75	0.50	200
TB 100505 G121	120	0.50	200
TB 100505 G221	220	0.70	100
TB 100505 G301	300	0.80	100
TB 100505 G471	470	1.00	100
TB 100505 G601	600	1.00	100
TB 100505 G102	1000	1.30	100
TB 100505 G152	1500	1.50	50
TB 100505 U100	10	0.05	500
TB 100505 U300	30	0.30	500
TB 100505 U470	47	0.40	200
TB 100505 U600	60	0.40	200
TB 100505 U750	75	0.50	200
TB 100505 U121	120	0.50	200
TB 100505 U221	220	0.70	100
TB 100505 U301	300	0.80	100
TB 100505 U471	470	0.90	100
TB 100505 U601	600	1.00	100
TB 100505 U102	1000	1.30	100
TB 100505 Z300	30	0.30	500
TB 100505 Z600	60	0.40	200
TB 100505 Z800	80	0.50	200
TB 100505 Z121	120	0.50	200
TB 100505 Z221	220	0.70	100
TB 100505 Z301	300	0.80	100
TB 100505 Z471	470	0.90	100
TB 100505 Z601	600	1.00	100

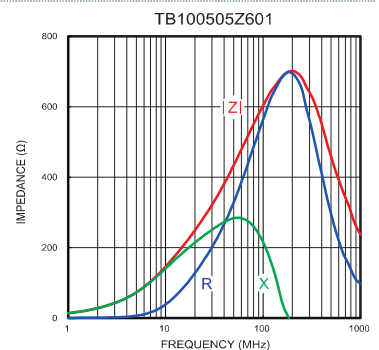
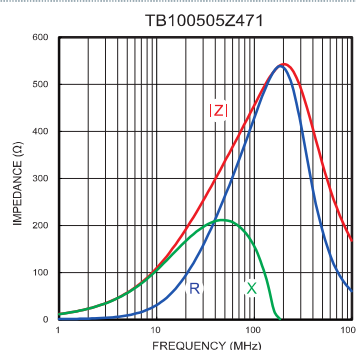
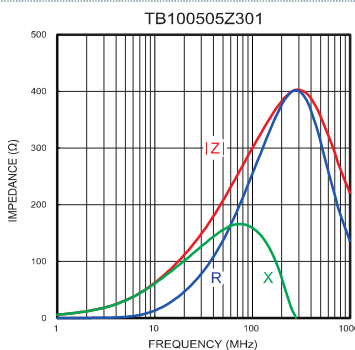
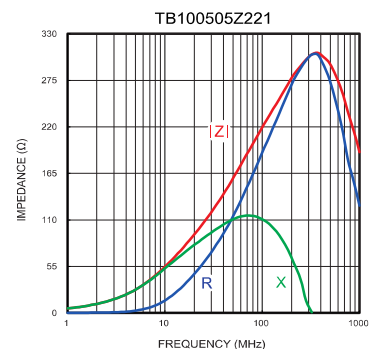
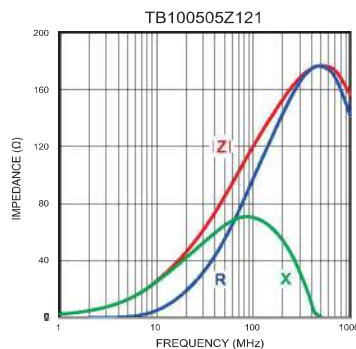
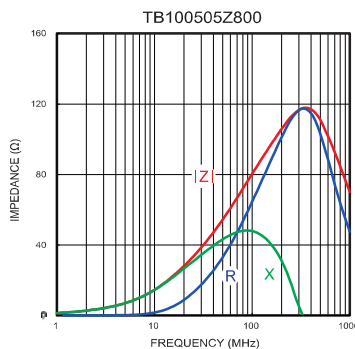
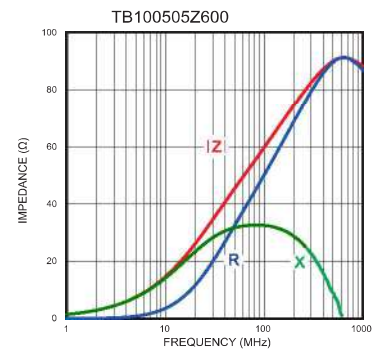
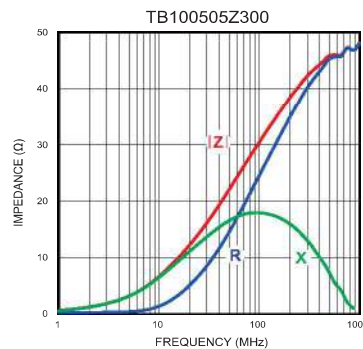
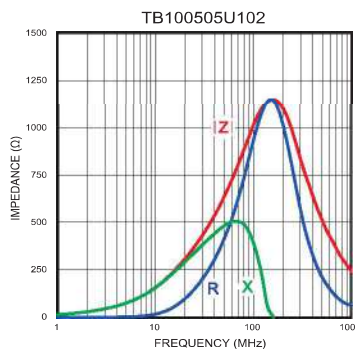
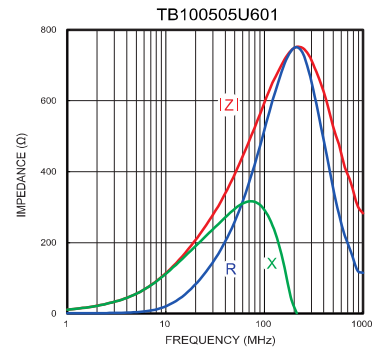
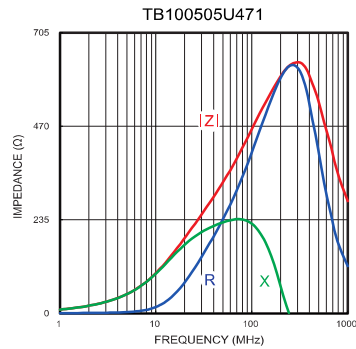
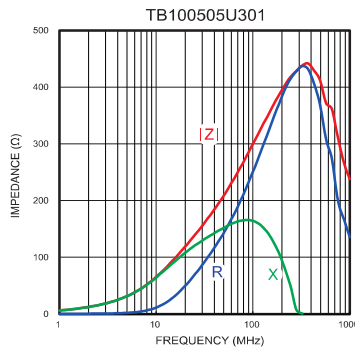
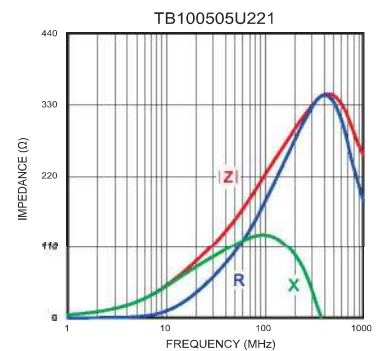
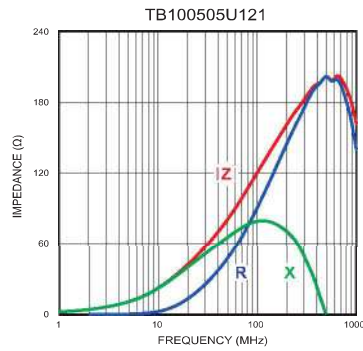
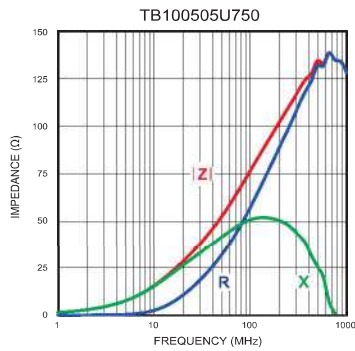
Multilayer Ferrite Chip Beads TB Series

Electrical Charts 0402 Type



Multilayer Ferrite Chip Beads TB Series

Electrical Charts 0402 Type



Multilayer Ferrite Chip Beads

TB Series

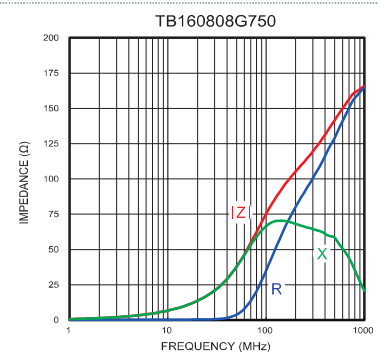
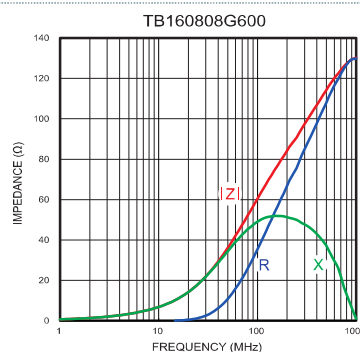
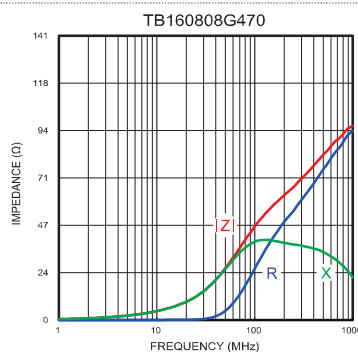
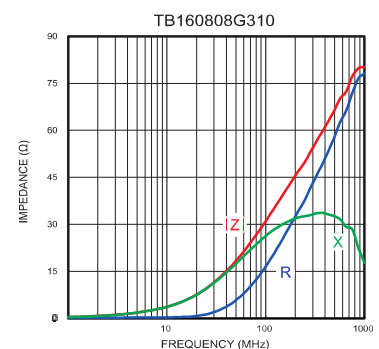
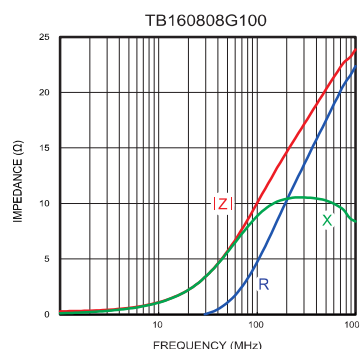
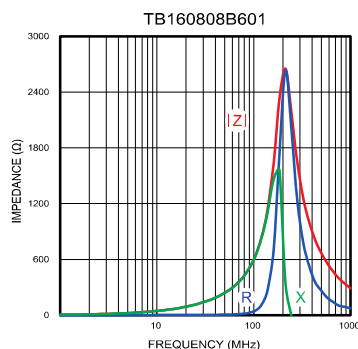
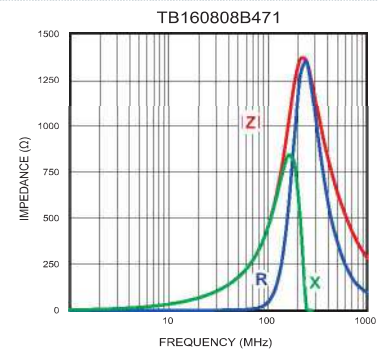
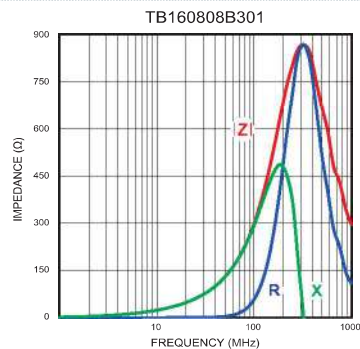
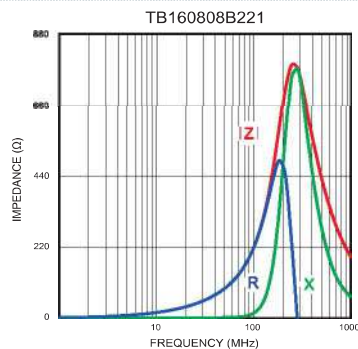
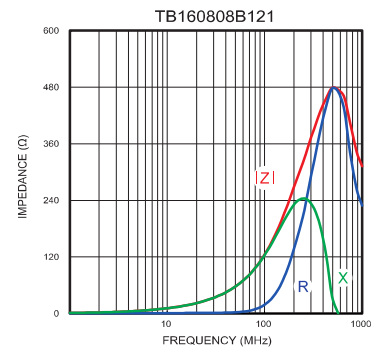
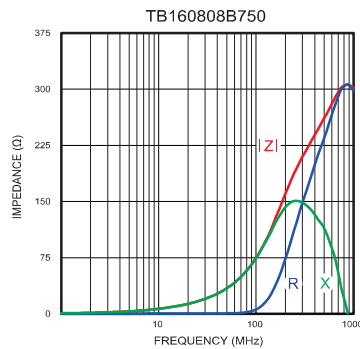
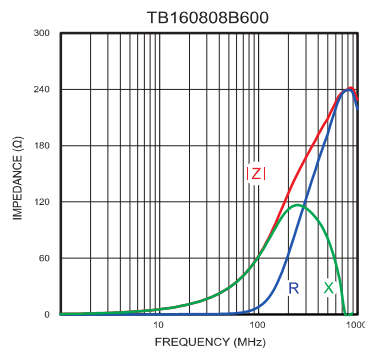
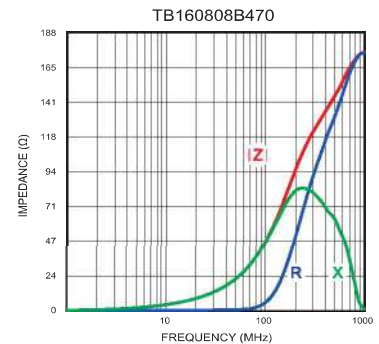
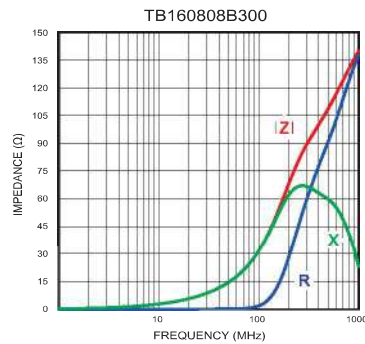
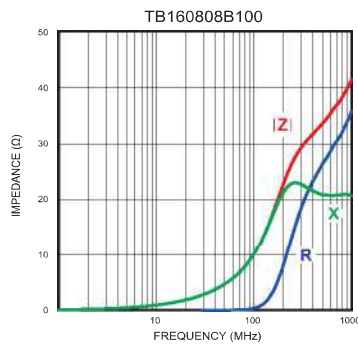
Electrical Characteristics

0603 Type

Part Number	Impedance (Ω) $\pm 25\%$ At 100MHz	DC Resistance (Ω) MAX.	Rated Current (mA) MAX.
TB 160808 B100	10	0.25	500
TB 160808 B300	30	0.25	500
TB 160808 B470	47	0.30	300
TB 160808 B600	60	0.30	300
TB 160808 B750	75	0.30	200
TB 160808 B121	120	0.30	200
TB 160808 B221	220	0.40	200
TB 160808 B301	300	0.45	200
TB 160808 B471	470	0.65	200
TB 160808 B601	600	0.65	200
TB 160808 G100	10	0.20	400
TB 160808 G310	31	0.20	400
TB 160808 G470	47	0.30	300
TB 160808 G600	60	0.20	300
TB 160808 G750	75	0.20	300
TB 160808 G121	120	0.20	200
TB 160808 G221	220	0.20	200
TB 160808 G301	300	0.35	200
TB 160808 G471	470	0.45	200
TB 160808 G601	600	0.45	200
TB 160808 G102	1000	0.60	100
TB 160808 G152	1500	0.70	50
TB 160808 G202	2000	0.80	50
TB 160808 G252	2500	1.00	50
TB 160808 G272	2700	1.20	50
TB 160808 U100	10	0.20	400
TB 160808 U300	30	0.20	400
TB 160808 U470	47	0.20	300
TB 160808 U600	60	0.20	300
TB 160808 U800	80	0.20	300
TB 160808 U121	120	0.20	200
TB 160808 U221	220	0.20	200
TB 160808 U301	300	0.35	200
TB 160808 U471	470	0.45	200
TB 160808 U601	600	0.45	200
TB 160808 U102	1000	0.60	100
TB 160808 Z300	30	0.20	400
TB 160808 Z600	60	0.20	300
TB 160808 Z800	80	0.20	300
TB 160808 Z121	120	0.20	300
TB 160808 Z221	220	0.20	200
TB 160808 Z301	300	0.35	200
TB 160808 Z601	600	0.45	200
TB 160808 Z102	1000	0.60	100

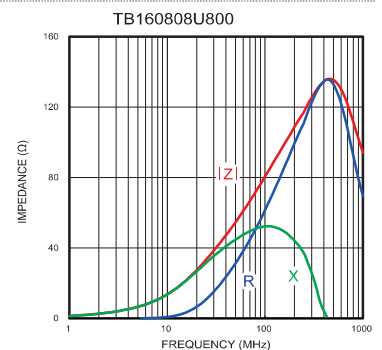
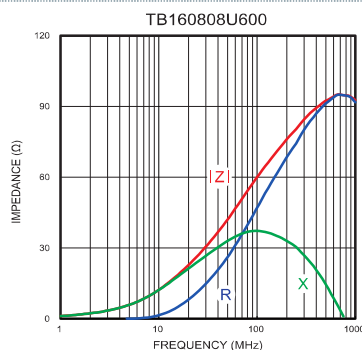
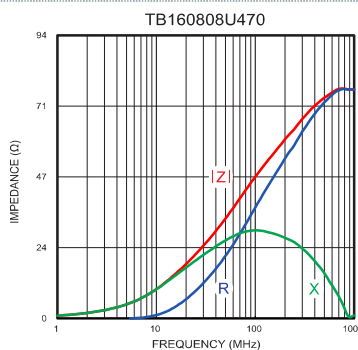
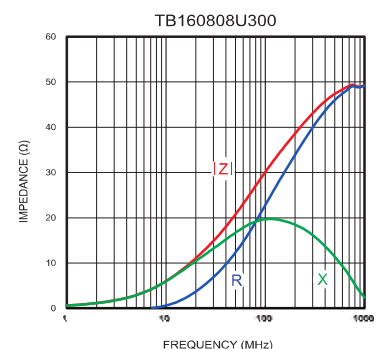
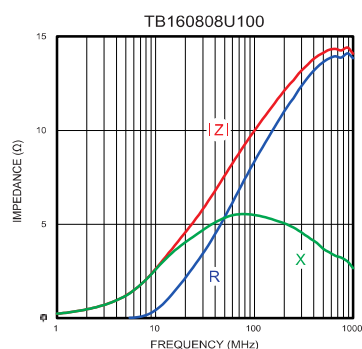
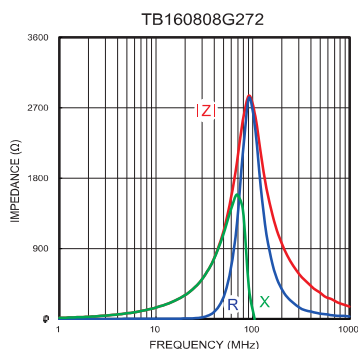
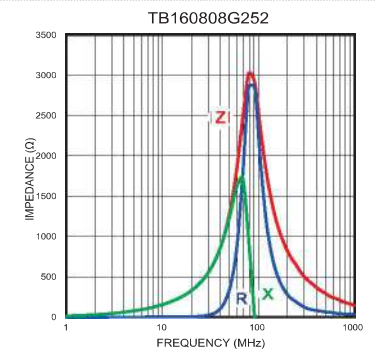
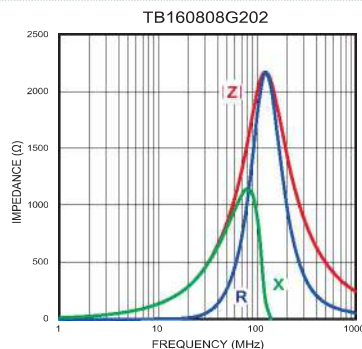
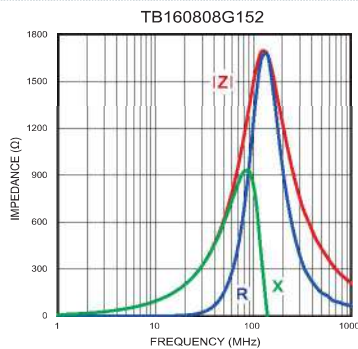
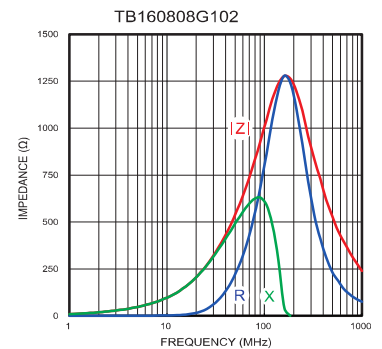
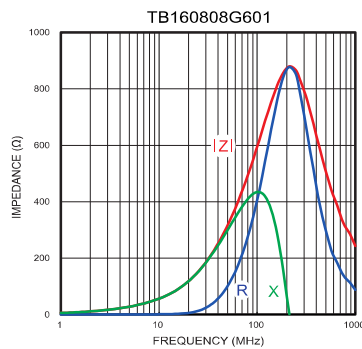
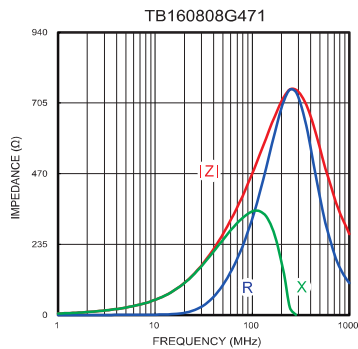
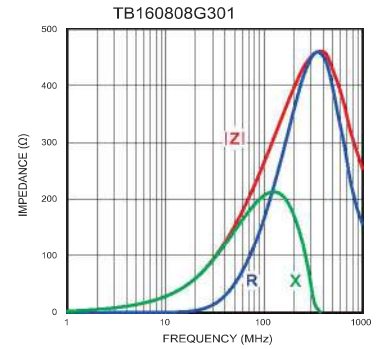
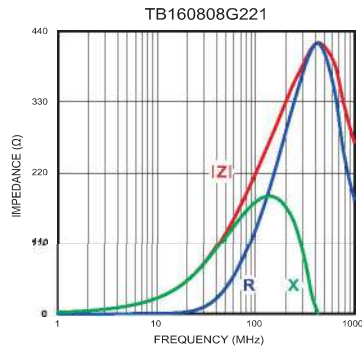
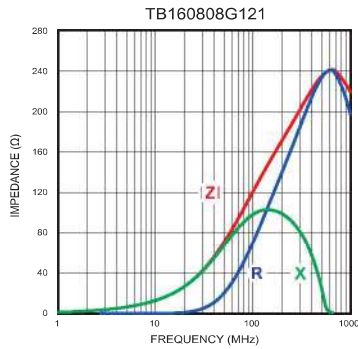
Multilayer Ferrite Chip Beads TB Series

