POWER | PROTECT | CONNECT

SERIES: F1F3-1004 | DESCRIPTION: SHIELDED SMT INDUCTORS

FEATURES

- Automotive reliability is qualified to AEC-Q200 grade 1
- Complies with MSL1
- High performance (I sat) realized by metal dust core
- Low loss realized with low DCR
- Operating temperature -55°C to 155°C

signal TRANSFORMER a bel group

MODEL

MODEL	Inductance (Lo)	Tolerance	DC Resistance (DCR)	Saturation Current (Isat)		Temperature Rise Current (Irms)	
			max	min	typ	min	typ
	[µH]	[± %]	[mΩ]	[A]	[A]	[A]	[A]
F1F3-1004-R22M	0.22	20	0.8	60.0	65.0	40.0	45.0
F1F3-1004-R47M	0.47	20	1.5	38.0	45.0	25.0	30.0
F1F3-1004T-1R0M	1.0	20	4.2	28.0	32.0	20.0	23.0
F1F3-1004T-2R2M	2.2	20	9.0	22.0	25.0	12.0	16.0
F1F3-1004T-3R3M	3.3	20	11.8	18.0	22.0	11.5	14.0
F1F3-1004T-4R7M	4.7	20	16.2	14.0	16.0	9.5	13.0
F1F3-1004T-6R8M	6.8	20	22.5	11.0	13.0	7.0	8.5
F1F3-1004T-100M	10.0	20	36.5	8.0	9.0	5.5	7.5
F1F3-1004T-150M	15.0	20	48.0	6.5	8.0	4.6	6.0
F1F3-1004T-220M	22.0	20	68.0	5.0	6.4	4.0	4.5
F1F3-1004T-330M	33.0	20	102.0	4.2	5.0	3.5	4.3
F1F3-1004T-470M	47.0	20	150.0	3.2	3.6	3.0	3.3

Notes:
1. *Referenced ambient temperature 25°C*
2. *Test Condition: 100 kHz, 0.25 Vrms*
3. *Saturation Current - Isat (typ): DC current (A) that will cause L0 to drop approximately 30%*
   Isat (min): DC current (A) that will cause L0 to drop 30% max
   Temperature Rise Current - Irms (typ): DC current (A) that will cause an approximate ΔT of 40°C
   Irms (min): DC current (A) that will cause an approximate ΔT of 40°C max
4. *Operating temperature range includes self-temperature rise*
5. *The rated current as listed is either the saturation current or the heating current depending on which value is lower.*

PART NUMBER KEY

F1F3 - 1004 T - XXX X

Type / Product Series
F1F3-1004= High Performance Shielded SMD Inductors

Form Factor
1004
1004T

Inductance Tolerance
M = ±20%

Inductance *
1R0 = 1.0 µH

** Note: Inductance expressed by three figures. The unit is micro henry (µH). The first and second figures are significant digits, the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R" (3R8 = 3.8 µH). In that case, all figures are significant digits.*

SAFETY AND COMPLIANCE

Parameter	Compliant
Safety approvals	Automotive reliability is qualified to AEC-Q200 grade 1
RoHS	Compliance with ROHS and Halogen Free

ENVIROMENTAL

Parameter	Conditions	Min	Typ	Max	Units
Operating temperature	Including coils self-temeprature rise	-55		155	°C

MECHANICAL

Parameter	Conditions	Min	Typ	Max	Units
Core material	Metal Powder				
Base material	Cu + Ni + Sn plating				
Wire material	Copper wire, EIW Class				
Dimensions	F1F3-1004: 11.0 x 10.0 x 3.80 F1F3-1004T: 11.0 x 10.0 x 4.00				mm mm

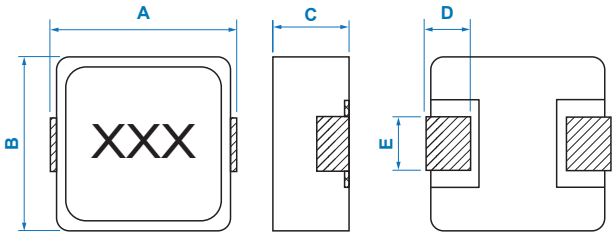
MECHANICAL DIMENSIONS (mm)

Product Series	A	B	C	D	E	F	G	H	L
F1F3-1004	11.0 ± 0.50	10.0 ± 0.30	3.80 ± 0.20	2.30 ± 0.30	3.0 ± 0.50	-	5.40	4.50	12.4
F1F3-1004T	11.0 ± 0.50	10.0 ± 0.30	4.00 max	2.30 ± 0.30	3.0 ± 0.50	4.4 ± 0.30	5.40	4.50	12.4

