Multilayer Chip Inductors
TF Series (High Frequency)

Features

- For high frequency application
- Lead-free specifications (Pass Green Policy)
- Tight tolerance physical dimensions
- Surface mounting applicability
- Tight Inductance Tolerance, Excellent Q and Guaranteed SRF range
- High product quality and outstanding reliability. (Ceramic integrated structure)

Applications

- For high frequency application: cellular phone, WLAN, PHS, EMI countermeasure in high frequency circuits and computer communication etc.

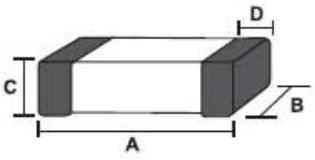
Product Identificationses

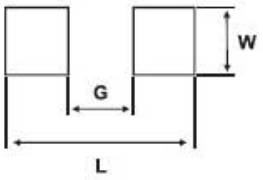
TF □□□□□□ – □□□ □

(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
060303	0.60±0.03 (0.024±0.001)	0.3±0.03 (0.012±0.001)	0.3±0.03 (0.012±0.001)	0.10±0.20 (0.004±0.008)	0.90 (0.035)	0.30 (0.012)	0.30 (0.012)
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 (0.01±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)

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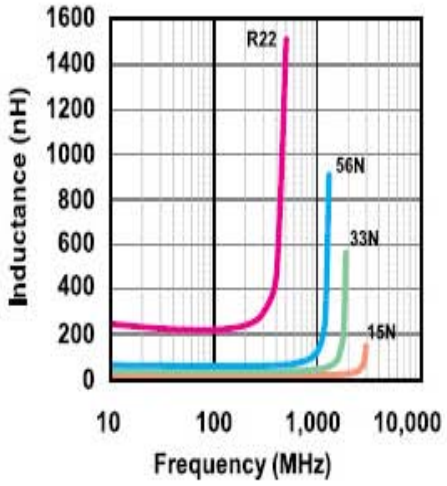
Electrical Characteristics — 0603 Type

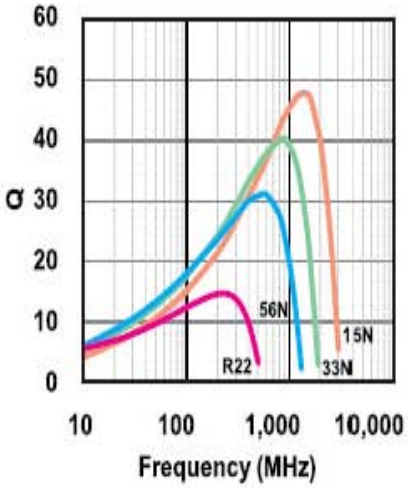
Part Number	Inductance (nH)	Percent Tolerance	Test Freq. (MHz)	Q MIN.	SRF (MHz) MIN.	DC Resistance (Ω) MAX.	Rated Current (mA) MAX.
TF 160808-1N0 ☐	1.0	S,C,D	100	8	10000	0.05	1000
TF 160808-1N2 ☐	1.2	S,C,D	100	8	10000	0.05	1000
TF 160808-1N5 ☐	1.5	S,C,D	100	8	10000	0.10	1000
TF 160808-1N8 ☐	1.8	S,C,D	100	8	10000	0.10	1000
TF 160808-2N2 ☐	2.2	S,C,D	100	8	6000	0.10	1000
TF 160808-2N7 ☐	2.7	S,C,D	100	10	6000	0.13	1000
TF 160808-3N3 ☐	3.3	S,C,D	100	10	6000	0.13	1000
TF 160808-3N9 ☐	3.9	S,C,D	100	10	6000	0.15	1000
TF 160808-4N7 ☐	4.7	S,C,D	100	10	4000	0.20	1000
TF 160808-5N6 ☐	5.6	S,C,D	100	10	4000	0.23	600
TF 160808-6N8 ☐	6.8	J,G	100	10	4000	0.25	600
TF 160808-8N2 ☐	8.2	J,G	100	10	3500	0.28	600
TF 160808-10N ☐	10	J,G	100	12	3200	0.30	600
TF 160808-12N ☐	12	J,G	100	12	2600	0.35	600
TF 160808-15N ☐	15	J,G	100	12	2300	0.40	600
TF 160808-18N ☐	18	J,G	100	12	2000	0.45	600
TF 160808-22N ☐	22	J,G	100	12	1600	0.50	600
TF 160808-27N ☐	27	J,G	100	12	1400	0.55	600
TF 160808-33N ☐	33	J,G	100	12	1200	0.60	600
TF 160808-39N ☐	39	J,G	100	12	1100	0.65	500
TF 160808-47N ☐	47	J,G	100	12	900	0.70	500
TF 160808-56N ☐	56	J,G	100	12	900	0.75	500
TF 160808-68N ☐	68	J,G	100	12	700	0.85	400
TF 160808-82N ☐	82	J,G	100	12	600	0.95	300
TF 160808-R10 ☐	100	J,G	100	12	600	1.00	300
TF 160808-R12 ☐	120	J,G	50	8	500	1.20	300
TF 160808-R15 ☐	150	J,G	50	8	500	1.20	300
TF 160808-R18 ☐	180	J,G	50	8	400	1.30	300
TF 160808-R22 ☐	220	J,G	50	8	400	1.50	300
TF 160808-R27 ☐	270	J,G	50	8	400	1.90	150
TF 160808-R33 ☐	330	J,G	50	8	350	2.10	150
TF 160808-R39 ☐	390	J,G	50	8	350	2.10	150