Electrical Charts 0603 Type



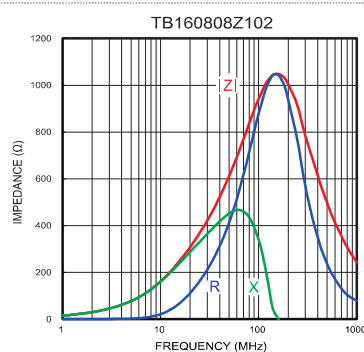
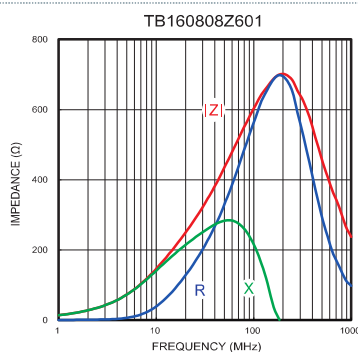
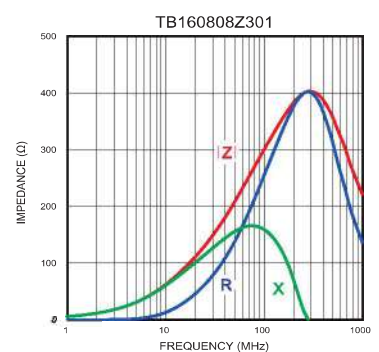
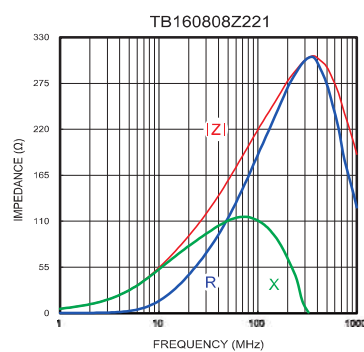
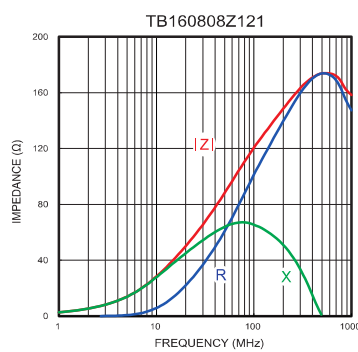
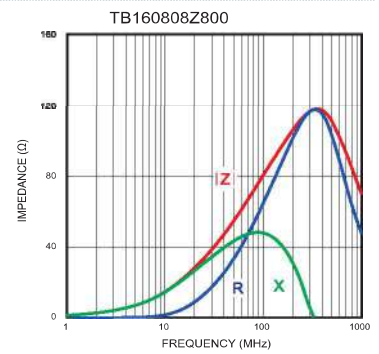
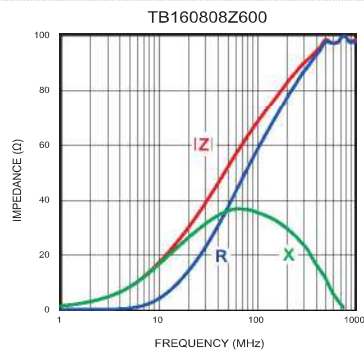
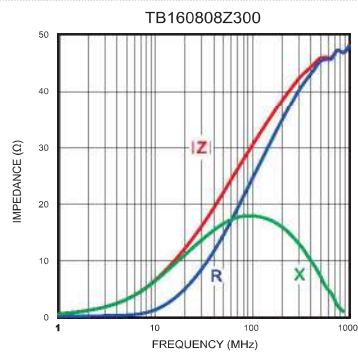
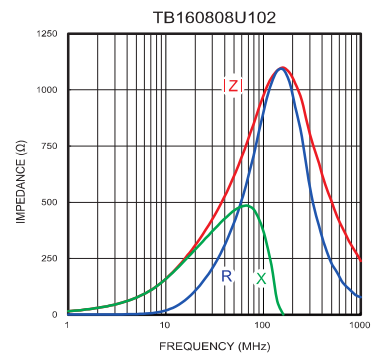
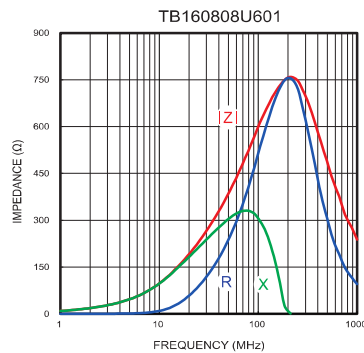
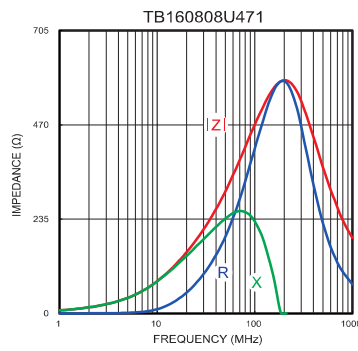
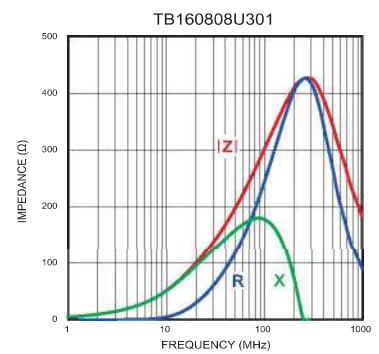
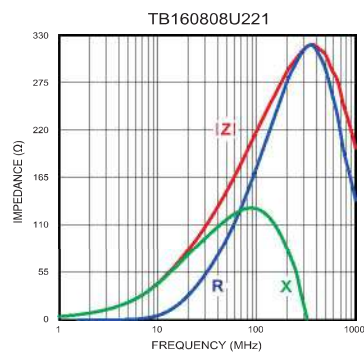
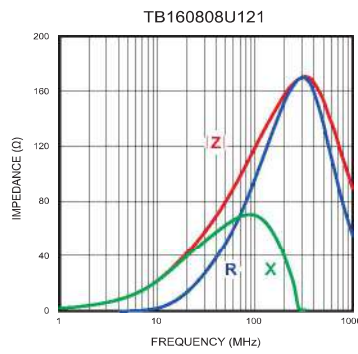
Multilayer Ferrite Chip Beads TB Series

Electrical Charts 0603 Type



Multilayer Ferrite Chip Beads TB Series

Electrical Charts 0603 Type



Multilayer Ferrite Chip Beads

TB Series

Electrical Characteristics

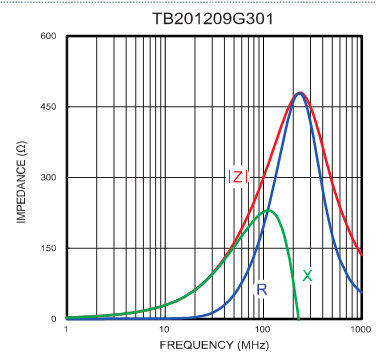
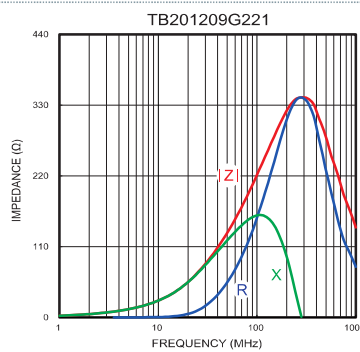
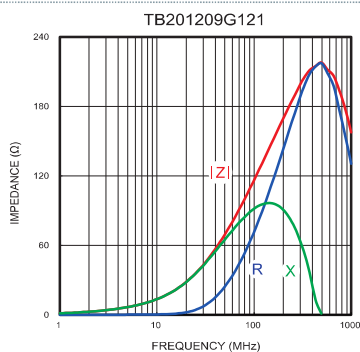
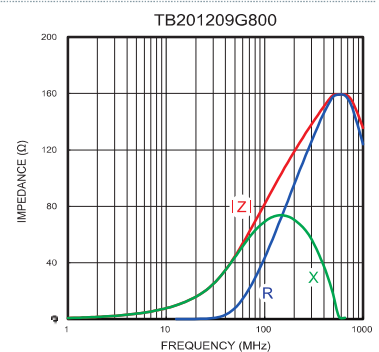
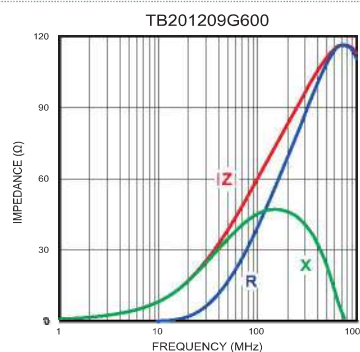
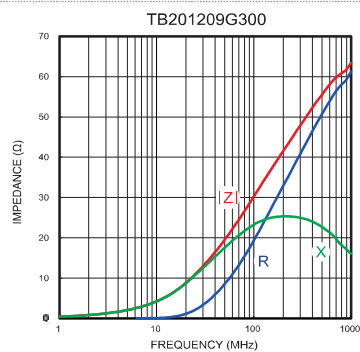
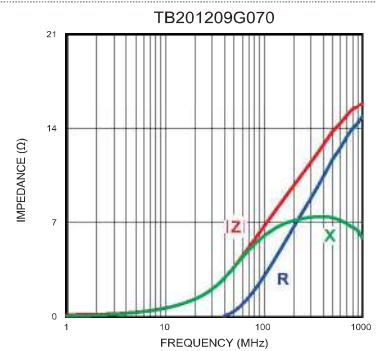
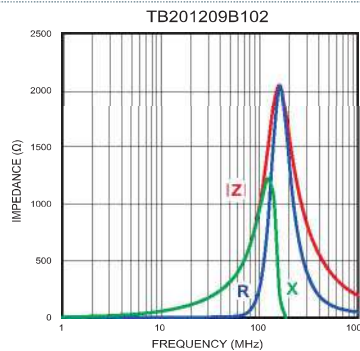
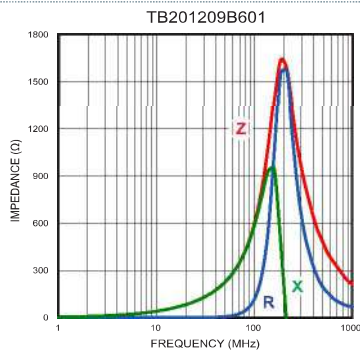
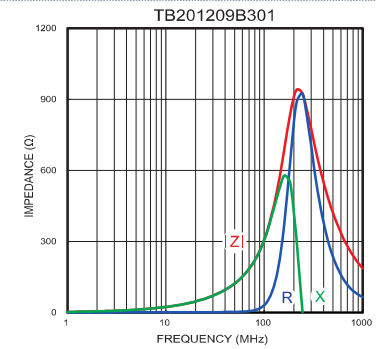
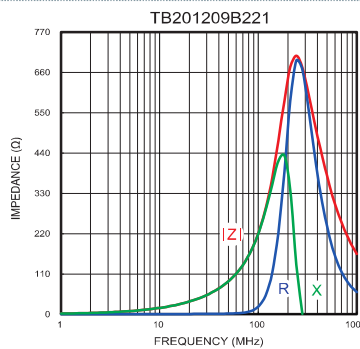
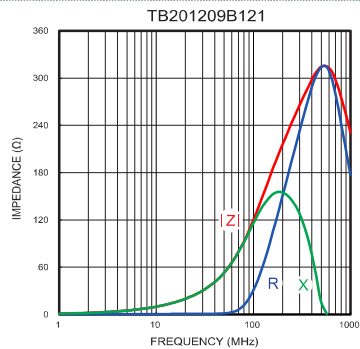
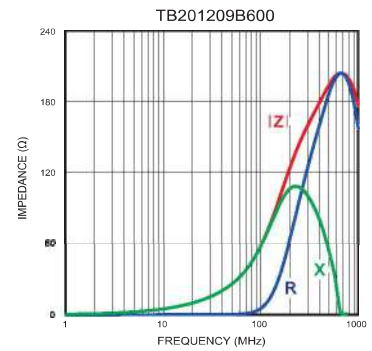
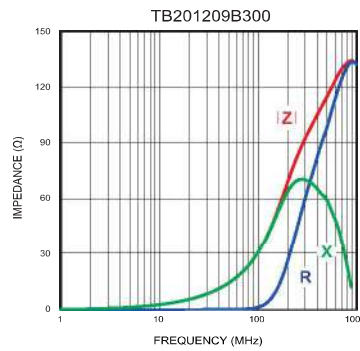
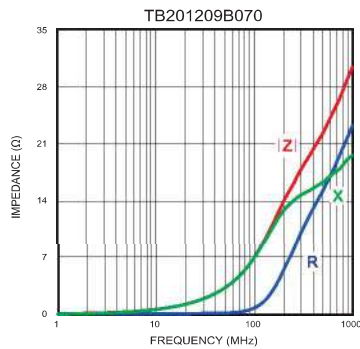
0805 Type

Part Number	Impedance (Ω) $\pm 25\%$ At 100MHz	DC Resistance (Ω) MAX.	Rated Current (mA) MAX.
TB 201209 B070	7	0.15	600
TB 201209 B300	30	0.15	400
TB 201209 B600	60	0.20	300
TB 201209 B121	120	0.25	200
TB 201209 B221	220	0.35	200
TB 201209 B301	300	0.40	200
TB 201209 B601	600	0.50	200
TB 201209 B102	1000	0.60	200
TB 201209 G070	7	0.15	600
TB 201209 G300	30	0.15	400
TB 201209 G600	60	0.15	300
TB 201209 G800	80	0.15	300
TB 201209 G121	120	0.25	300
TB 201209 G221	220	0.30	200
TB 201209 G301	300	0.30	200
TB 201209 G601	600	0.35	200
TB 201209 G102	1000	0.45	200
TB 201209 G152	1500	0.45	200
TB 201209 G202	2000	0.60	200
※ TB 201209 G202	2000	0.50	300
TB 201209 G222	2200	0.60	200
TB 201209 G252	2500	0.60	200
TB 201209 G272	2700	0.80	200
TB 201209 U100	10	0.15	600
TB 201209 U110	11	0.15	600
TB 201209 U300	30	0.15	400
TB 201209 U600	60	0.15	300
TB 201209 U800	80	0.15	300
TB 201209 U121	120	0.25	300
TB 201209 U221	220	0.30	200
TB 201209 U301	300	0.30	200
TB 201209 U601	600	0.35	200
TB 201209 U102	1000	0.45	200
TB 201209 Z300	30	0.15	400
TB 201209 Z600	60	0.15	300
TB 201209 Z800	80	0.15	300
TB 201209 Z121	120	0.25	300
TB 201209 Z221	220	0.30	200
TB 201209 Z301	300	0.30	200
TB 201209 Z601	600	0.35	200
TB 201209 Z102	1000	0.45	200

※ : Can use on Automobile Industry

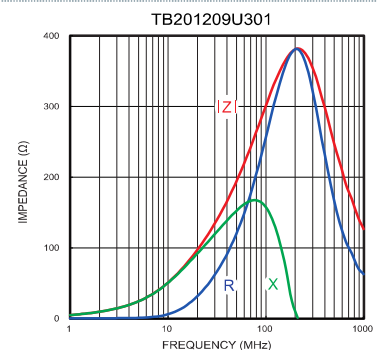
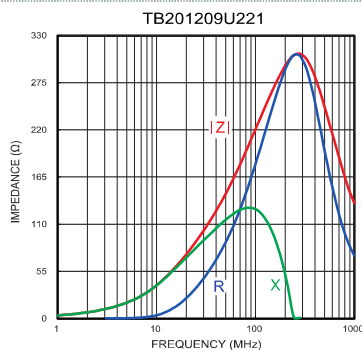
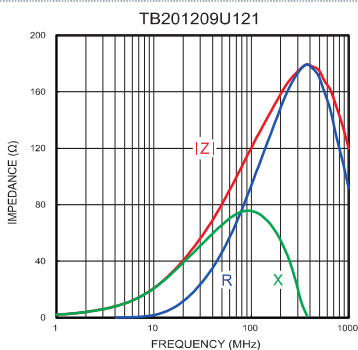
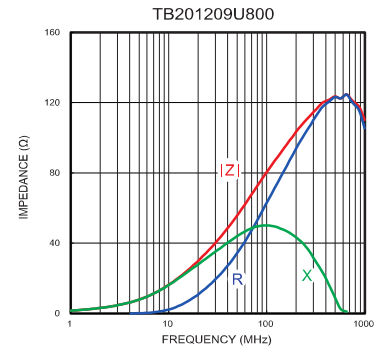
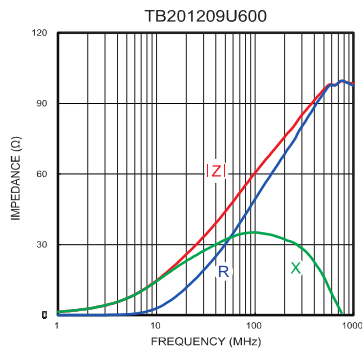
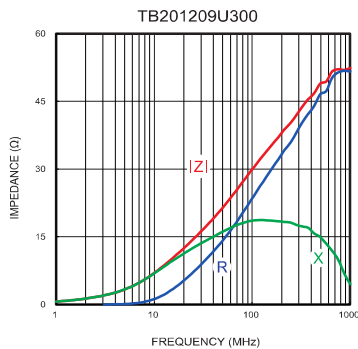
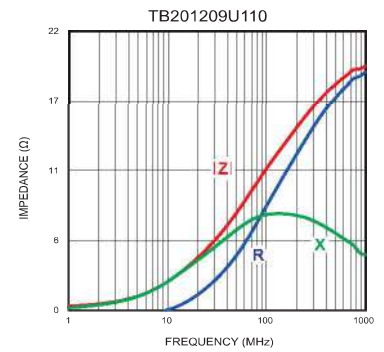
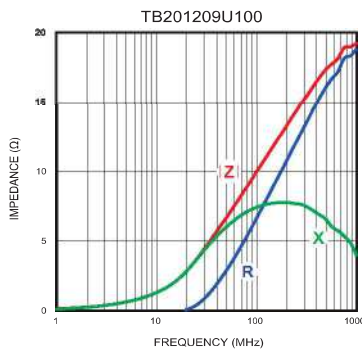
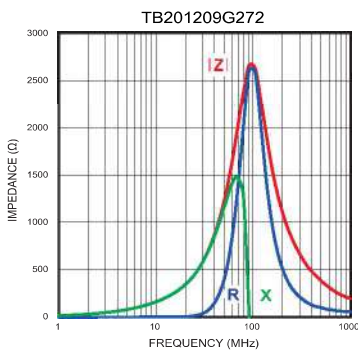
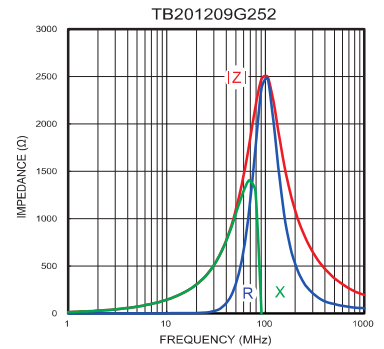
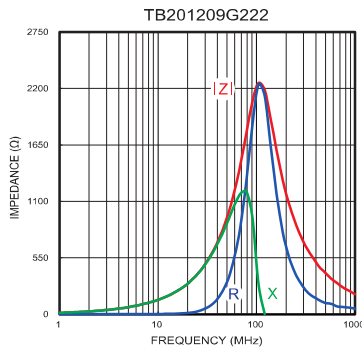
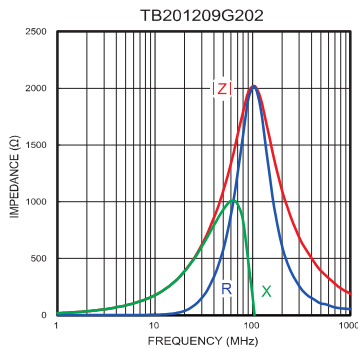
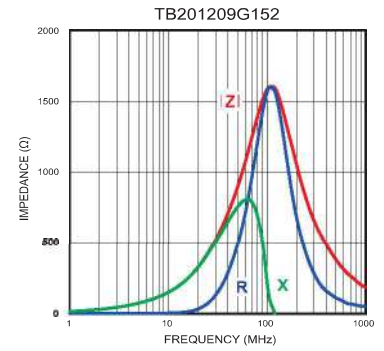
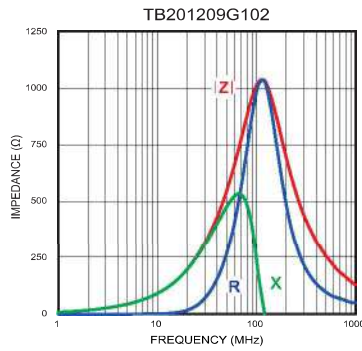
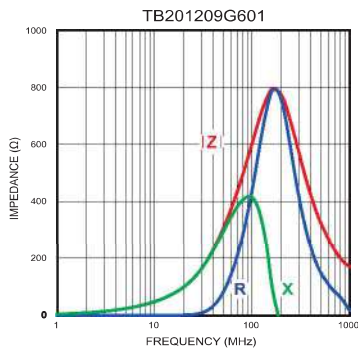
Multilayer Ferrite Chip Beads TB Series

Electrical Charts 0805 Type



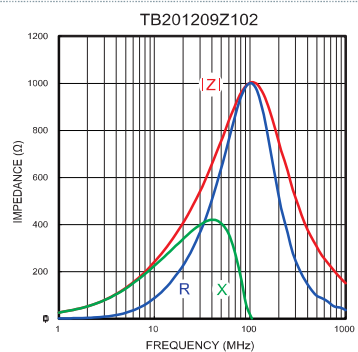
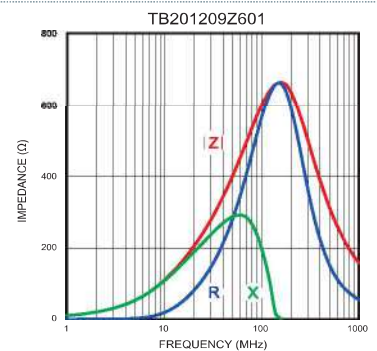
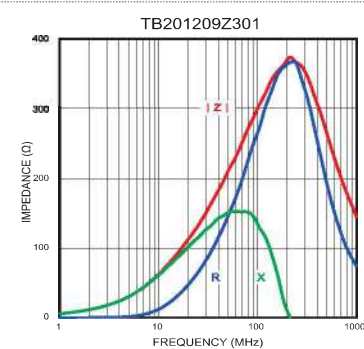
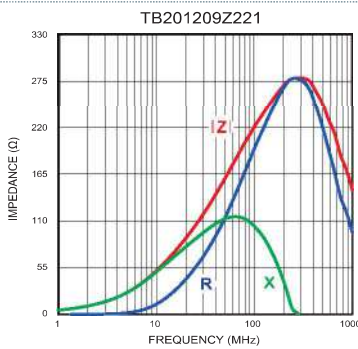
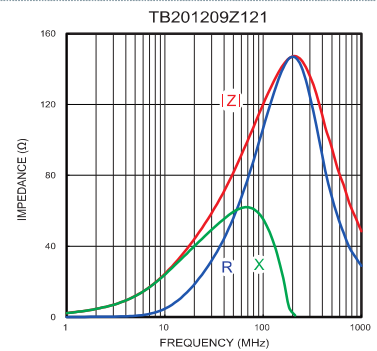
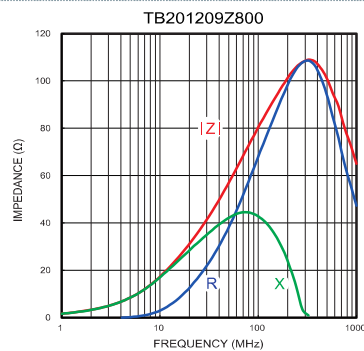
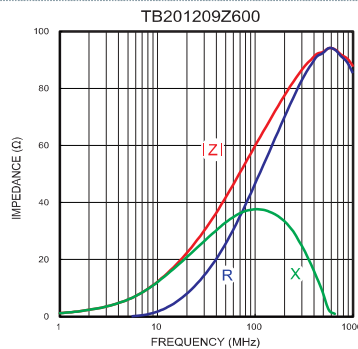
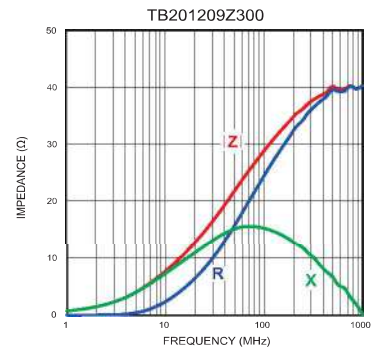
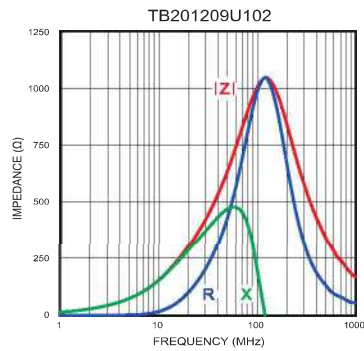
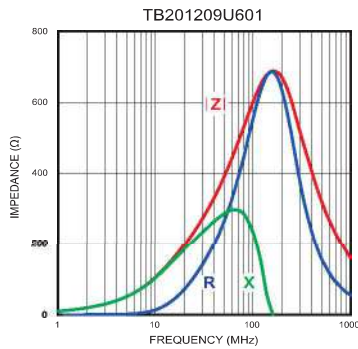
Multilayer Ferrite Chip Beads TB Series

Electrical Charts 0805 Type



Multilayer Ferrite Chip Beads TB Series

Electrical Charts 0805 Type



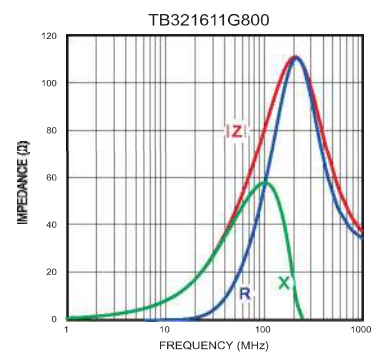
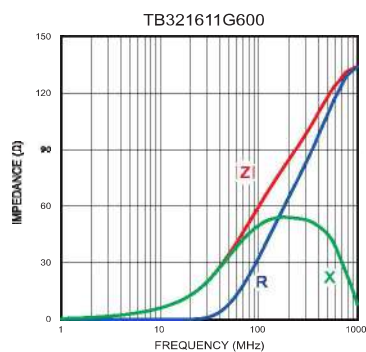
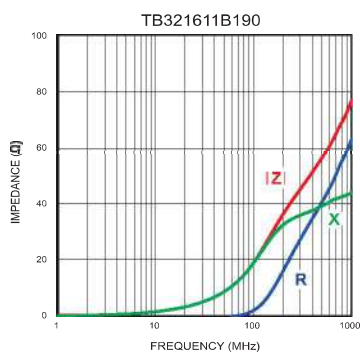
Multilayer Ferrite Chip Beads

TB Series

Electrical Characteristics

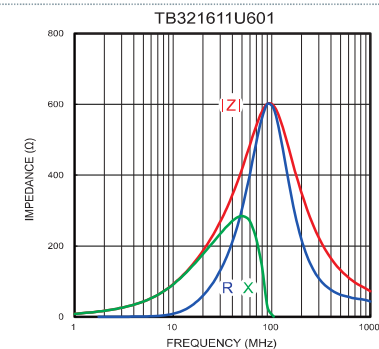
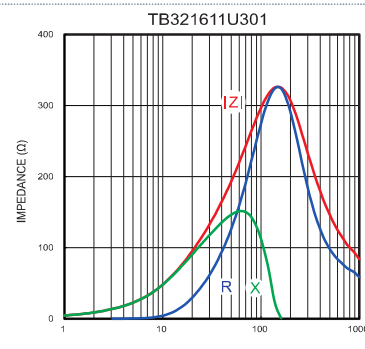
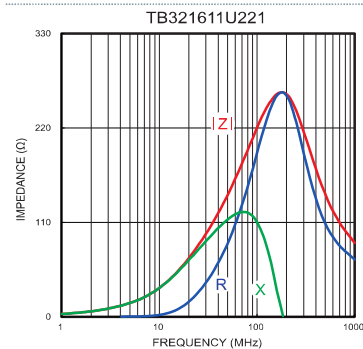
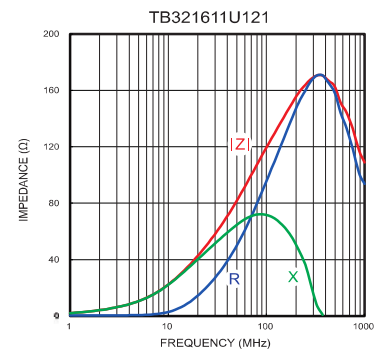
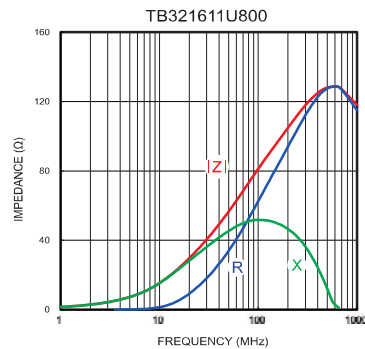
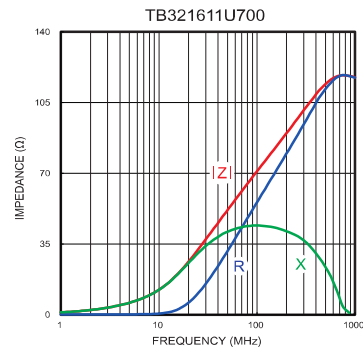
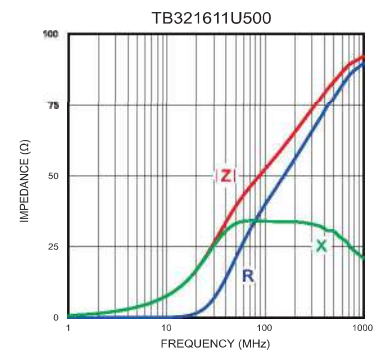
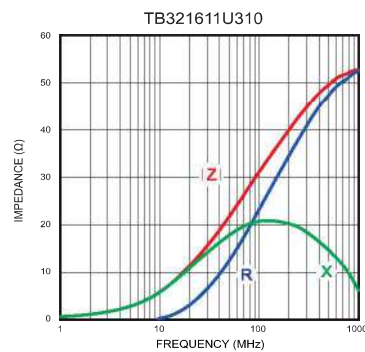
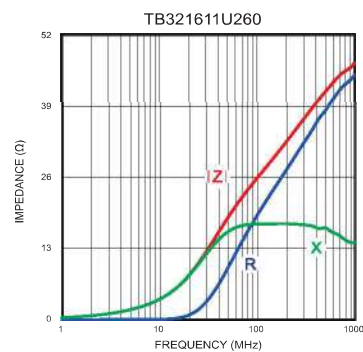
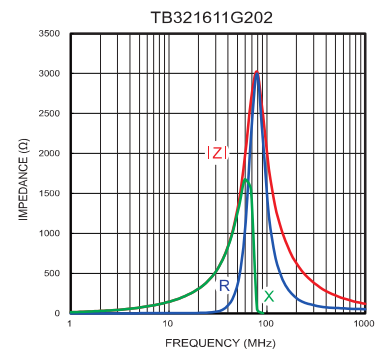
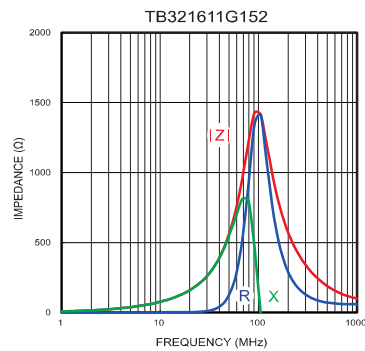
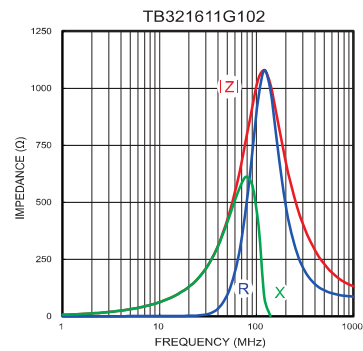
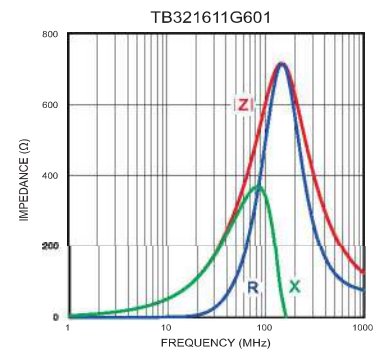
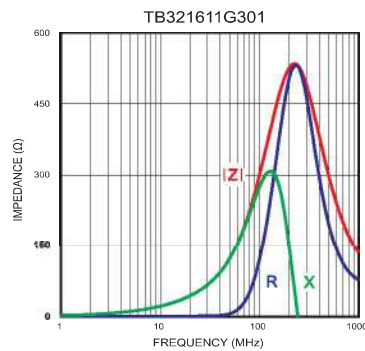
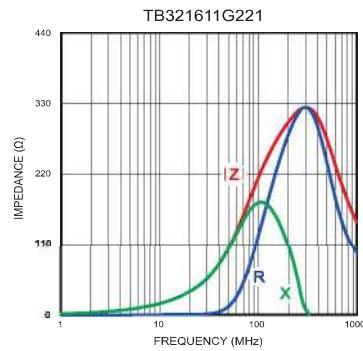
1206 Type

Part Number	Impedance (Ω) $\pm 25\%$ At 100MHz	DC Resistance (Ω) MAX.	Rated Current (mA) MAX.
TB321611B190	19	0.10	600
TB321611G600	60	0.30	400
TB321611G800	80	0.30	300
TB321611G221	220	0.30	300
TB321611G301	300	0.30	300
TB321611G601	600	0.30	200
TB321611G102	1000	0.45	100
TB321611G152	1500 Ω at 50MHz	0.55	100
TB321611G202	2000 Ω at 30MHz	0.60	100
TB321611U260	26	0.20	500
TB321611U310	31	0.20	500
TB321611U500	50	0.30	400
TB321611U700	70	0.30	300
TB321611U800	80	0.30	300
TB321611U121	120	0.30	300
TB321611U221	220	0.30	300
TB321611U301	300	0.30	300
TB321611U601	600	0.30	200
TB321611U102	1000	0.45	100
TB321611U122	1200 Ω at 50MHz	0.50	100
TB321611U152	1500 Ω at 50MHz	0.50	100
TB321611U202	2000 Ω at 30MHz	0.60	100
TB321611Z260	26	0.20	500
TB321611Z310	31	0.20	500
TB321611Z600	60	0.30	400
TB321611Z800	80	0.30	300
TB321611Z121	120	0.30	300
TB321611Z301	300	0.30	300
TB321611Z601	600	0.30	200
TB321611Z122	1200 Ω at 50MHz	0.50	100
TB321611Z202	2000 Ω at 30MHz	0.60	100



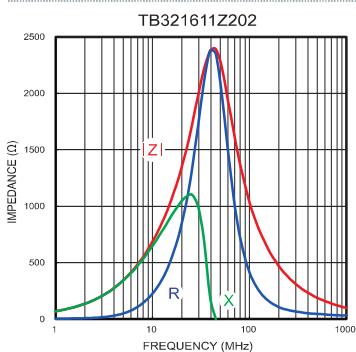
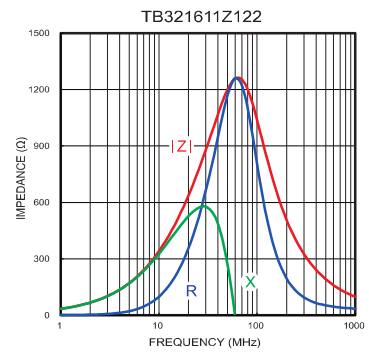
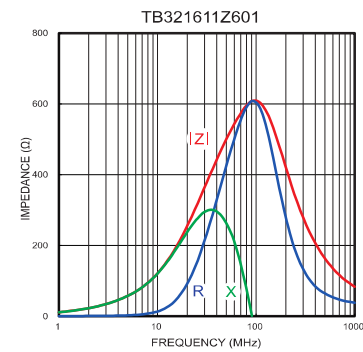
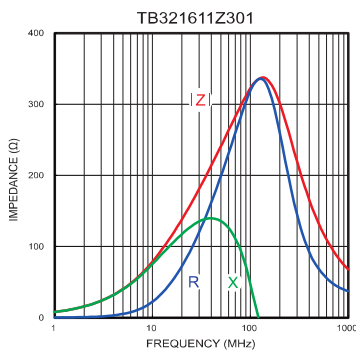
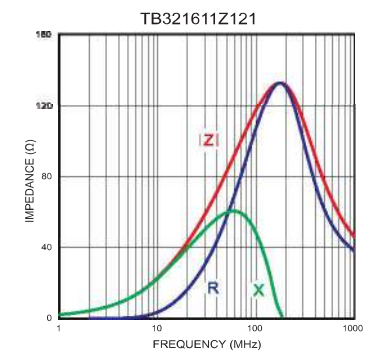
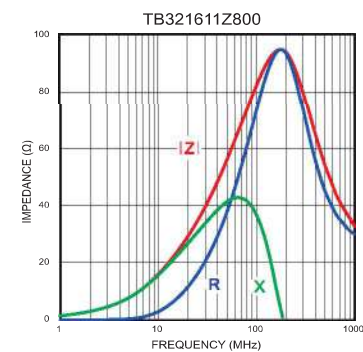
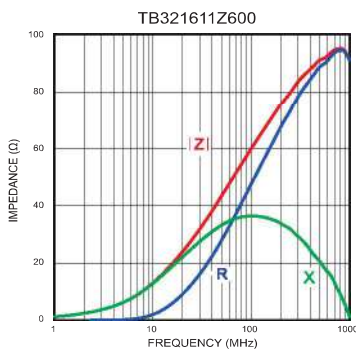
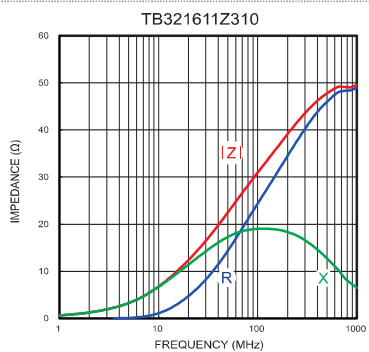
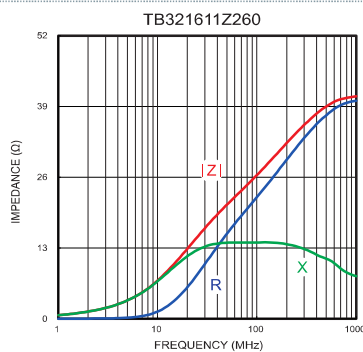
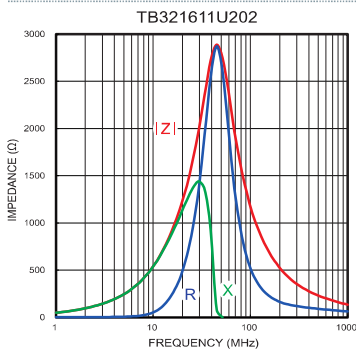
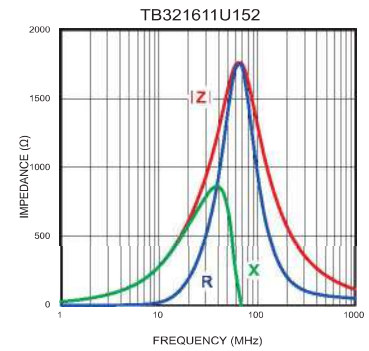
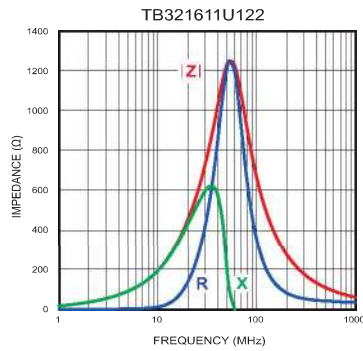
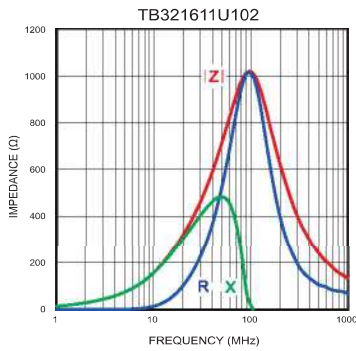
Multilayer Ferrite Chip Beads TB Series

Electrical Charts 1206 Type



Multilayer Ferrite Chip Beads TB Series

Electrical Charts 1206 Type



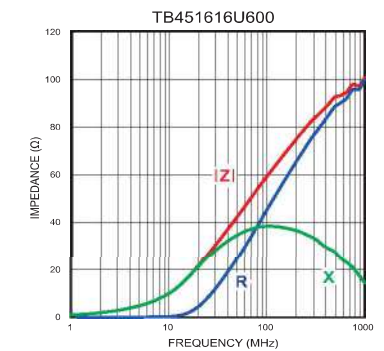
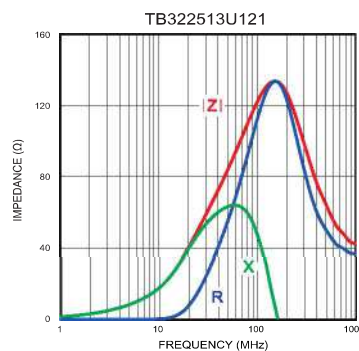
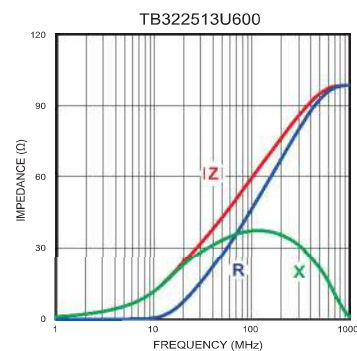
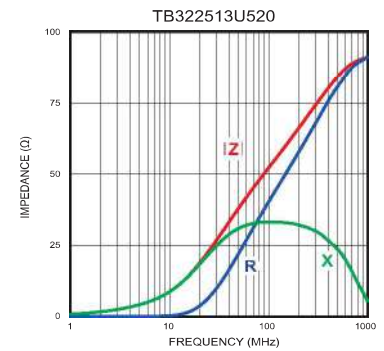
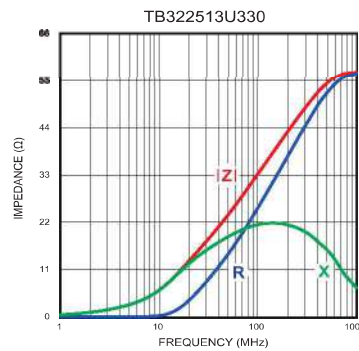
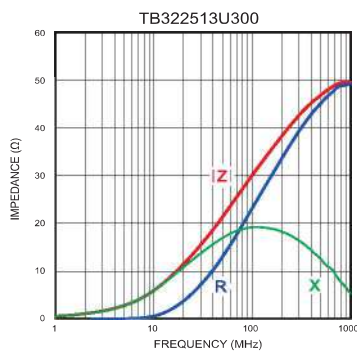
Multilayer Ferrite Chip Beads

TB Series

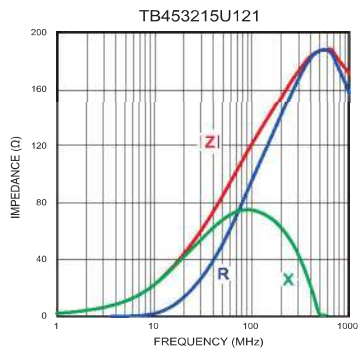
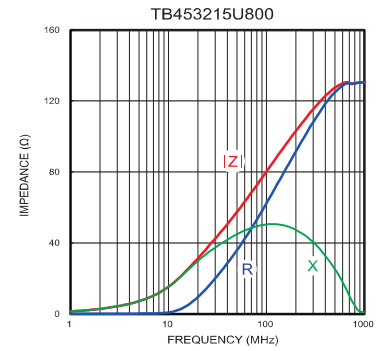
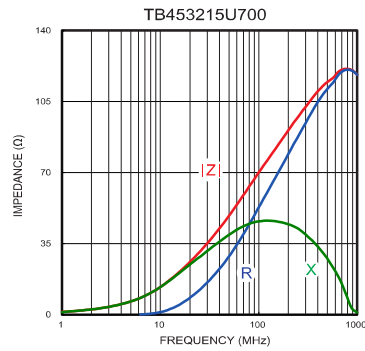
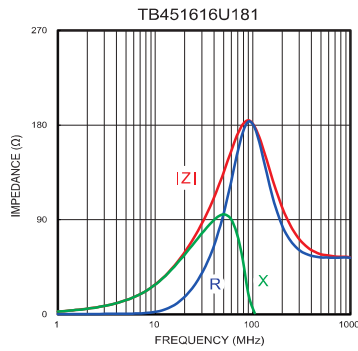
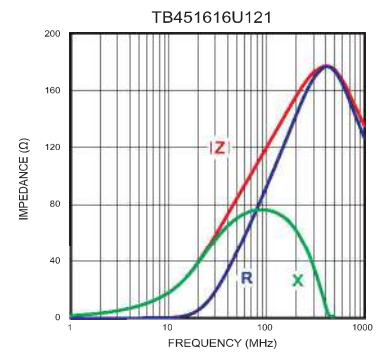
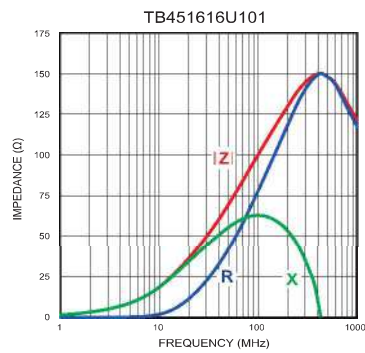
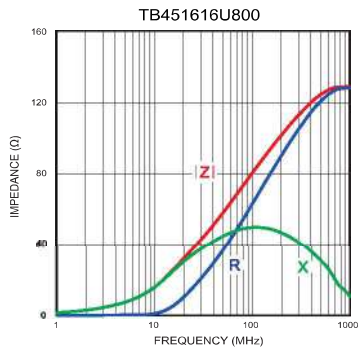
Electrical Characteristics

 ≥ 1210 Type

Part Number	Impedance (Ω) $\pm 25\%$ At 100MHz	DC Resistance (Ω) MAX.	Rated Current (mA) MAX.
TB 322513 U300	30	0.30	400
TB 322513 U330	33	0.30	400
TB 322513 U520	52	0.30	400
TB 322513 U600	60	0.30	400
TB 322513 U121	120	0.30	400
TB 451616 U600	60	0.30	400
TB 451616 U800	80	0.10	500
TB 451616 U101	100	0.30	500
TB 451616 U121	120	0.30	300
TB 451616 U181	180	0.30	300
TB 453215 U700	70	0.30	300
TB 453215 U800	80	0.30	300
TB 453215 U121	120	0.30	300



Multilayer Ferrite Chip Beads TB Series

Electrical Charts $\geq$ 1210 Type

Multilayer Ferrite Chip Beads

TI Series (Large Current)

Features

- High density packaging with a pitch of 2.54 mm (0.1 inch) max. is possible. This series requires less space and has greater EMI suppression effects.
- Different types with the same shape are available.
- Excellent in physical properties, such as terminal strength, flexure strength, soldering resistance and solderability.
- **Applicable to both flow and reflow soldering.**
- High impedance cover wide frequency ranges.
- TI series can be used in high current circuits due to its low DC resistance.