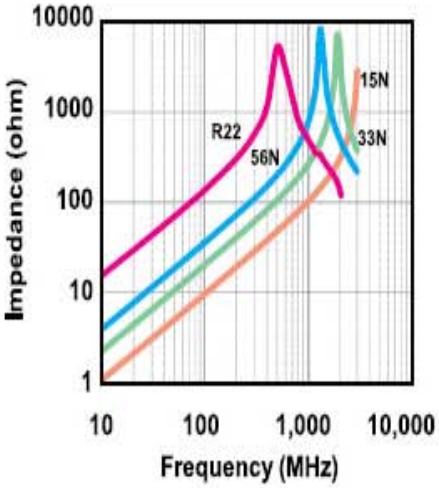
☐ Tolerance : D = ± 0.1nH , C = ± 0.2nH , S = ± 0.3nH , G = ± 2% , H = ± 3% , J = ± 5% , K = ± 10%

TYPICAL ELECTRICAL CHARACTERISTICS CURVE

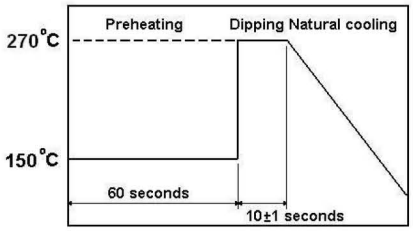
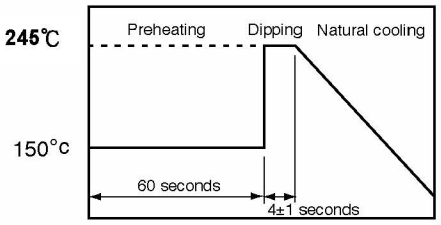
Electrical Charts 0603 Type







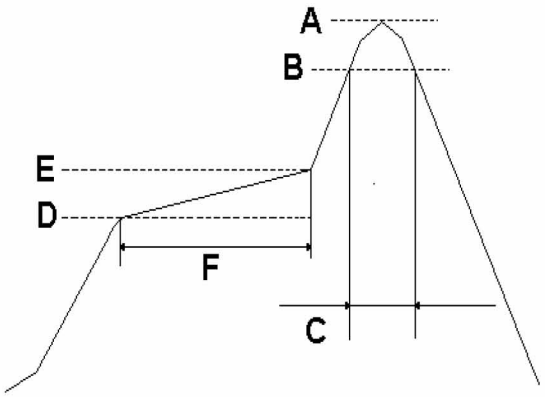
RELIABILITY TEST

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 

Recommended Soldering Conditions

(REFLOW TEMPERATURE PROFILE) Lead-Free

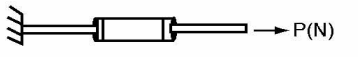
A	*260 ± 5℃*
B	*230 ± 5℃*
C	*30 ±10 sec*
D	*150℃*
E	*180℃*
F	*90 ± 30sec*



RELIABILITY TEST

Terminal strength

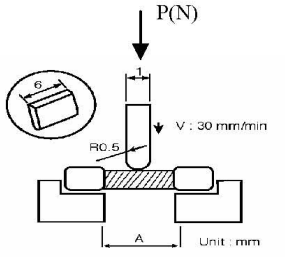
The terminal electrode and the body shall not be damaged by the forces applied on the right conditions.



Type	P (kgf)	Time (s)
T□100505	0.3	
T□160808	0.5	
T□201209	0.6	
T□201212	0.8	
T□321611	1.0	
T□322513	1.0	30 ± 5
T□451616	1.0	
T□453215	1.5	
TA3216M4	0.5	