Applications

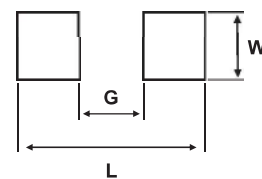
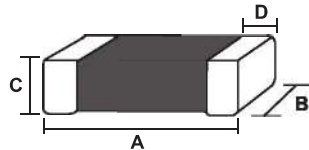
- Computers and peripheral devices, personal computers, VCR and cameras.
- Noise suppression in digital equipments, car stereo, car engines controllers and OA electronic instruments.
- Communication equipment.

Product Identifications

TI	□□□□□□	□	□□□
(1)	(2)	(3)	(4)

- (1) Product Symbol
- (2) Dimensions: Length (A) x Width (B) x Thickness (C)
- (3) Material Code
- (4) Impedance

Shapes and Dimensions / Recommended PC Board Pattern



Dimensions in mm (inch)

TYPE	A	B	C	D	L	W	G
100505	1.0±0.1 (0.040±0.004)	0.5±0.1 (0.020±0.004)	0.5±0.1 (0.020±0.004)	0.25±0.15 (0.010±0.006)	2.20 (0.086)	0.70 (0.028)	0.40 (0.016)
160808	1.6±0.2 (0.063±0.008)	0.8±0.2 (0.031±0.008)	0.8±0.2 (0.031±0.008)	0.3±0.2 (0.012±0.008)	2.80 (0.110)	1.00 (0.039)	0.60 (0.024)
201209	2.0±0.2 (0.079±0.008)	1.2±0.2 (0.047±0.008)	0.9±0.2 (0.035±0.008)	0.5±0.3 (0.020±0.012)	3.20 (0.126)	1.50 (0.059)	0.60 (0.024)
321611	3.2±0.2 (0.126±0.008)	1.6±0.2 (0.063±0.008)	1.1±0.2 (0.043±0.008)	0.5±0.3 (0.020±0.012)	4.40 (0.173)	1.80 (0.071)	1.20 (0.047)
322513	3.2±0.2 (0.126±0.008)	2.5±0.2 (0.098±0.008)	1.3±0.2 (0.051±0.008)	0.5±0.3 (0.020±0.012)	4.40 (0.173)	2.70 (0.106)	1.20 (0.047)
451616	4.5±0.2 (0.177±0.008)	1.6±0.2 (0.063±0.008)	1.6±0.2 (0.063±0.008)	0.5±0.3 (0.020±0.012)	5.80 (0.228)	1.80 (0.071)	2.00 (0.079)
453215	4.5±0.2 (0.177±0.008)	3.2±0.2 (0.126±0.008)	1.5±0.2 (0.059±0.008)	0.5±0.3 (0.020±0.012)	5.80 (0.228)	3.40 (0.134)	2.00 (0.079)

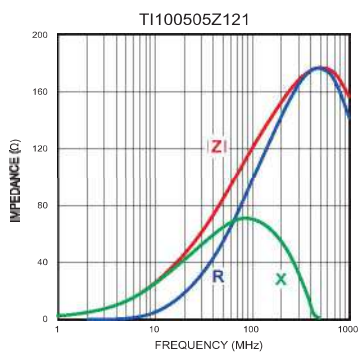
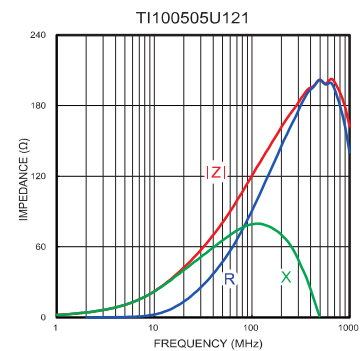
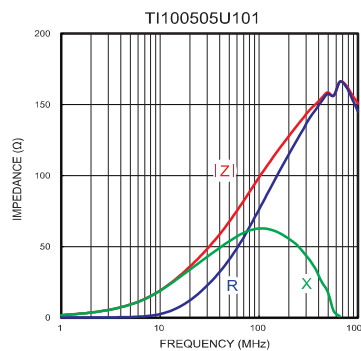
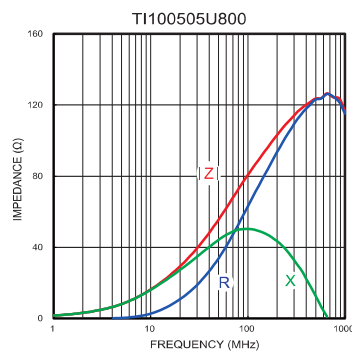
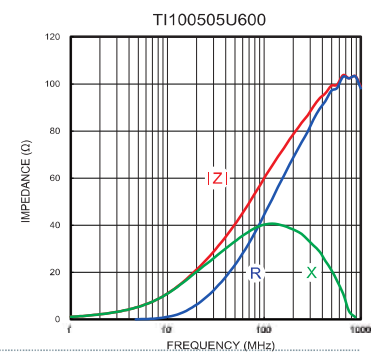
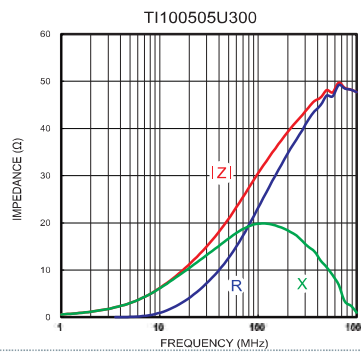
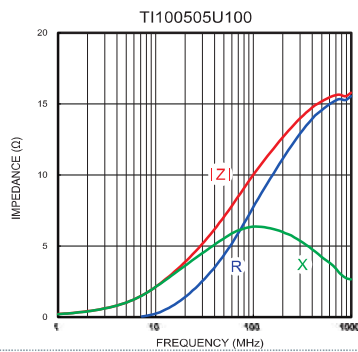
Multilayer Ferrite Chip Beads TI Series (Large Current)

Electrical Characteristics

0402 Type

Part Number	Impedance (Ω) $\pm 25\%$ At 100MHz	DC Resistance (Ω) MAX.	Rated Current (mA) MAX.
TI 100505 U100	10	0.05	1500
TI 100505 U300	30	0.15	2000
TI 100505 U600	60	0.20	1000
TI 100505 U800	80	0.20	1000
TI 100505 U101	100	0.20	1000
TI 100505 U121	120	0.20	1000
TI 100505 Z121	120	0.20	1000

Electrical Charts 0402 Type



Multilayer Ferrite Chip Beads

TI Series (Large Current)

Electrical Characteristics

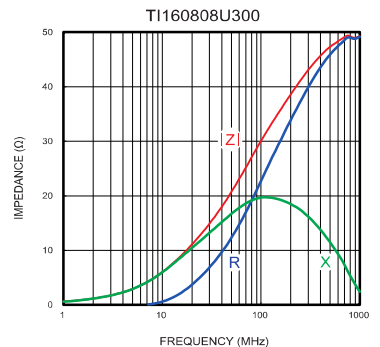
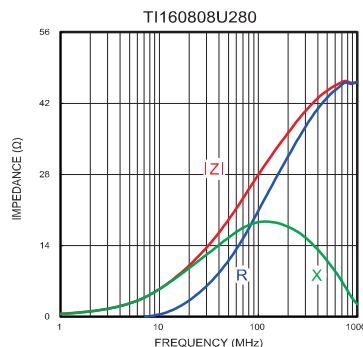
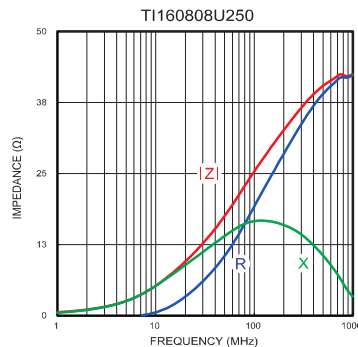
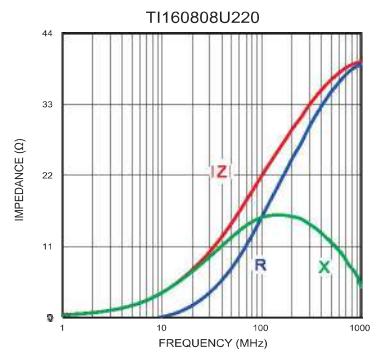
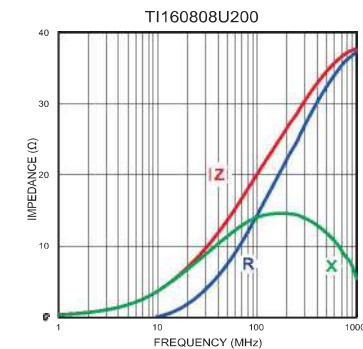
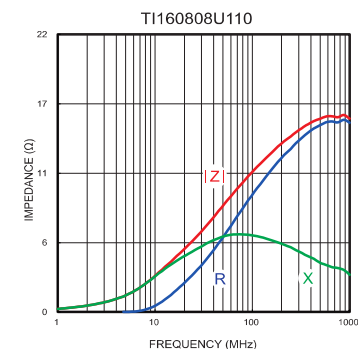
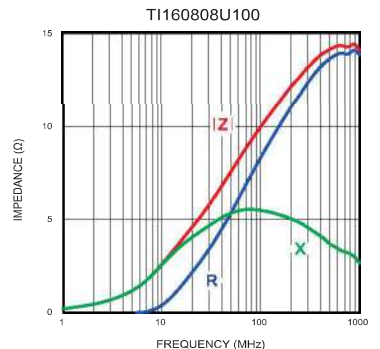
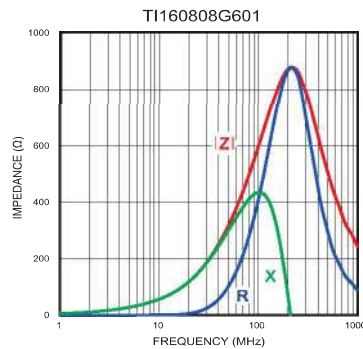
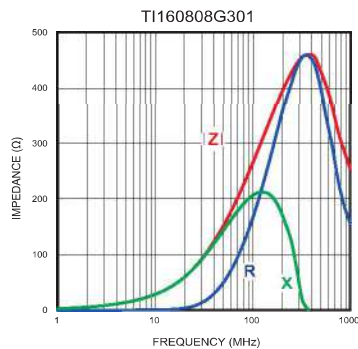
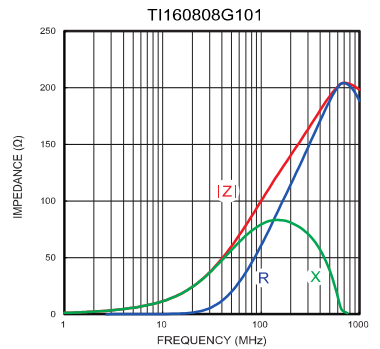
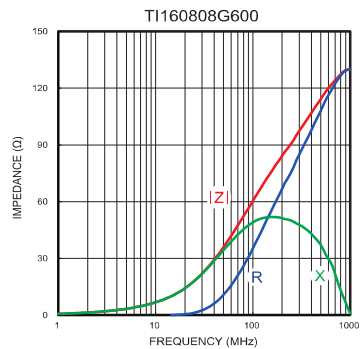
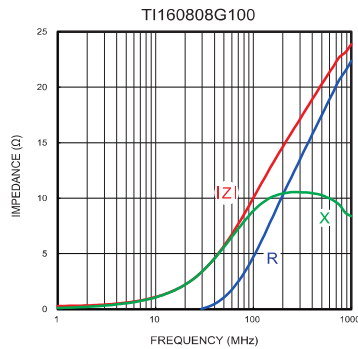
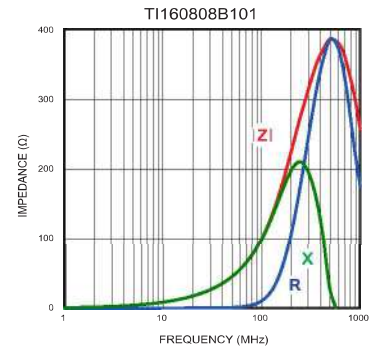
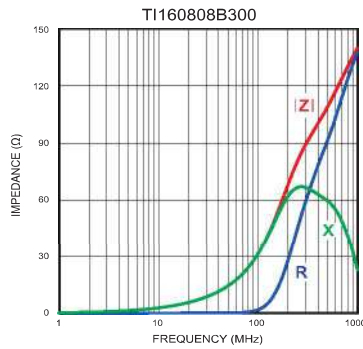
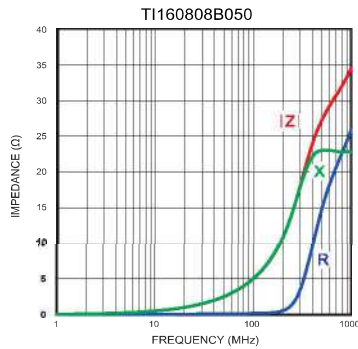
0603 Type

Part Number	Impedance (Ω) $\pm 25\%$ At 100MHz	DC Resistance (Ω) MAX.	Rated Current (mA) MAX.
TI160808B050	5	0.10	1000
TI160808B300	30	0.15	1000
TI160808B101	100	0.20	1000
TI160808G100	10	0.06	2000
TI160808G600	60	0.10	2000
TI160808G101	100	0.10	2000
TI160808G301	300	0.15	2000
TI160808G601	600	0.20	1000
TI160808U100	10	0.06	2000
TI160808U110	11	0.03	3000
TI160808U200	20	0.03	3000
TI160808U220	22	0.03	3000
TI160808U250	25	0.03	3000
TI160808U280	28	0.03	3000
TI160808U300	30	0.03	3000
TI160808U400	40	0.05	3000
TI160808U470	47	0.05	3000
TI160808U500	50	0.04	3000
TI160808U600	60	0.04	3000
TI160808U680	68	0.05	3000
TI160808U800	80	0.08	2500
TI160808U101	100	0.10	2500
TI160808U121	120	0.10	2500
TI160808U151	150	0.10	2500
TI160808U181	180	0.15	2000
TI160808U221	220	0.15	2000
TI160808U301	300	0.15	2000
TI160808U331	330	0.15	2000
TI160808U471	470	0.20	1000
※ TI160808U601	600	0.20	1000
TI160808Z800	80	0.04	2500
TI160808Z101	100	0.03	3000
TI160808Z121	120	0.10	2500
TI160808Z151	150	0.10	2500
TI160808Z221	220	0.15	2000
TI160808Z301	300	0.15	2000
TI160808Z471	470	0.20	1000
TI160808Z601	600	0.20	1000

※ : Can use on Automobile lindustry

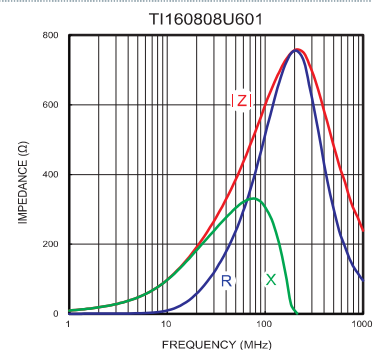
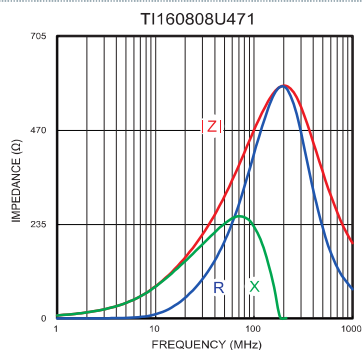
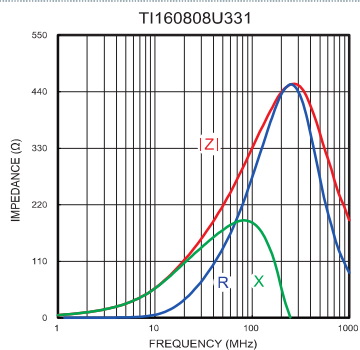
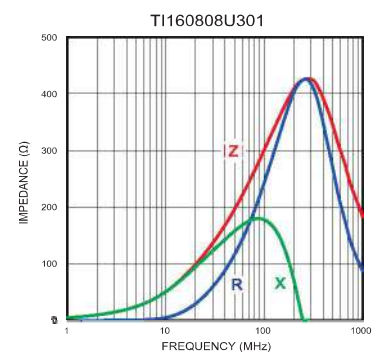
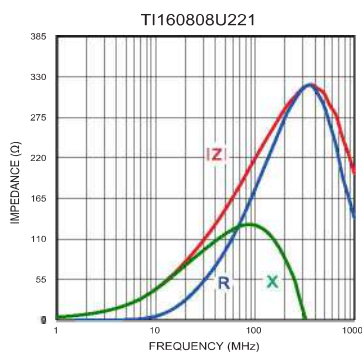
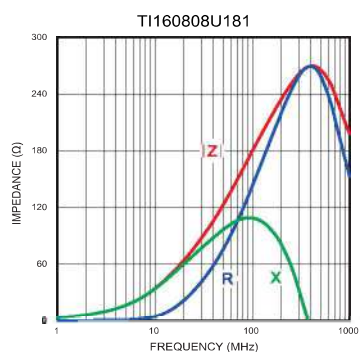
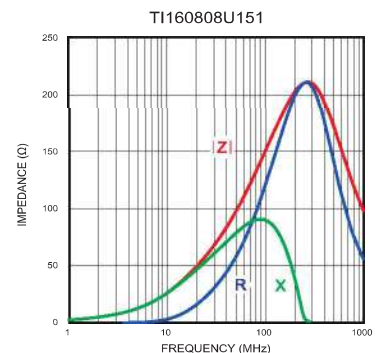
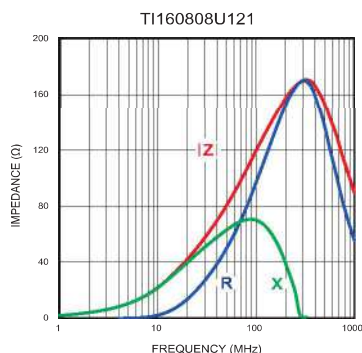
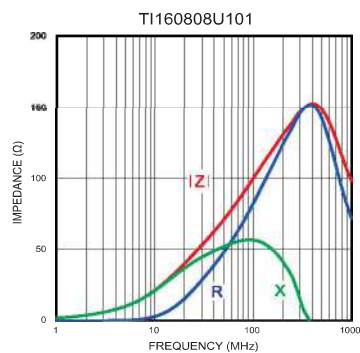
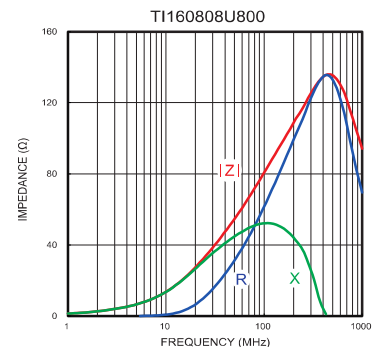
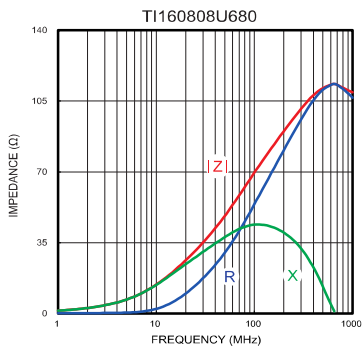
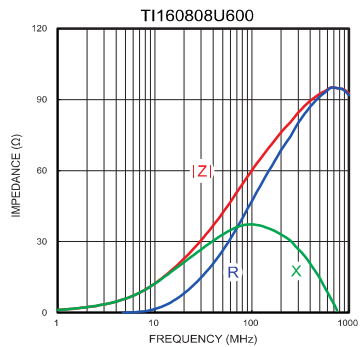
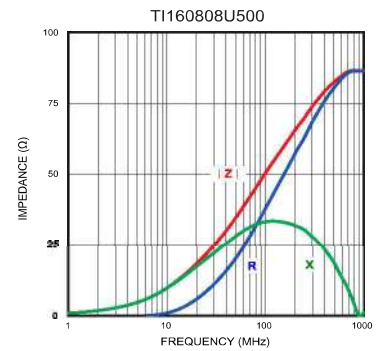
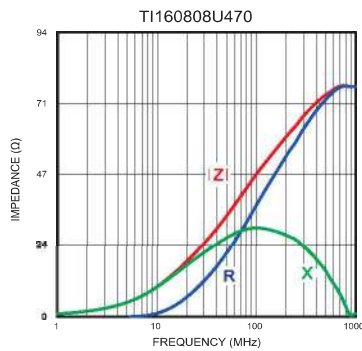
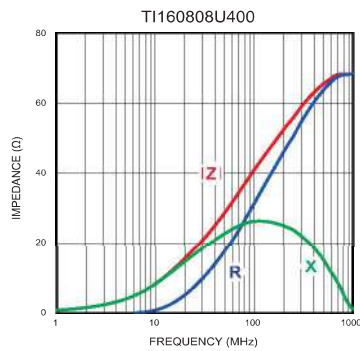
Multilayer Ferrite Chip Beads TI Series (Large Current)

Electrical Charts 0603 Type



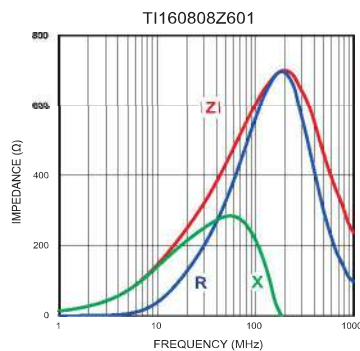
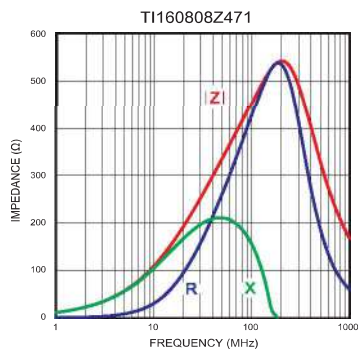
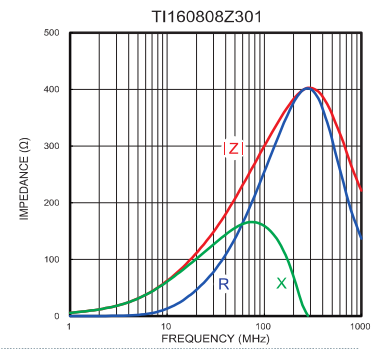
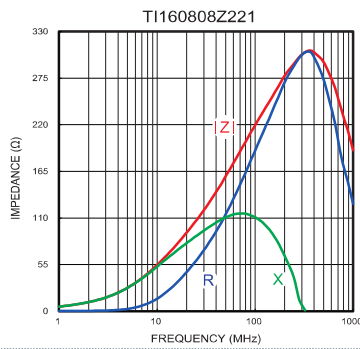
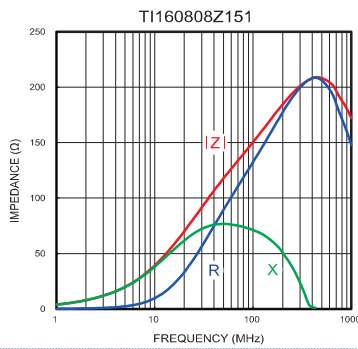
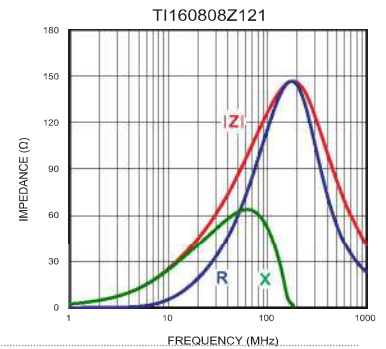
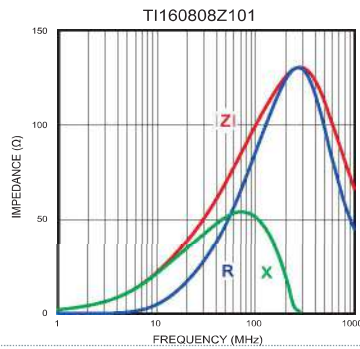
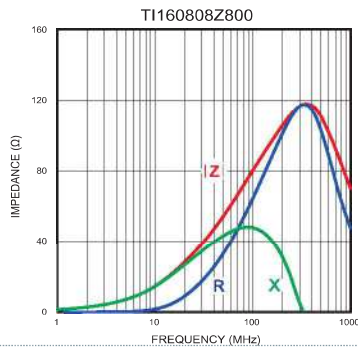
Multilayer Ferrite Chip Beads TI Series (Large Current)

Electrical Charts 0603 Type



Multilayer Ferrite Chip Beads TI Series (Large Current)

Electrical Charts 0603 Type



Multilayer Ferrite Chip Beads

TI Series (Large Current)

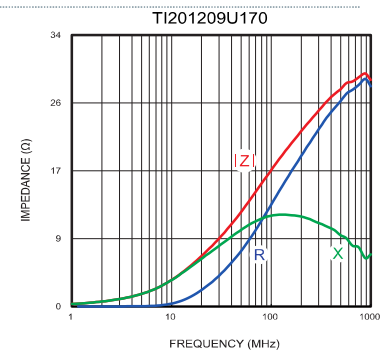
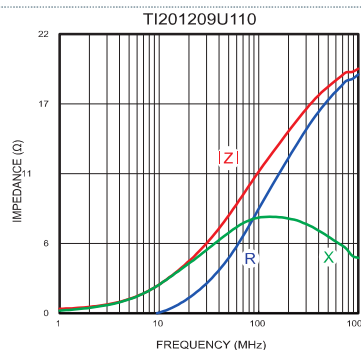
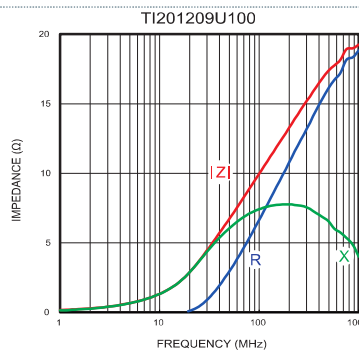
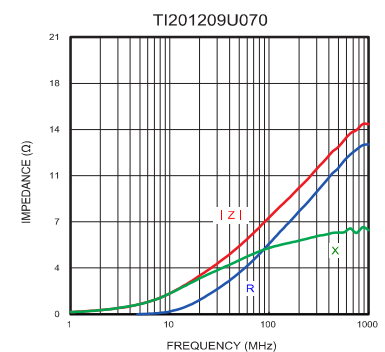
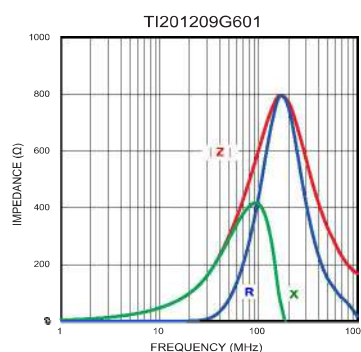
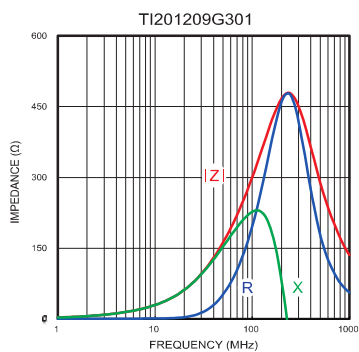
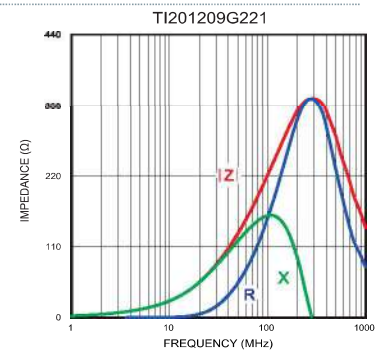
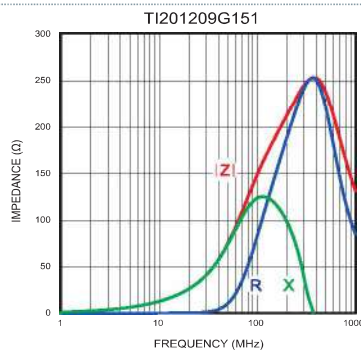
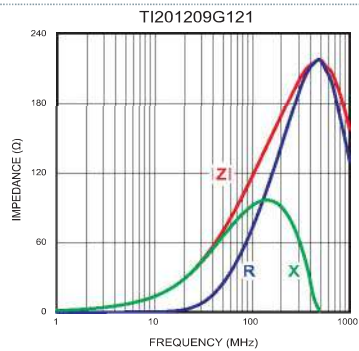
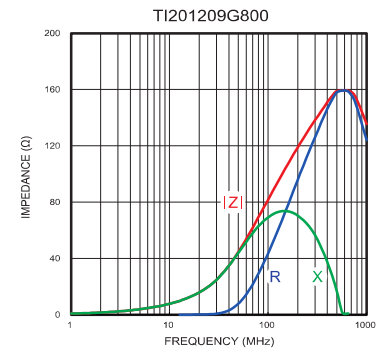
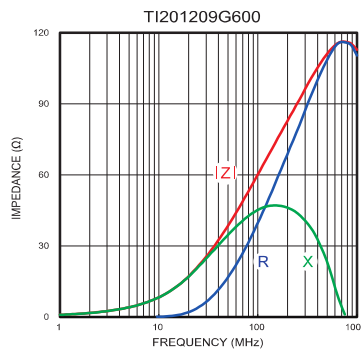
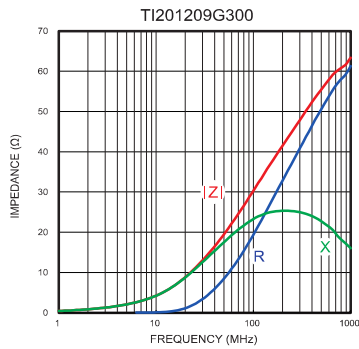
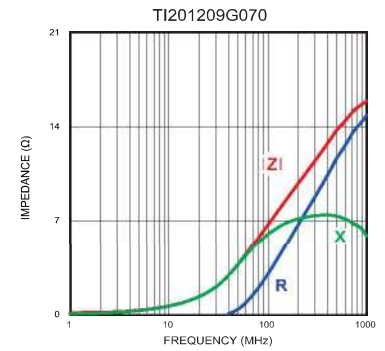
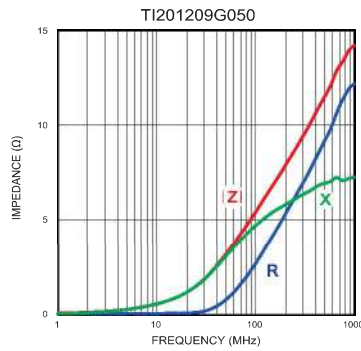
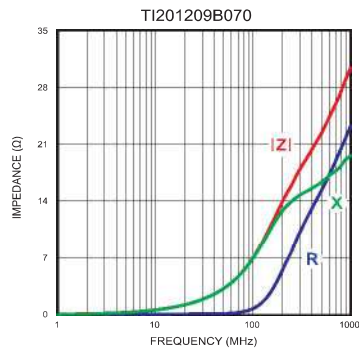
Electrical Characteristics

0805 Type

Part Number	Impedance (Ω) $\pm 25\%$ At 100MHz	DC Resistance (Ω) MAX.	Rated Current (mA) MAX.
TI201209B070	7	0.03	3000
TI201209G050	5	0.05	2000
TI201209G070	7	0.05	2000
TI201209G300	30	0.025	3000
TI201209G600	60	0.06	3000
TI201209G800	80	0.06	3000
TI201209G121	120	0.08	3000
TI201209G151	150	0.08	3000
TI201209G221	220	0.10	2000
TI201209G301	300	0.10	2000
TI201209G601	600	0.20	2000
TI201209U070	7	0.03	3000
TI201209U100	10	0.03	3000
TI201209U110	11	0.01	6000
TI201209U170	17	0.025	3000
TI201209U200	20	0.025	3000
TI201209U260	26	0.025	3000
TI201209U300	30	0.025	3000
TI201209U400	40	0.05	3000
TI201209U470	47	0.06	3000
TI201209U600	60	0.06	3000
TI201209U700	70	0.10	3000
TI201209U800	80	0.10	3000
TI201209U101	100	0.06	3000
TI201209U121	120	0.06	3000
TI201209U151	150	0.06	3000
TI201209U181	180	0.10	2000
TI201209U221	220	0.10	2000
TI201209U301	300	0.10	2000
TI201209U471	470	0.10	2000
TI201209U601	600	0.15	2000
TI201209U102	1000	0.30	1000
TI201209Z300	30	0.025	3000
TI201209Z600	60	0.04	3000
TI201209Z800	80	0.05	3000
TI201209Z121	120	0.06	3000
TI201209Z221	220	0.10	2000
TI201209Z301	300	0.10	2000
TI201209Z601	600	0.15	2000
TI201209Z102	1000	0.30	1000

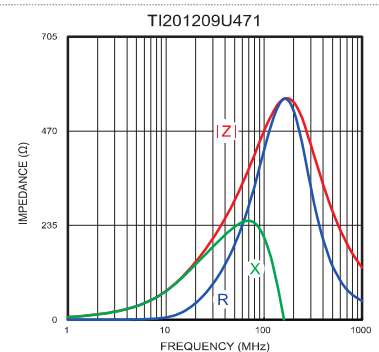
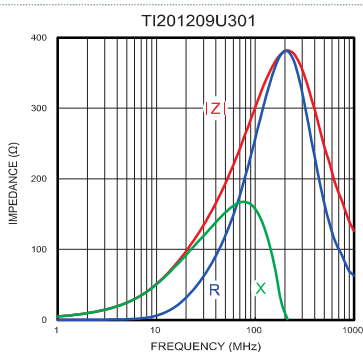
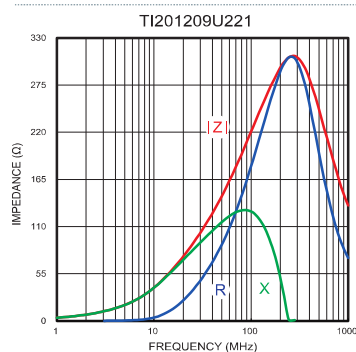
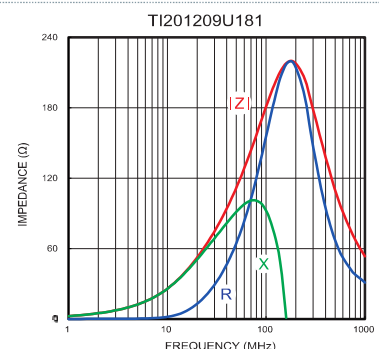
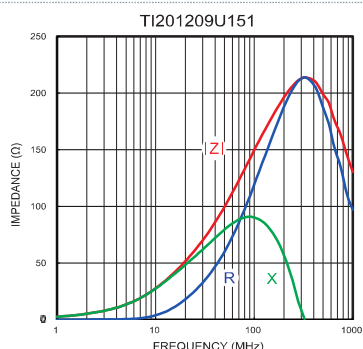
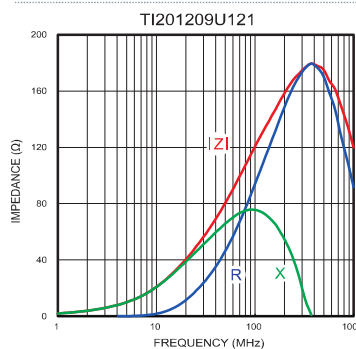
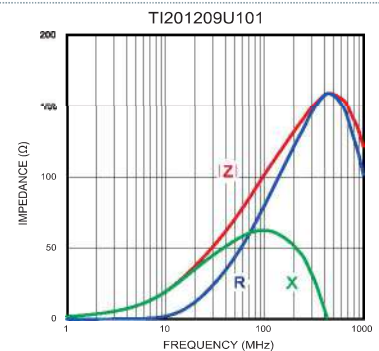
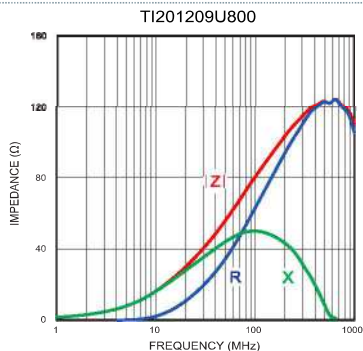
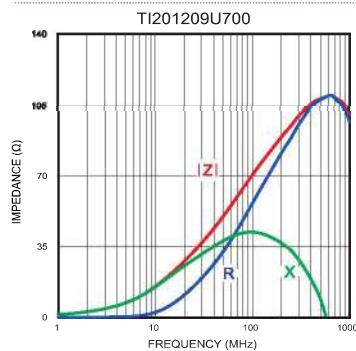
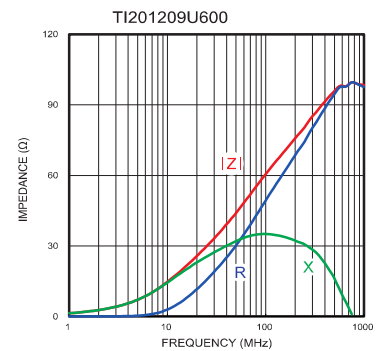
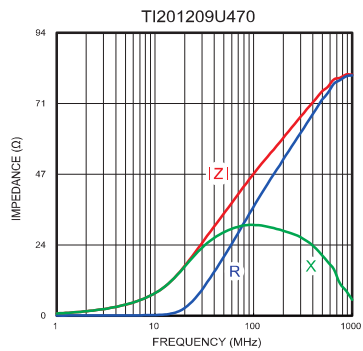
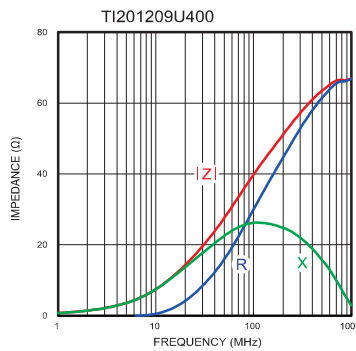
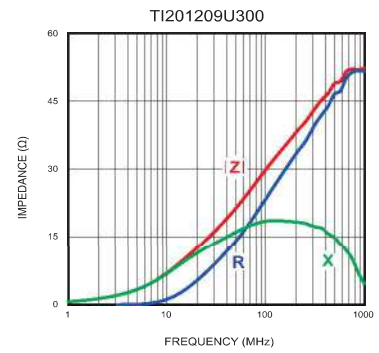
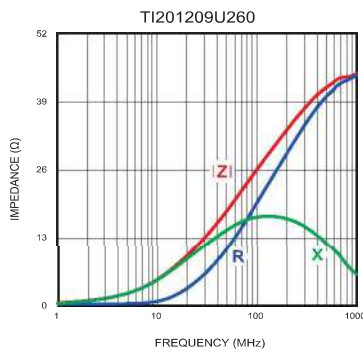
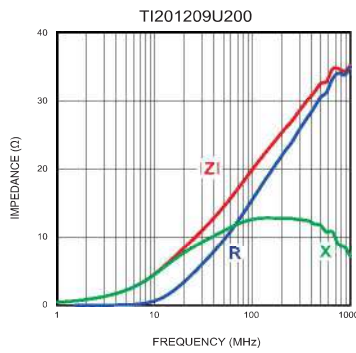
Multilayer Ferrite Chip Beads TI Series (Large Current)

Electrical Charts 0805 Type



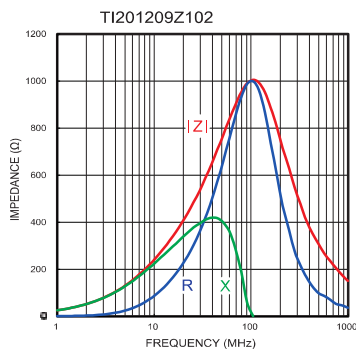
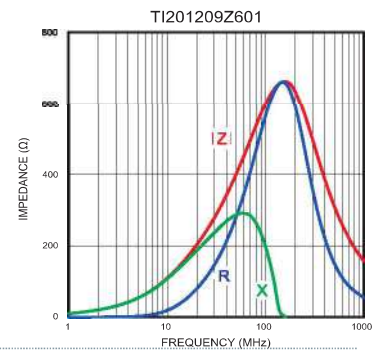
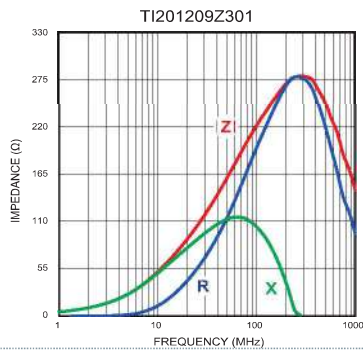
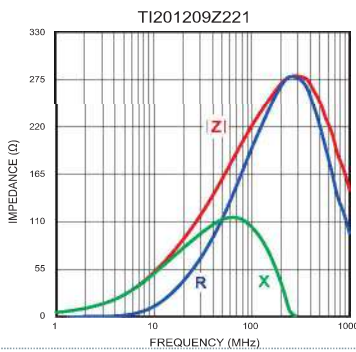
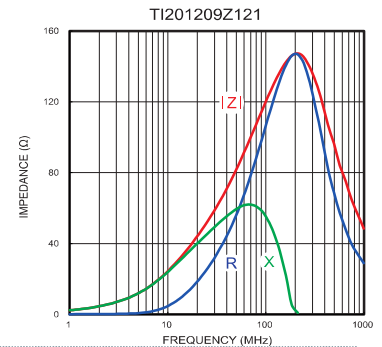
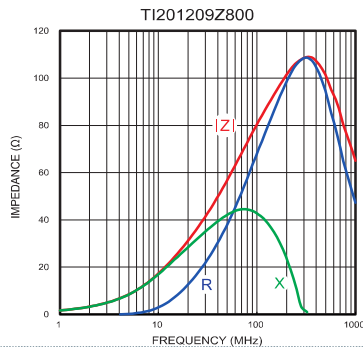
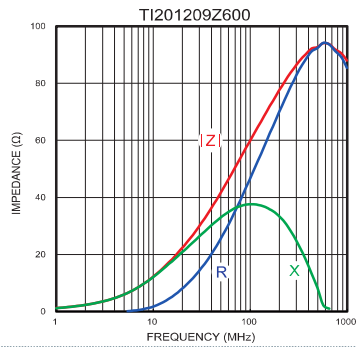
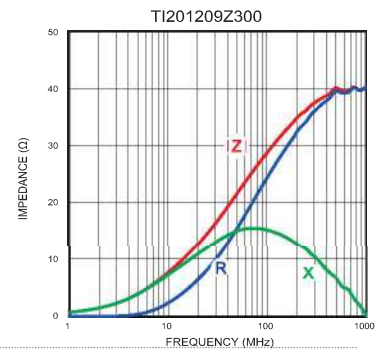
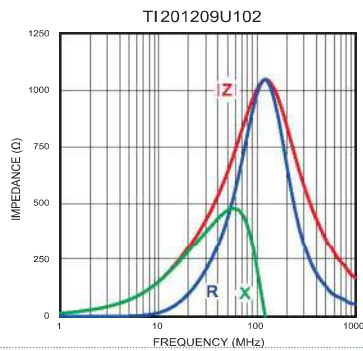
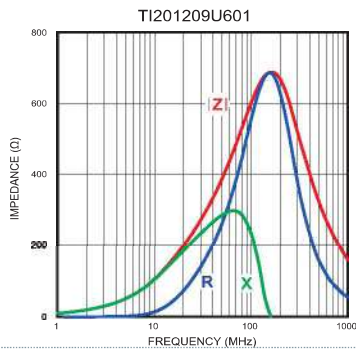
Multilayer Ferrite Chip Beads TI Series (Large Current)