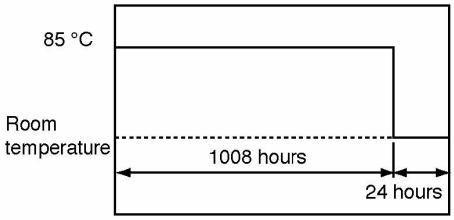
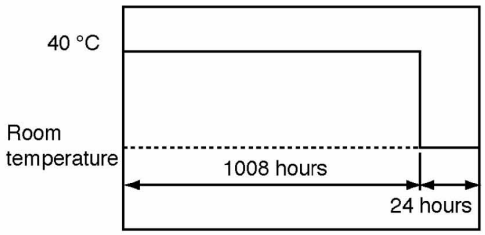
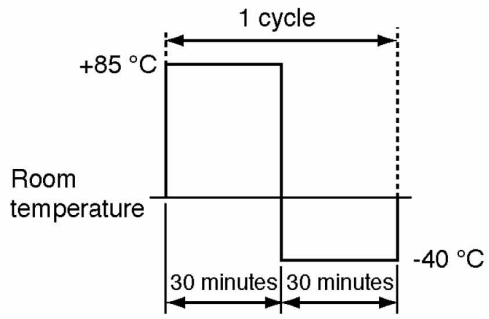
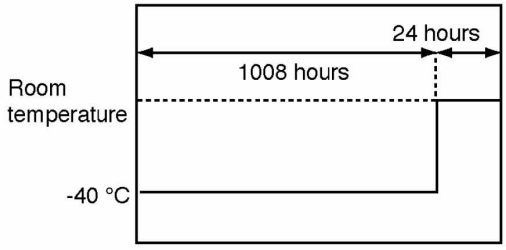
Bending strength

The body shall not be damaged by the forces applied on the right conditions



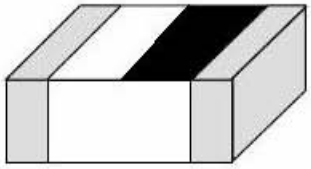
Type	A (mm)	P (kgf)
T□160808	1.0	0.5
T□201209	1.4	1.0
T□201212	1.4	1.2
T□321611	2.0	2.0
T□322513	2.0	2.5
T□451616	2.5	2.5
T□453215	2.7	2.5
TA3216M4	1.4	1.0

RELIABILITY TEST

Item	Performance	Test condition
High temperature resistance	Appearance : Ferrite shall not be damaged. Inductance : Within±10% of the initial value. Q: Within±30% of the initial value.	Temperature: 85±2℃ Testing time: 1008±12 hours Measurement: After placing for 24 hours min 
Humidity resistance	Appearance: Ferrite shall not be damaged. Inductance: Within±10% of the initial value Q: Within±30 % of the initial value.	Humidity: 90 to 95% RH Temperature: 40±2℃ 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. Inductance: Within±10% of the initial value Q: Within±30% of the initial value.	Temperature: -40℃, +85℃, 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. Inductance: Within±10% of the initial value. Q: Within±30% of the initial value.	Temperature: -40±2℃ Testing time: 1008±12 hours Measurement: After placing for 24 hours min 

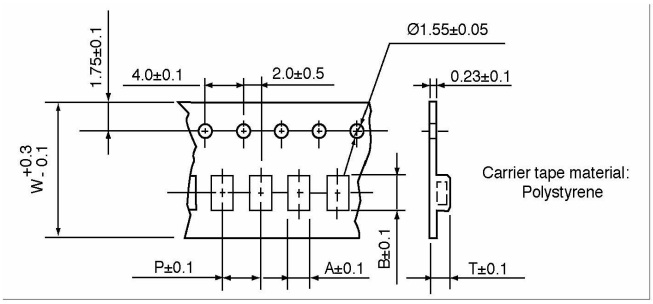
MARKING

(1) 1/2 MARKING
TYPE：1005、1608

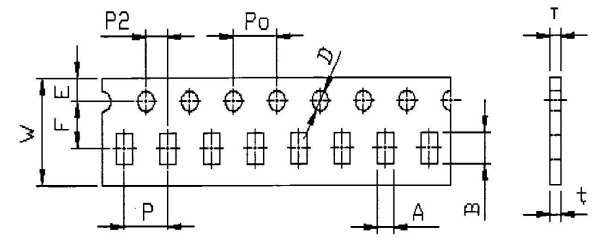


PACKAGING

- Tape dimensions and packaging quantities



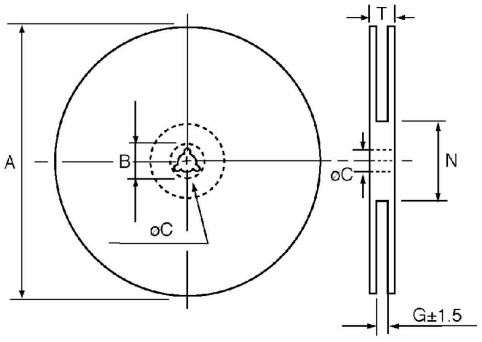
Carrier tape material: paper



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
160808	1.01	1.80	8	4	1.02	4000
201209	1.42	2.25	8	4	1.04	4000
201212	1.50	2.35	8	4	1.45	2000
321611	1.88	3.50	8	4	1.27	3000

- 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