Electrical Charts 0805 Type



Multilayer Ferrite Chip Beads TI Series (Large Current)

Electrical Charts 0805 Type



Multilayer Ferrite Chip Beads

TI Series (Large Current)

Electrical Characteristics

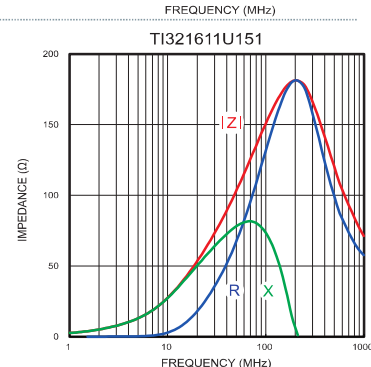
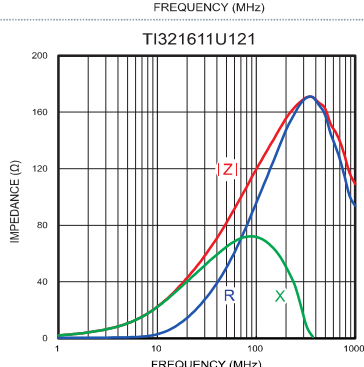
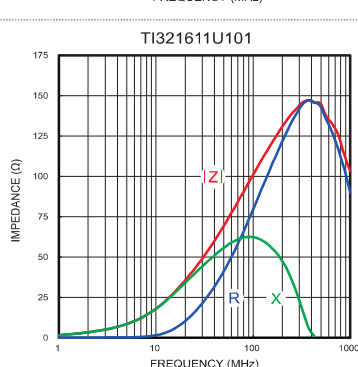
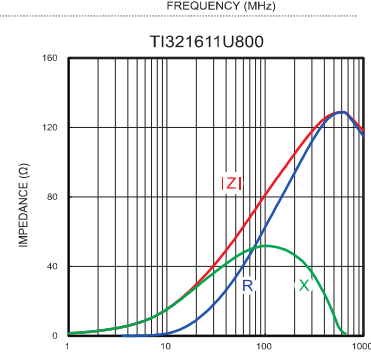
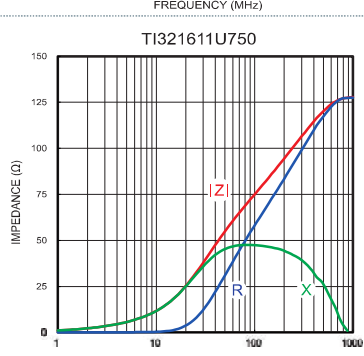
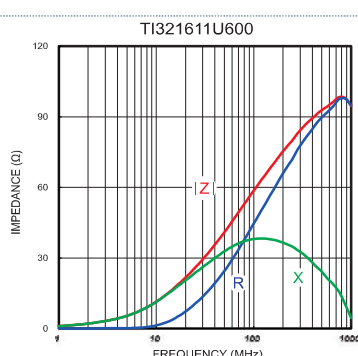
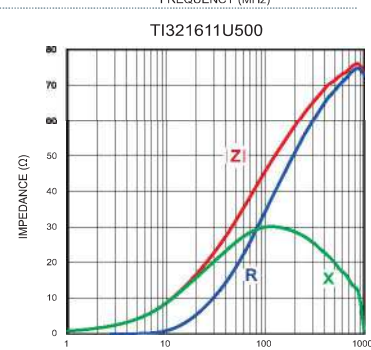
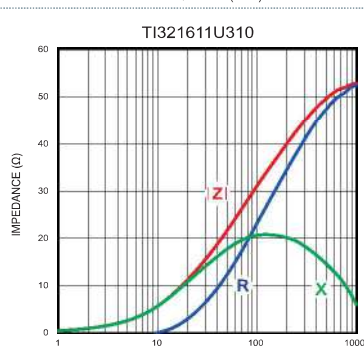
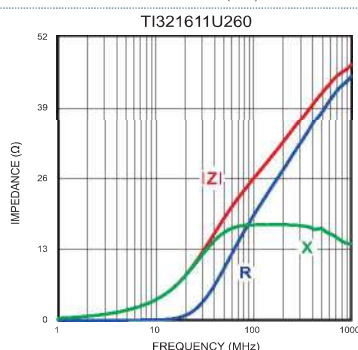
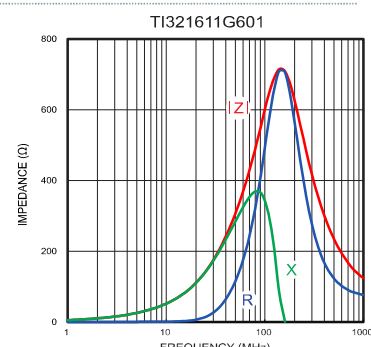
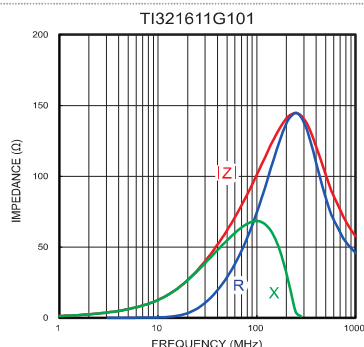
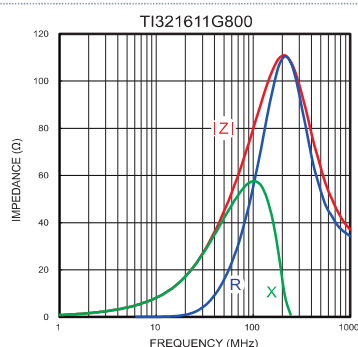
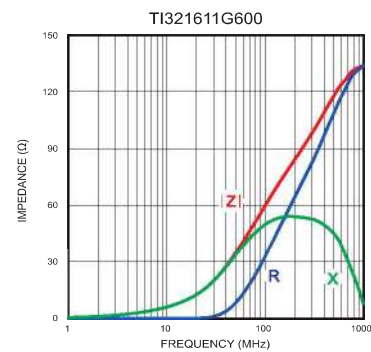
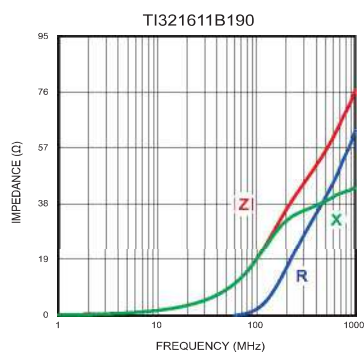
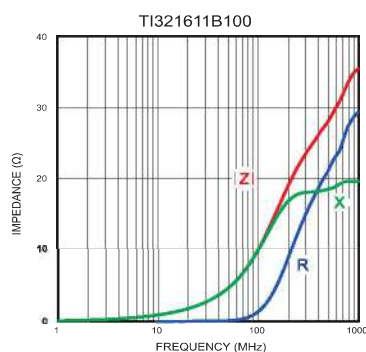
1206 Type

Part Number	Impedance (Ω) $\pm 25\%$ At 100MHz	DC Resistance (Ω) MAX.	Rated Current (mA) MAX.
TI321611B100	10	0.015	6000
TI321611B190	19	0.04	3000
TI321611G600	60	0.03	3000
TI321611G800	80	0.03	3000
TI321611G101	100	0.03	3000
TI321611G601	600	0.25	1000
TI321611U260	26	0.01	6000
TI321611U310	31	0.01	6000
TI321611U500	50	0.025	3000
TI321611U600	60	0.03	3000
TI321611U750	75	0.05	3000
TI321611U800	80	0.04	3000
TI321611U101	100	0.04	3000
※ TI321611U101	100	0.035	3000
TI321611U121	120	0.04	3000
TI321611U151	150	0.05	3000
TI321611U221	220	0.10	2000
TI321611U301	300	0.05	2500
TI321611U391	390	0.10	2000
※ TI321611U391	390	0.05	2000
TI321611U501	500	0.10	2000
TI321611U601	600	0.10	2000
TI321611U102	1000	0.20	2000
TI321611Z500	50	0.025	3000
TI321611Z600	60	0.03	3000
TI321611Z101	100	0.03	3000
TI321611Z121	120	0.04	3000

※ : Can use on Automobile lindustry

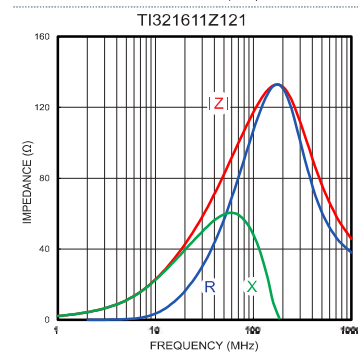
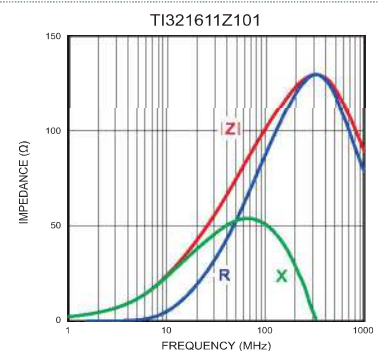
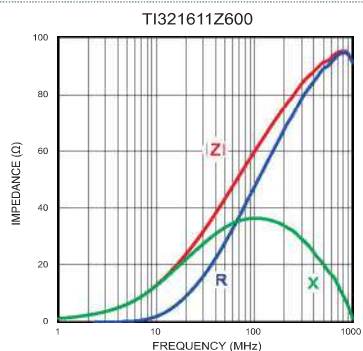
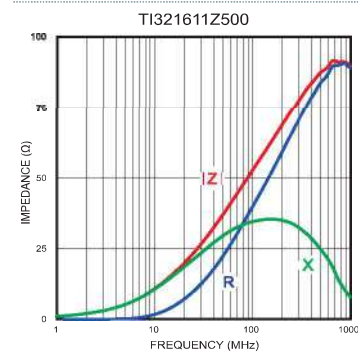
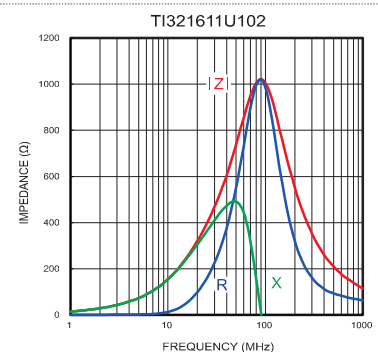
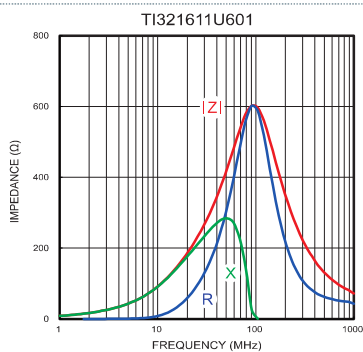
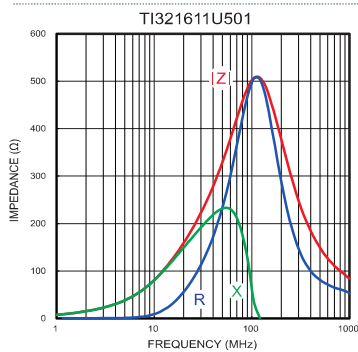
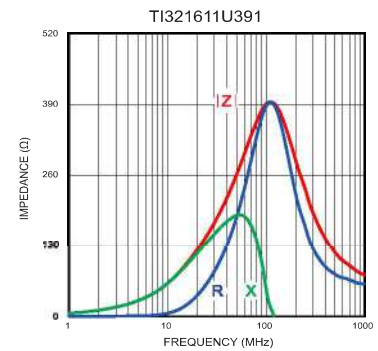
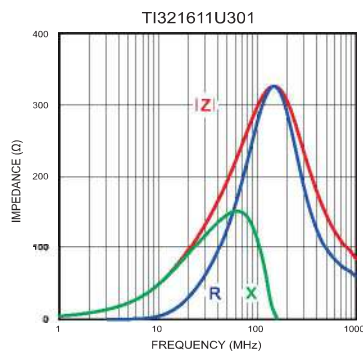
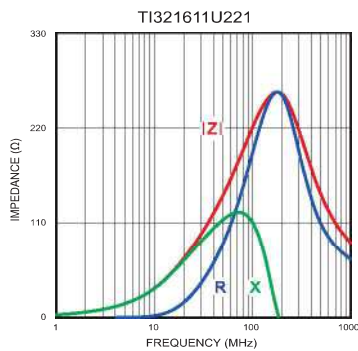
Multilayer Ferrite Chip Beads TI Series (Large Current)

Electrical Charts 1206 Type



Multilayer Ferrite Chip Beads TI Series (Large Current)

Electrical Charts 1206 Type

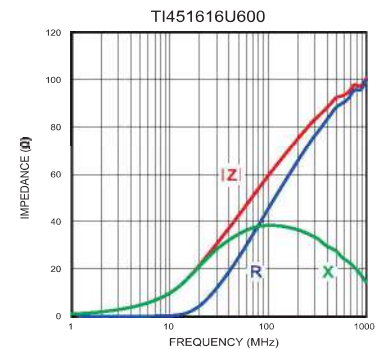
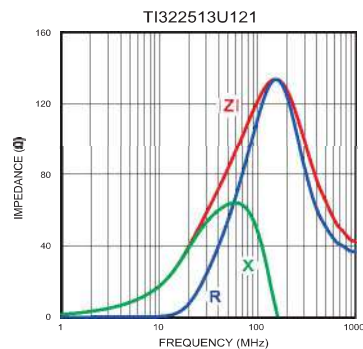
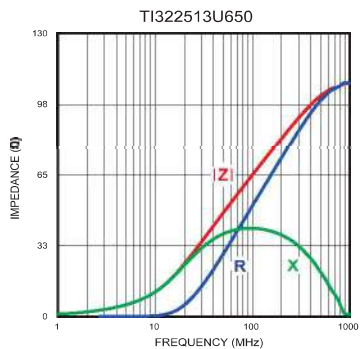
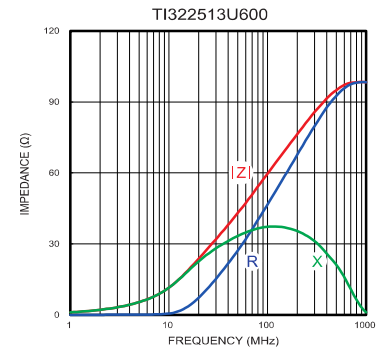
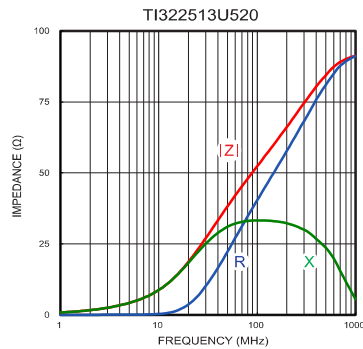
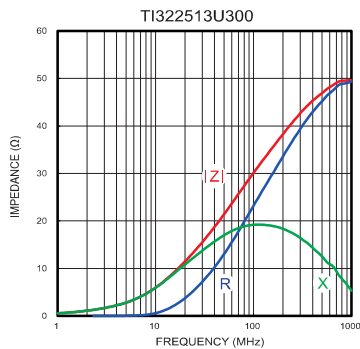


Multilayer Ferrite Chip Beads TI Series (Large Current)

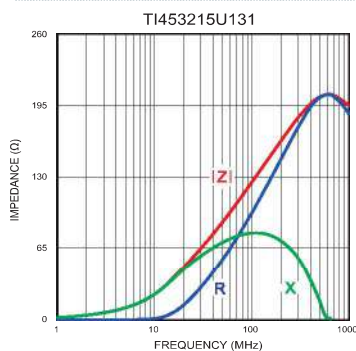
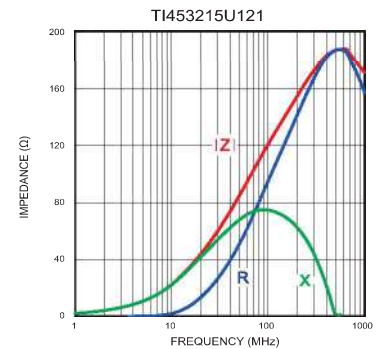
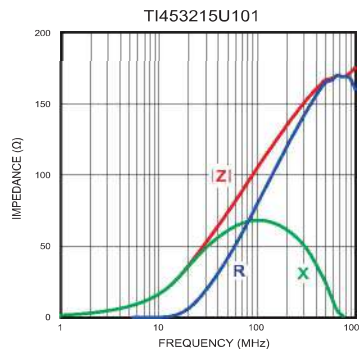
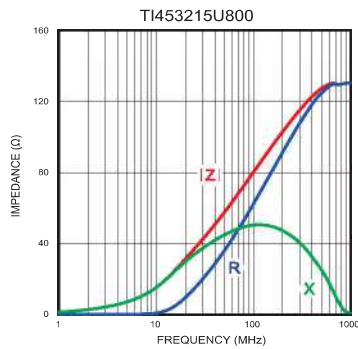
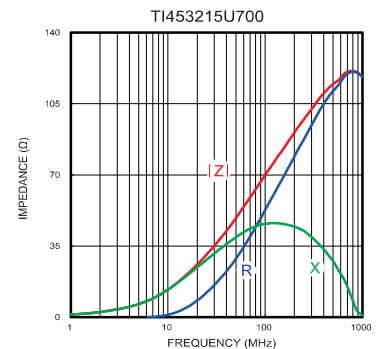
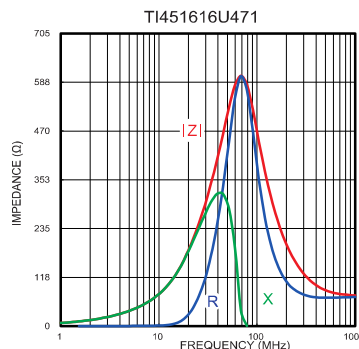
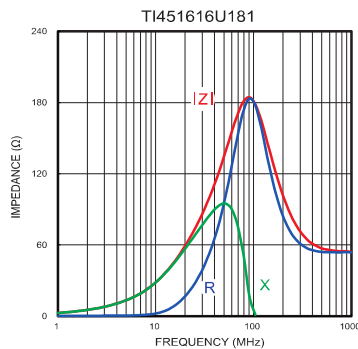
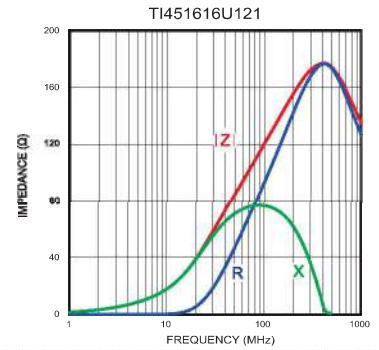
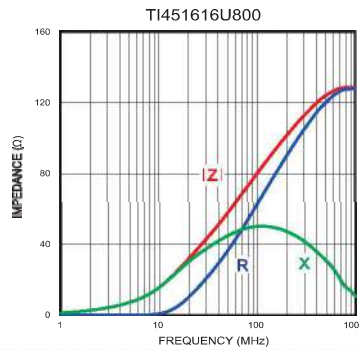
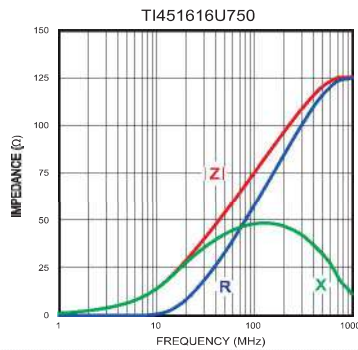
Electrical Characteristics

≥ 1210 Type

Part Number	Impedance (Ω) $\pm 25\%$ At 100MHz	DC Resistance (Ω) MAX.	Rated Current (mA) MAX.
TI322513U300	30	0.05	3000
TI322513U520	52	0.05	3000
TI322513U600	60	0.05	3000
TI322513U650	65	0.03	3000
TI322513U121	120	0.05	2500
TI451616U600	60	0.01	6000
TI451616U750	75	0.025	3000
TI451616U800	80	0.05	3000
TI451616U121	120	0.04	3000
TI451616U181	180	0.025	3000
TI451616U471	470	0.09	2000
TI453215U700	70	0.03	6000
TI453215U800	80	0.05	3000
TI453215U101	100	0.05	3000
TI453215U121	120	0.05	3000
TI453215U131	130	0.05	3000



Multilayer Ferrite Chip Beads TI Series (Large Current)

Electrical Charts $\geq$ 1210 Type

Multilayer Ferrite Chip Beads

TL Series (Ferrite)

Features

- Monolithic structure for highly reliable surface mount applications.
- Excellent solderability and high heat resistance for either flow or reflow soldering.
- No cross coupling between inductors due to magnetic shield. Ideal for high density installation.

Applications

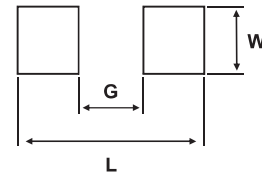
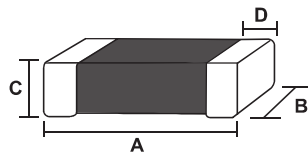
- Prevention of electromagnetic interference to signals on the secondary side of electric equipment.

Product Identifications

TL	□□□□□□	-	□□□	□
(1)	(2)	(3)	(4)	

- (1) Product Symbol
- (2) Dimensions: Length (A) x Width (B) x Thickness (C)
- (3) Inductance
- (4) Tolerance

Shapes and Dimensions / Recommended PC Board Pattern



Dimensions in mm (inch)

TYPE	A	B	C	D	L	W	G
160808	1.6±0.2 (0.063±0.008)	0.8±0.2 (0.031±0.008)	0.8±0.2 (0.031±0.008)	0.3±0.2 (0.012±0.008)	2.80 (0.110)	1.00 (0.039)	0.60 (0.024)
201209	2.0±0.2 (0.079±0.008)	1.2±0.2 (0.047±0.008)	0.9±0.2 (0.035±0.008)	0.5±0.3 (0.020±0.012)	3.20 (0.126)	1.50 (0.059)	0.60 (0.024)
201212	2.0±0.2 (0.079±0.008)	1.2±0.2 (0.047±0.008)	1.2±0.2 (0.047±0.008)	0.5±0.3 (0.020±0.012)	3.20 (0.126)	1.50 (0.059)	0.60 (0.024)

Multilayer Ferrite Chip Beads

TL Series (Ferrite)

Electrical Characteristics

0603 Type

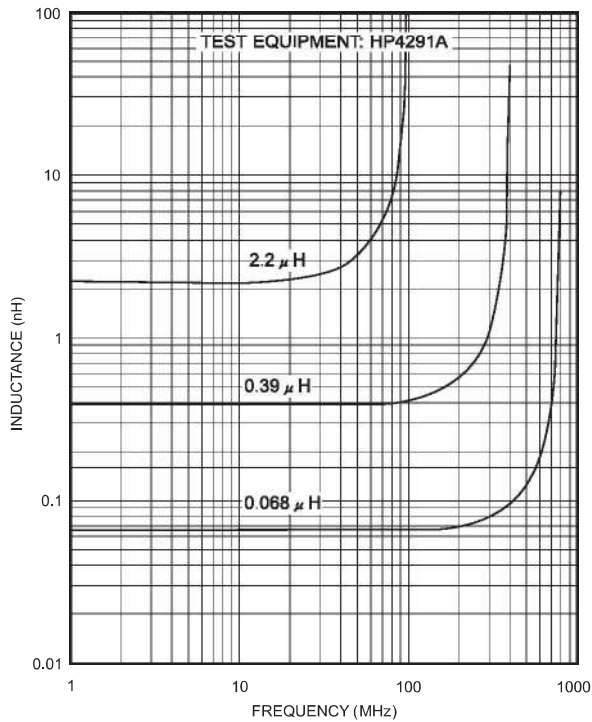
Part Number	Inductance (μ H)	Percent Tolerance	Test Freq. (MHz)	Q MIN.	SRF (MHz) MIN.	DC Resistance (Ω) MAX.	Rated Current (mA) MAX.
TL 160808-47N □	0.047	M	50	10	260	0.30	50
TL 160808-68N □	0.068	M	50	10	250	0.30	50
TL 160808-R10 □	0.10	K	25	15	240	0.50	50
TL 160808-R12 □	0.12	K	25	15	205	0.50	50
TL 160808-R15 □	0.15	K	25	15	180	0.60	50
TL 160808-R18 □	0.18	K	25	15	165	0.60	50
TL 160808-R22 □	0.22	K	25	15	150	0.80	50
TL 160808-R27 □	0.27	K	25	15	136	0.80	50
TL 160808-R33 □	0.33	K	25	15	125	0.85	35
TL 160808-R39 □	0.39	K	25	15	110	1.00	35
TL 160808-R47 □	0.47	K	25	15	105	1.35	35
TL 160808-R56 □	0.56	K	25	15	95	1.55	35
TL 160808-R68 □	0.68	K	25	15	90	1.70	35
TL 160808-R82 □	0.82	K	25	15	85	2.10	35
TL 160808-1R0 □	1.0	K	10	35	75	0.60	25
TL 160808-1R2 □	1.2	K	10	35	65	0.80	25
TL 160808-1R5 □	1.5	K	10	35	60	0.80	25
TL 160808-1R8 □	1.8	K	10	35	55	0.95	25
TL 160808-2R2 □	2.2	K	10	35	50	1.15	15
TL 160808-2R7 □	2.7	K	10	35	45	1.35	15
TL 160808-3R3 □	3.3	K	10	35	40	1.55	15
TL 160808-3R9 □	3.9	K	10	35	35	1.70	15
TL 160808-4R7 □	4.7	K	10	35	33	2.10	15
TL 160808-5R6 □	5.6	K	4	35	22	1.55	5
TL 160808-6R8 □	6.8	K	4	35	20	1.70	5
TL 160808-8R2 □	8.2	K	4	35	18	2.10	5
TL 160808-100 □	10	K	2	30	17	1.85	3
TL 160808-120 □	12	K	2	30	15	2.10	3

□ Tolerance : K = $\pm 10\%$ M = $\pm 20\%$

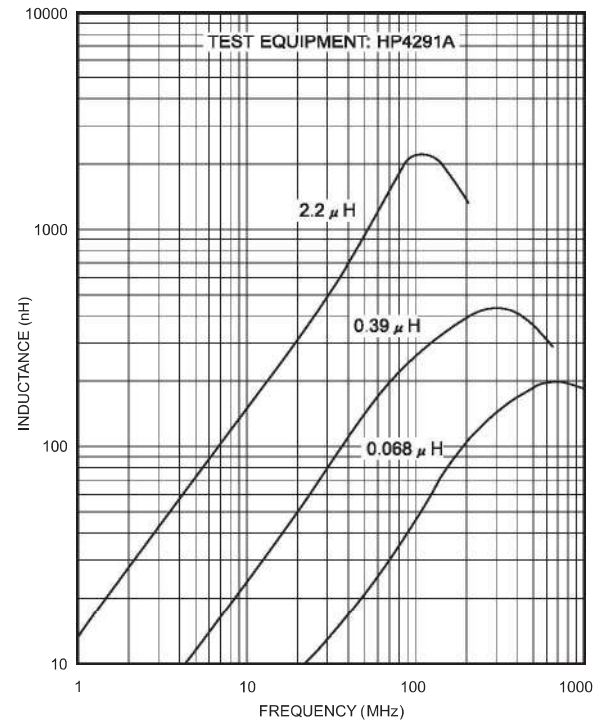
Multilayer Ferrite Chip Beads TL Series (Ferrite)

Electrical Charts 0603 Type

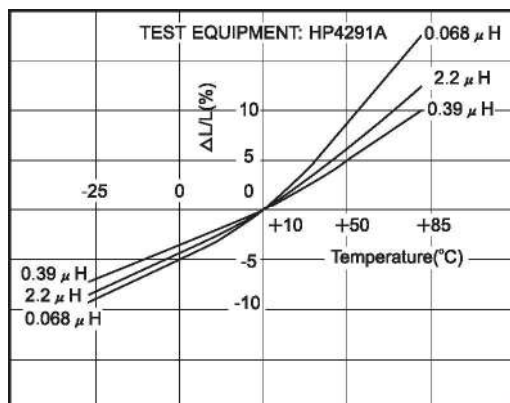
■ Inductance VS. Frequency



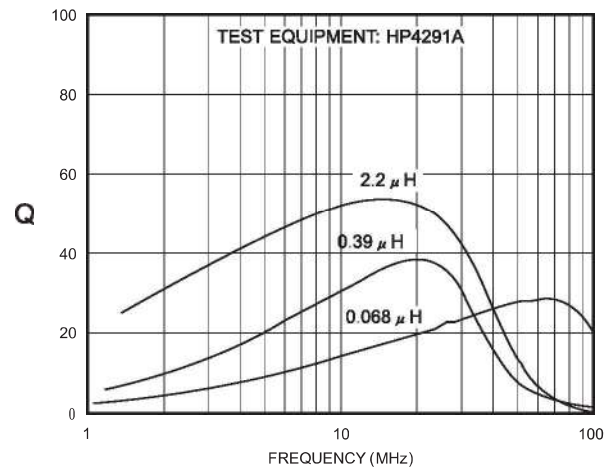
■ Impedance VS. Frequency



■ Inductance VS. Frequency



■ Q VS. Frequency



Multilayer Ferrite Chip Beads

TL Series (Ferrite)

Electrical Characteristics

0805 Type

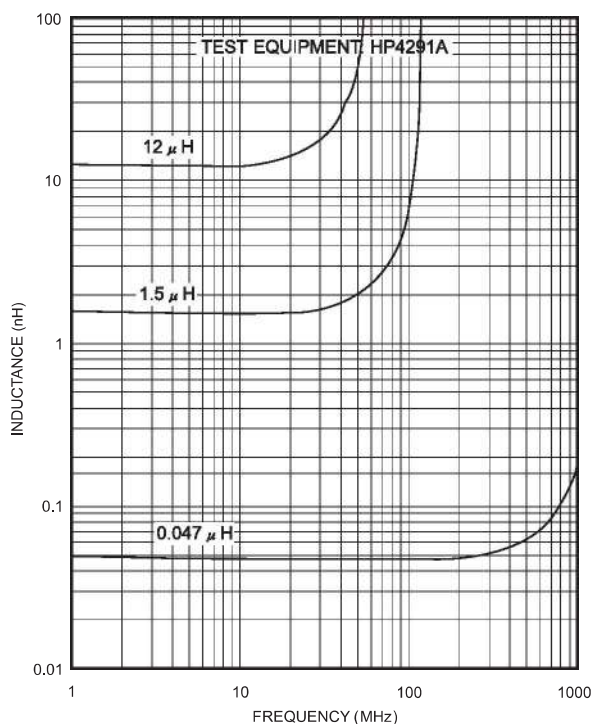
Part Number	Inductance (μ H)	Percent Tolerance	Test Freq. (MHz)	Q MIN.	SRF (MHz) MIN.	DC Resistance (Ω) MAX.	Rated Current (mA) MAX.
TL 201209-47N □	0.047	M	50	15	320	0.20	300
TL 201209-68N □	0.068	M	50	15	280	0.20	300
TL 201209-R10 □	0.10	K	25	20	235	0.30	250
TL 201209-R12 □	0.12	K	25	20	220	0.30	250
TL 201209-R15 □	0.15	K	25	20	200	0.40	250
TL 201209-R18 □	0.18	K	25	20	185	0.40	250
TL 201209-R22 □	0.22	K	25	20	170	0.50	250
TL 201209-R27 □	0.27	K	25	20	150	0.50	250
TL 201209-R33 □	0.33	K	25	20	145	0.55	250
TL 201209-R39 □	0.39	K	25	25	135	0.65	200
TL 201209-R47 □	0.47	K	25	25	125	0.65	200
TL 201209-R56 □	0.56	K	25	25	115	0.75	150
TL 201209-R68 □	0.68	K	25	25	105	0.80	150
TL 201209-R82 □	0.82	K	25	25	100	1.00	150
TL 201209-1R0 □	1.0	K	10	45	75	0.40	50
TL 201209-1R2 □	1.2	K	10	45	65	0.50	50
TL 201209-1R5 □	1.5	K	10	45	60	0.50	50
TL 201209-1R8 □	1.8	K	10	45	55	0.60	50
TL 201209-2R2 □	2.2	K	10	45	50	0.65	30
TL 201212-2R7 □	2.7	K	10	45	45	0.75	30
TL 201212-3R3 □	3.3	K	10	45	41	0.80	30
TL 201212-3R9 □	3.9	K	10	45	38	0.90	30
TL 201212-4R7 □	4.7	K	10	45	35	1.00	30
TL 201212-5R6 □	5.6	K	4	50	32	0.90	15
TL 201212-6R8 □	6.8	K	4	50	29	1.00	15
TL 201212-8R2 □	8.2	K	4	50	26	1.10	15
TL 201212-100 □	10	K	2	50	24	1.15	15

□ Tolerance : K = $\pm 10\%$, M = $\pm 20\%$

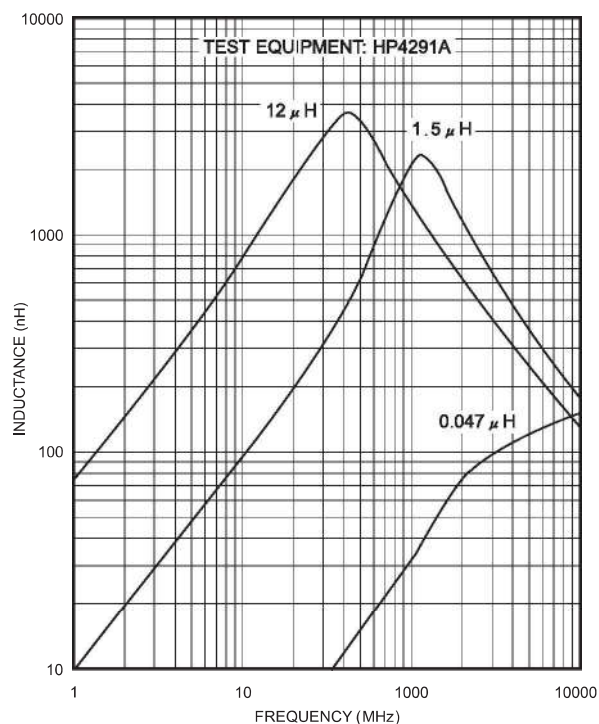
Multilayer Ferrite Chip Beads TL Series (Ferrite)

Electrical Charts 0805 Type

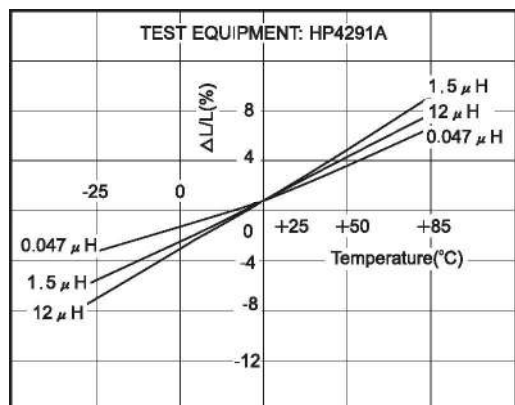
■ Inductance VS. Frequency



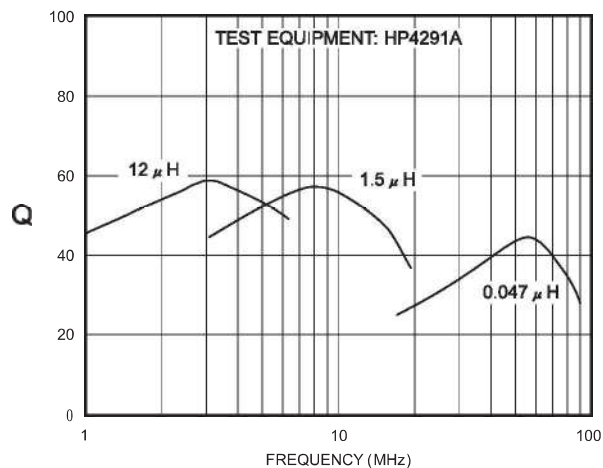
■ Impedance VS. Frequency



■ Inductance VS. Frequency

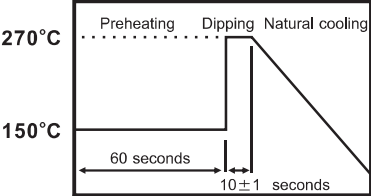
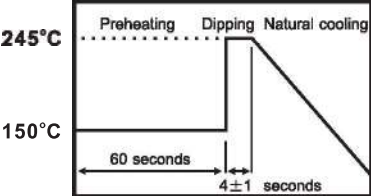
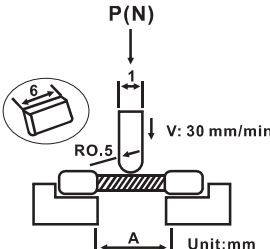


■ Q VS. Frequency

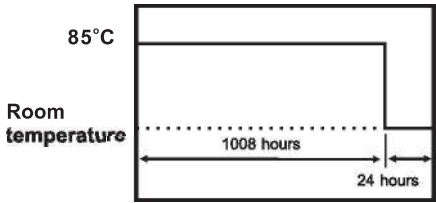
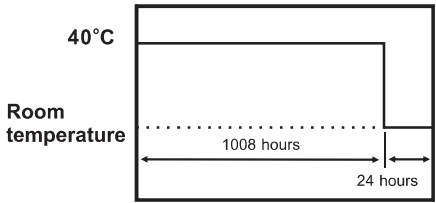
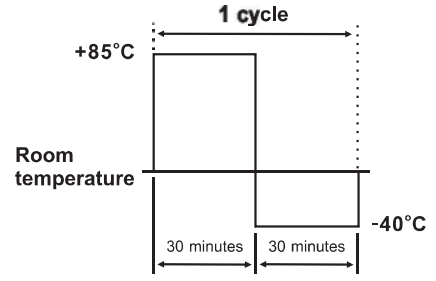
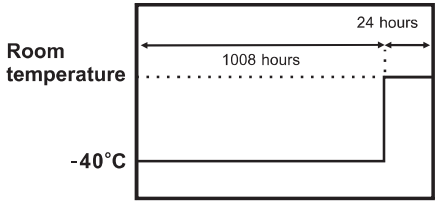
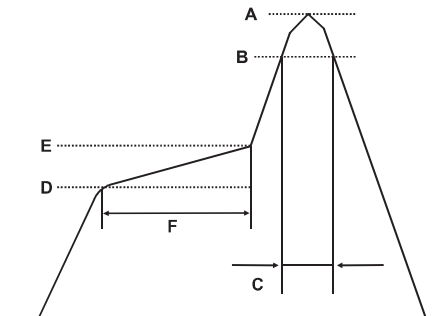


Multilayer Chip Beads & Inductors

Reliability Test

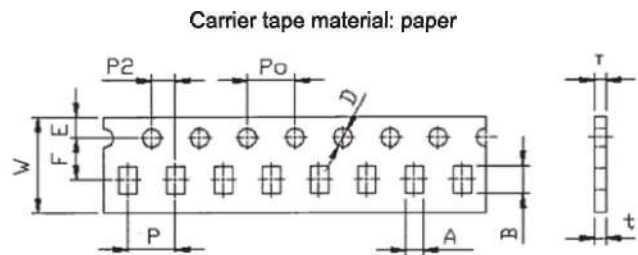
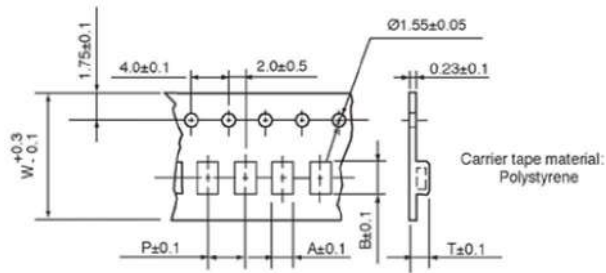
Item	Performance	Test condition																								
Operating temperature range	-55 °C to + 125 °C																									
Storage temperature and umidity ranges	40 °C MAX., 70% RH MAX.																									
Soldering heat resistance	The chip shall not be cracks. More than 75% of terminal electrode shall be covered with solder.	Preheat: 150 °C, 60 seconds Solder temperature : 270 ± 5 °C Flux: Rosin Dip time: 10 ± 1 seconds 																								
Solderability	More than 90% of the terminal electrode shall be covered with new solder.	Preheat: 150 °C, 60 seconds Solder temperature: 245 ± 5 °C Flux: Rosin Dip time: 4 ± 1 seconds 																								
Terminal strength	The terminal electrode and the body shall not be damaged by the forces applied on the right conditions. 	<table border="1"> <thead> <tr> <th>Type</th><th>P(kgf)</th><th>Time(s)</th></tr> </thead> <tbody> <tr> <td>T□ 100505</td><td>0.3</td><td rowspan="8">30 ± 5</td></tr> <tr> <td>T□ 160808</td><td>0.5</td></tr> <tr> <td>T□ 201209</td><td>0.6</td></tr> <tr> <td>T□ 201212</td><td>0.8</td></tr> <tr> <td>T□ 321611</td><td>1.0</td></tr> <tr> <td>T□ 322513</td><td>1.0</td></tr> <tr> <td>T□ 451616</td><td>1.0</td></tr> <tr> <td>T□ 453215</td><td>1.5</td></tr> </tbody> </table>	Type	P(kgf)	Time(s)	T□ 100505	0.3	30 ± 5	T□ 160808	0.5	T□ 201209	0.6	T□ 201212	0.8	T□ 321611	1.0	T□ 322513	1.0	T□ 451616	1.0	T□ 453215	1.5				
Type	P(kgf)	Time(s)																								
T□ 100505	0.3	30 ± 5																								
T□ 160808	0.5																									
T□ 201209	0.6																									
T□ 201212	0.8																									
T□ 321611	1.0																									
T□ 322513	1.0																									
T□ 451616	1.0																									
T□ 453215	1.5																									
Bending strength	The body shall not be damaged by the forces applied on the right conditions. 	<table border="1"> <thead> <tr> <th>Type</th><th>A(mm)</th><th>P(kgf)</th></tr> </thead> <tbody> <tr> <td>T□ 160808</td><td>1.0</td><td>0.5</td></tr> <tr> <td>T□ 201209</td><td>1.4</td><td>1.0</td></tr> <tr> <td>T□ 201212</td><td>1.4</td><td>1.2</td></tr> <tr> <td>T□ 321611</td><td>2.0</td><td>2.0</td></tr> <tr> <td>T□ 322513</td><td>2.0</td><td>2.5</td></tr> <tr> <td>T□ 451616</td><td>2.5</td><td>2.5</td></tr> <tr> <td>T□ 453215</td><td>2.7</td><td>2.5</td></tr> </tbody> </table>	Type	A(mm)	P(kgf)	T□ 160808	1.0	0.5	T□ 201209	1.4	1.0	T□ 201212	1.4	1.2	T□ 321611	2.0	2.0	T□ 322513	2.0	2.5	T□ 451616	2.5	2.5	T□ 453215	2.7	2.5
Type	A(mm)	P(kgf)																								
T□ 160808	1.0	0.5																								
T□ 201209	1.4	1.0																								
T□ 201212	1.4	1.2																								
T□ 321611	2.0	2.0																								
T□ 322513	2.0	2.5																								
T□ 451616	2.5	2.5																								
T□ 453215	2.7	2.5																								

Multilayer Chip Beads & Inductors

Item	Performance	Test condition
High temperature resistance	Appearance: Ferrite shall not be damaged. Impedance: Within $\pm 20\%$ of the initial value.	Temperature: $85 \pm 2^\circ\text{C}$ Testing time: 1008 ± 12 hours Measurement: After placing for 24 hours min. 
Humidity resistance	Appearance: Ferrite shall not be damaged. Impedance: Within $\pm 20\%$ of the initial value.	Humidity: 90 to 95% RH Temperature: $40 \pm 2^\circ\text{C}$ Testing time: 1008 ± 12 hours Measurement: After placing for 24 hours min. 
Thermal Shock	Appearance: Cracking, chipping or any other defects harmful to the characteristics shall not be allowed. Impedance: Within $\pm 20\%$ of the initial value.	Temperature: -40°C , $+85^\circ\text{C}$, kept stabilized for 30 minutes each Cycle: 100 cycles Measurement: After placing for 24 hours min. 
Low temperature storage life test	Appearance: Cracking, chipping or any other defects harmful to the characteristics shall not be allowed. Impedance: Within $\pm 20\%$ of the initial value.	Temperature: $-40 \pm 2^\circ\text{C}$ Testing time: 1008 ± 12 hours Measurement: After placing for 24 hours min. 
Recommended Soldering Conditions	(Reflow Temperature Profile) Lead-Free	

A	$260 \pm 5^\circ\text{C}$
B	$230 \pm 5^\circ\text{C}$
C	30 ± 10 sec
D	150°C
E	180°C
F	90 ± 30 sec

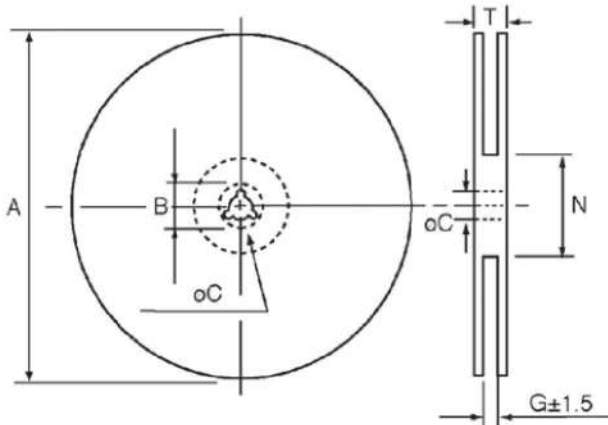
Tape dimensions and packaging quantities



material: Paper (Dimensions in mm)						
TYPE	A	B	W	P	T	CHIPS / REEL
100505	0.62	1.12	8	2	0.60	10000
160808	1.10	1.90	8	4	0.95	4000
201209	1.50	2.30	8	4	0.95	4000
material: Polystyrene (Dimensions in mm)						
TYPE	A	B	W	P	T	CHIPS / REEL
201212	1.50	2.35	8	4	1.45	3000
321611	1.88	3.50	8	4	1.27	3000
322513	2.77	3.42	8	4	1.55	2000
451616	1.93	4.95	12	4	1.93	2000
453215	3.66	4.95	12	8	1.85	1000

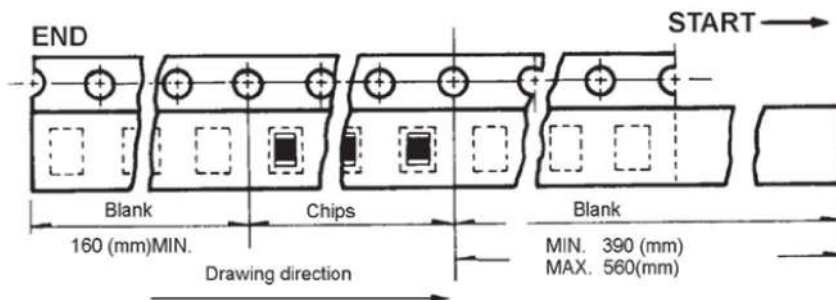
Reel dimensions

Material: Paper, Plastic



Dimensions in mm

Type	8mm	12mm
A	178±2	178±2
B	21.0±0.8	21.0±0.8
C	13.0±0.8	13.0±0.8
G	10.0	14.0
N	75	75
T	12.5	16.5



Multilayer Chip Inductors

TF Series (High Frequency)

Scope

This specification applies to Multilayer ceramic chip inductors

Product Identificationses

TF	□□□□□□	- □□□	□
(1)	(2)	(3)	(4)

- (1) Product Symbol
 (2) Dimensions: Length(A) x Width(B) x Thickness(C)
 (3) Inductance
 (4) Tolerance

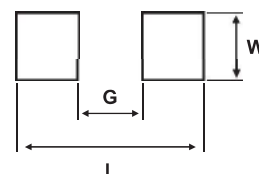
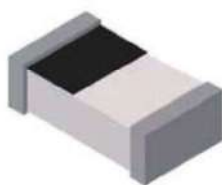
Rating

Operating Temperature: - 55℃ to +125℃

Storage Temperature: - 55℃ to +125℃ (after PCB)

- 5℃ to +40℃ , Humidity 40℃ to 70℃ (before PCB)

Shapes and Dimensions / PC Board Pattern



Dimensions in mm (inch)

TYPE	A	B	C	D	L	W	G
060303 (0201)	0.60±0.03	0.30±0.03	0.30±0.03	0.15±0.05	0.75~1.05	0.3	0.3
100505 (0402)	1.00±0.10	0.50±0.10	0.50±0.10	0.25±0.10	1.2~1.4	0.5	0.4
160808 (0603)	1.60±0.15	0.80±0.15	0.80±0.15	0.30±0.20	1.8~2.0	0.6~0.8	0.7~0.8

Multilayer Chip Inductors

TF Series (High Frequency)

Electrical Characteristics

0201 Type

Part Number	Inductance (nH)	L, Q Test Frequency	Q Min.	SRF (MHz)Typ.	RDC (Ω)Max.	Rated Current (mA)Max.	Tolerance
TF060303-1N0 □	1.0	100MHz,500mV	4	>10000	0.11	470	S
TF060303-1N2 □	1.2	100MHz,500mV	4	>10000	0.12	450	S
TF060303-1N5 □	1.5	100MHz,500mV	4	>10000	0.13	430	S
TF060303-1N8 □	1.8	100MHz,500mV	4	>10000	0.16	390	S
TF060303-2N0 □	2.0	100MHz,500mV	4	>10000	0.17	380	S
TF060303-2N2 □	2.2	100MHz,500mV	4	8800	0.19	360	S
TF060303-2N4 □	2.4	100MHz,500mV	4	8300	0.20	350	S
TF060303-2N7 □	2.7	100MHz,500mV	4	7700	0.21	340	S
TF060303-3N0 □	3.0	100MHz,500mV	4	7200	0.22	330	S
TF060303-3N3 □	3.3	100MHz,500mV	4	6700	0.23	320	S
TF060303-3N6 □	3.6	100MHz,500mV	4	6400	0.25	310	S
TF060303-3N9 □	3.9	100MHz,500mV	4	6000	0.27	300	S
TF060303-4N3 □	4.3	100MHz,500mV	4	5700	0.30	280	S
TF060303-4N7 □	4.7	100MHz,500mV	4	5300	0.30	280	S
TF060303-5N1 □	5.1	100MHz,500mV	4	5000	0.33	270	S
TF060303-5N6 □	5.6	100MHz,500mV	4	4600	0.36	260	S
TF060303-6N2 □	6.2	100MHz,500mV	4	4200	0.38	250	S
TF060303-6N8 □	6.8	100MHz,500mV	4	3900	0.39	250	J
TF060303-7N5 □	7.5	100MHz,500mV	4	3600	0.41	240	J
TF060303-8N2 □	8.2	100MHz,500mV	4	3400	0.45	230	J
TF060303-9N1 □	9.1	100MHz,500mV	4	3200	0.48	220	J
TF060303-10N □	10	100MHz,500mV	4	2900	0.51	220	J
TF060303-12N □	12	100MHz,500mV	4	2700	0.68	190	J
TF060303-15N □	15	100MHz,500mV	4	2300	0.71	180	J
TF060303-18N □	18	100MHz,500mV	4	2100	0.81	170	J
TF060303-22N □	22	100MHz,500mV	4	1800	1.00	150	J
TF060303-27N □	27	100MHz,500mV	4	1800	1.35	120	J
TF060303-33N □	33	100MHz,500mV	4	1700	1.47	110	J
TF060303-39N □	39	100MHz,500mV	4	1500	1.72	100	J
TF060303-47N □	47	100MHz,500mV	4	1300	1.90	100	J
TF060303-56N □	56	100MHz,500mV	4	1100	2.27	80	J
TF060303-68N □	68	100MHz,500mV	4	1100	2.66	80	J
TF060303-82N □	82	100MHz,500mV	4	1000	3.37	70	J
TF060303-R10 □	100	100MHz,500mV	4	900	3.74	60	J

NOTE: □-Tolerance: S = $\pm 0.3\text{nH}$ / J = $\pm 5\%$

1 Operating temperature range -55°C to +125°C (Including self – temperature rise)

2 Rate Current : Applied the current to coils , the temperature rise shall not be more than 30°C

Multilayer Chip Inductors

TF Series (High Frequency)

Electrical Characteristics

0402 Type

Part Number	Inductance (nH)	L, Q Test Frequency	Q Min.	SRF (MHz)Typ.	RDC (Ω)Max.	Rated Current (mA)Max.	Tolerance
TF100505-1N0 □	1.0	100MHz, 100mV	8	10000	0.07	400	S
TF100505-1N1 □	1.1	100MHz, 100mV	8	10000	0.07	400	S
TF100505-1N2 □	1.2	100MHz, 100mV	8	10000	0.09	400	S
TF100505-1N3 □	1.3	100MHz, 100mV	8	9000	0.10	400	S
TF100505-1N5 □	1.5	100MHz, 100mV	8	9000	0.10	400	S
TF100505-1N6 □	1.6	100MHz, 100mV	8	8700	0.10	400	S
TF100505-1N8 □	1.8	100MHz, 100mV	8	8700	0.10	400	S
TF100505-2N0 □	2.0	100MHz, 100mV	8	8100	0.10	400	S
TF100505-2N2 □	2.2	100MHz, 100mV	8	8100	0.12	400	S
TF100505-2N4 □	2.4	100MHz, 100mV	8	7700	0.15	400	S
TF100505-2N7 □	2.7	100MHz, 100mV	8	7700	0.15	400	S
TF100505-3N0 □	3.0	100MHz, 100mV	8	6300	0.15	400	S
TF100505-3N3 □	3.3	100MHz, 100mV	8	6300	0.15	400	S, K
TF100505-3N6 □	3.6	100MHz, 100mV	8	6100	0.15	400	S, K
TF100505-3N9 □	3.9	100MHz, 100mV	8	6100	0.18	400	S, K
TF100505-4N3 □	4.3	100MHz, 100mV	8	6000	0.18	400	S, K
TF100505-4N7 □	4.7	100MHz, 100mV	8	6000	0.18	400	S, K
TF100505-5N0 □	5.0	100MHz, 100mV	8	5100	0.20	400	S, K
TF100505-5N1 □	5.1	100MHz, 100mV	8	5300	0.20	400	S, K
TF100505-5N6 □	5.6	100MHz, 100mV	8	5100	0.20	400	S, K
TF100505-6N8 □	6.8	100MHz, 100mV	8	4550	0.24	400	J, K
TF100505-8N0 □	8.0	100MHz, 100mV	8	4100	0.30	300	J, K
TF100505-8N2 □	8.2	100MHz, 100mV	8	4100	0.24	300	J, K
TF100505-9N1 □	9.1	100MHz, 100mV	8	3900	0.26	300	J, K
TF100505-10N □	10	100MHz, 100mV	8	3900	0.26	300	J, K
TF100505-12N □	12	100MHz, 100mV	8	3000	0.40	300	J, K
TF100505-15N □	15	100MHz, 100mV	8	2800	0.50	300	J, K
TF100505-18N □	18	100MHz, 100mV	8	2500	0.55	300	J, K
TF100505-22N □	22	100MHz, 100mV	8	2200	0.70	300	J, K
TF100505-24N □	24	100MHz, 100mV	8	2100	0.70	300	J, K
TF100505-27N □	27	100MHz, 100mV	8	2000	0.80	300	J, K
TF100505-33N □	33	100MHz, 100mV	8	1800	0.90	200	J, K
TF100505-39N □	39	100MHz, 100mV	8	1600	1.0	150	J, K
TF100505-47N □	47	100MHz, 100mV	8	1400	1.2	150	J, K
TF100505-56N □	56	100MHz, 100mV	8	1300	1.3	150	J, K

NOTE: □ -Tolerance: S = $\pm 0.3\text{nH}$ / J = $\pm 5\%$ / K = $\pm 10\%$

1. Operating temperature range -55°C to $+125^{\circ}\text{C}$

2. Rate Current : Applied the current to coils, the inductance shall be less than 10% initial value.

Multilayer Chip Inductors

TF Series (High Frequency)

Electrical Characteristics

0402 Type

Part Number	Inductance (nH)	L, Q Test Frequency	Q Min.	SRF (MHz)Typ.	RDC (Ω)Max.	Rated Current (mA)Max.	Tolerance
TF100505-68N □	68	100MHz, 100mV	8	1100	1.5	100	J, K
TF100505-75N □	75	100MHz, 100mV	8	1080	1.5	100	J, K
TF100505-82N □	82	100MHz, 100mV	8	1000	1.6	100	J, K
TF100505-R10 □	100	100MHz, 100mV	8	900	2.0	100	J, K
TF100505-R12 □	120	100MHz, 100mV	8	800	2.2	100	J, K
TF100505-R15 □	150	100MHz, 100mV	8	700	3.5	100	J, K
TF100505-R18 □	180	100MHz, 100mV	8	600	3.8	100	J, K
TF100505-R22 □	220	100MHz, 100mV	8	500	4.2	100	J, K
TF100505-R27 □	270	100MHz, 100mV	8	500	4.8	100	J, K

NOTE: □ -Tolerance: S = $\pm 0.3\text{nH}$ / J = $\pm 5\%$ / K = $\pm 10\%$

1. Operating temperature range -55°C to +125°C

2. Rate Current : Applied the current to coils, the inductance shall be less than 10% initial value.

Electrical Characteristics

0603 Type

Part Number	Inductance (nH)	L, Q Test Frequency	Q Min.	SRF (MHz)Typ.	RDC (Ω)Max.	Rated Current (mA)Max.	Tolerance
TF160808-1N0 □	1.0	100MHz, 100mV	8	10000	0.10	600	S
TF160808-1N2 □	1.2	100MHz, 100mV	8	10000	0.10	600	S
TF160808-1N5 □	1.5	100MHz, 100mV	8	8000	0.10	600	S
TF160808-1N6 □	1.6	100MHz, 100mV	8	8000	0.10	600	S
TF160808-1N8 □	1.8	100MHz, 100mV	8	8000	0.10	600	S
TF160808-2N2 □	2.2	100MHz, 100mV	8	7200	0.10	600	S
TF160808-2N7 □	2.7	100MHz, 100mV	10	6200	0.10	600	S
TF160808-3N0 □	3.0	100MHz, 100mV	10	5200	0.12	600	S
TF160808-3N3 □	3.3	100MHz, 100mV	10	5200	0.12	600	S, K
TF160808-3N6 □	3.6	100MHz, 100mV	10	5000	0.14	600	S
TF160808-3N9 □	3.9	100MHz, 100mV	10	5000	0.14	600	S, K
TF160808-4N3 □	4.3	100MHz, 100mV	10	4750	0.16	600	S, K
TF160808-4N7 □	4.7	100MHz, 100mV	10	4750	0.16	600	S, K
TF160808-5N1 □	5.1	100MHz, 100mV	10	4100	0.18	600	S, K
TF160808-5N6 □	5.6	100MHz, 100mV	10	4100	0.18	600	S, K
TF160808-6N2 □	6.2	100MHz, 100mV	10	3750	0.22	600	J, K
TF160808-6N8 □	6.8	100MHz, 100mV	10	3750	0.22	600	J, K
TF160808-7N5 □	7.5	100MHz, 100mV	10	3300	0.24	600	J, K
TF160808-8N2 □	8.2	100MHz, 100mV	10	3300	0.24	600	J, K
TF160808-10N □	10	100MHz, 100mV	12	3000	0.26	600	J, K
TF160808-12N □	12	100MHz, 100mV	12	2600	0.28	600	J, K
TF160808-15N □	15	100MHz, 100mV	12	2500	0.32	600	J, K

NOTE: □ -Tolerance: S = $\pm 0.3\text{nH}$ / J = $\pm 5\%$ / K = $\pm 10\%$

1. Operating temperature range -55°C to +125°C

2. Rate Current : Applied the current to coils, the inductance shall be less than 10% initial value.

Multilayer Chip Inductors

TF Series (High Frequency)

Electrical Characteristics

0603 Type

Part Number	Inductance (nH)	L, Q Test Frequency	Q Min.	SRF (MHz)Typ.	RDC (Ω)Max.	Rated Current (mA)Max.	Tolerance
TF160808-16N □	16	100MHz, 100mV	12	2400	0.35	600	J, K
TF160808-18N □	18	100MHz, 100mV	12	2400	0.35	600	J, K
TF160808-22N □	22	100MHz, 100mV	12	2000	0.40	500	J, K
TF160808-27N □	27	100MHz, 100mV	12	1900	0.45	500	J, K
TF160808-33N □	33	100MHz, 100mV	12	1600	0.55	400	J, K
TF160808-39N □	39	100MHz, 100mV	12	1400	0.60	400	J, K
TF160808-47N □	47	100MHz, 100mV	12	1300	0.70	400	J, K
TF160808-56N □	56	100MHz, 100mV	12	1100	0.75	400	J, K
TF160808-62N □	62	100MHz, 100mV	12	1050	0.85	400	J, K
TF160808-68N □	68	100MHz, 100mV	12	1050	0.85	400	J, K
TF160808-75N □	75	100MHz, 100mV	12	900	1.00	300	J, K
TF160808-82N □	82	100MHz, 100mV	12	900	1.00	300	J, K
TF160808-R10 □	100	100MHz, 100mV	12	770	1.20	300	J, K
TF160808-R12 □	120	50MHz, 100mV	8	650	1.30	300	J, K
TF160808-R15 □	150	50MHz, 100mV	8	550	1.70	250	J, K
TF160808-R18 □	180	50MHz, 100mV	8	520	1.90	250	J, K
TF160808-R22 □	220	50MHz, 100mV	8	500	2.00	250	J, K
TF160808-R27 □	270	50MHz, 100mV	8	470	2.20	150	J, K
TF160808-R33 □	330	50MHz, 100mV	8	320	2.80	100	J, K
TF160808-R39 □	390	50MHz, 100mV	8	300	3.00	100	J, K

NOTE: □-Tolerance: S = $\pm 0.3\text{nH}$ / J = $\pm 5\%$ / K = $\pm 10\%$

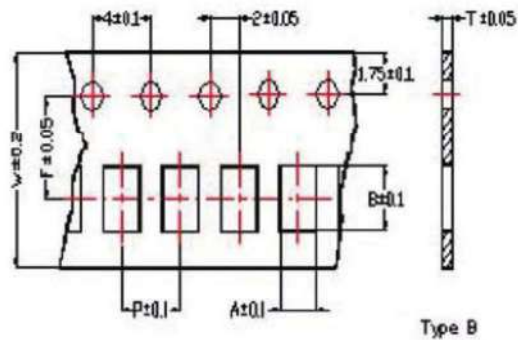
1. Operating temperature range -55°C to $+125^{\circ}\text{C}$

2. Rate Current : Applied the current to coils, the inductance shall be less than 10% initial value.

Multilayer Chip Inductors TF Series (High Frequency)

Tape Dimensions

Figure A



Tape Material

Figure A

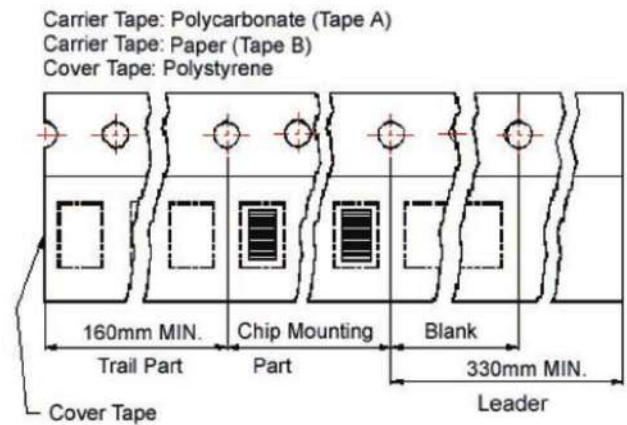
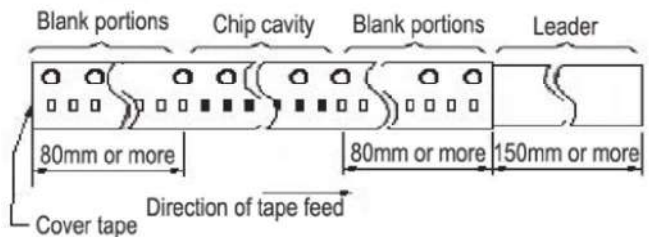
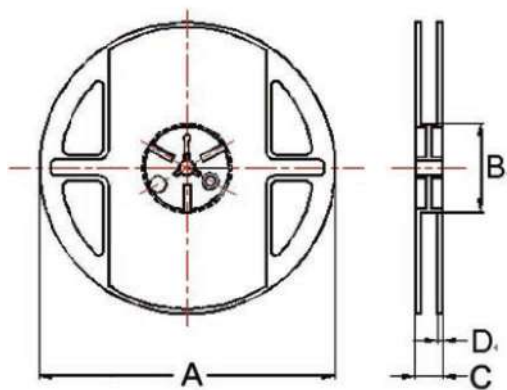


Figure B

Carrier tape : Paper
Cover tape : Polyethylene



Reel Dimensions



TYPE	Tape Dimensions							Tape	Reel Dimensions				Quantity
	A	B	T	W	P	F	Tape	Material	A	B	C	D	PCS / Reel
TF060303	0.37	0.67	0.42	8	2	3.5	A	B	180	60	13	1.5	15,000
TF100505	0.62	1.12	0.60	8	2	3.5	A	A	178	60	12	1.5	10,000
TF160808	1.00	1.80	0.95	8	4	3.5	A	A	178	60	12	1.5	4,000