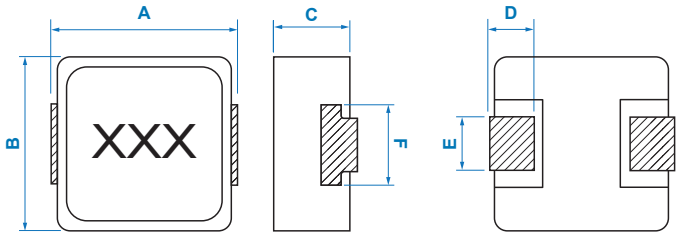
MECHANICAL DRAWING

Units: mm

F1F3-1004

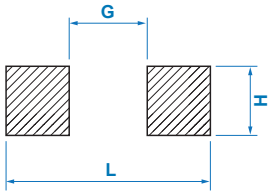


F1F3-1004T



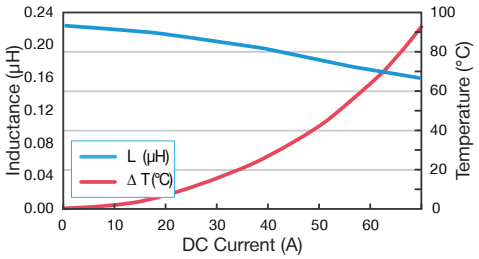
PAD LAYOUT

Units: mm

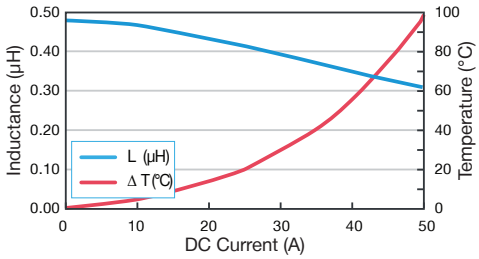


PERFORMANCE CURVES

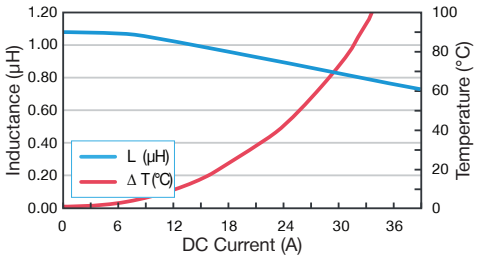
F1F3-1004-R22M



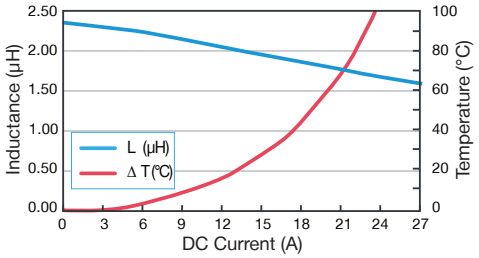
F1F3-1004-R47M



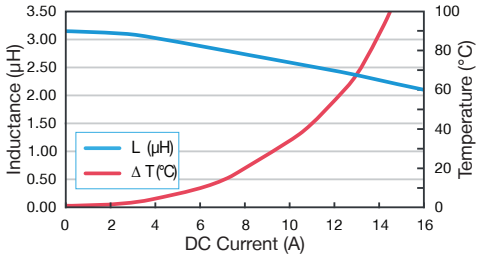
F1F3-1004T-1R0M



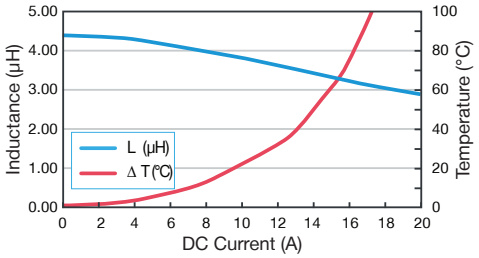
F1F3-1004T-2R2M



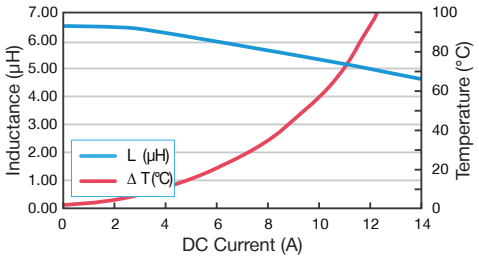
F1F3-1004T-3R3M



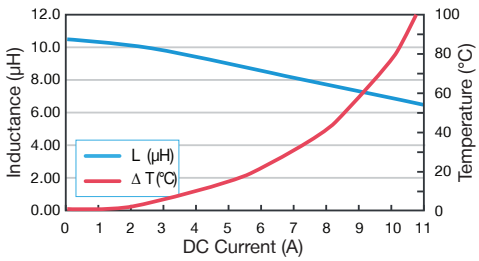
F1F3-1004T-4R7M



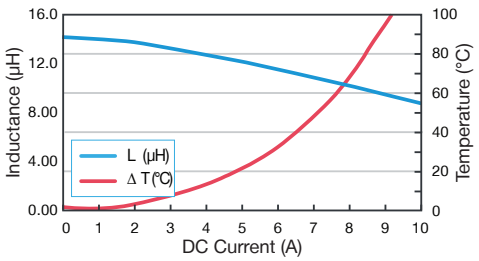
F1F3-1004T-6R8M



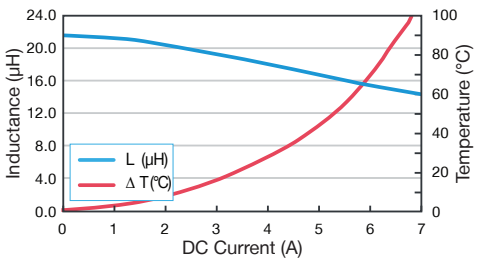
F1F3-1004T-100M



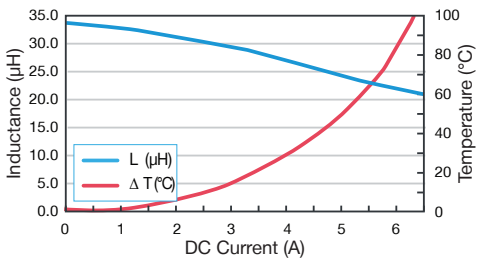
F1F3-1004T-150M



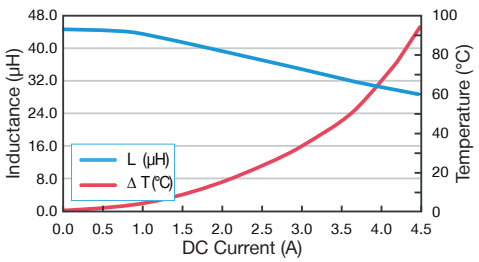
F1F3-1004T-220M



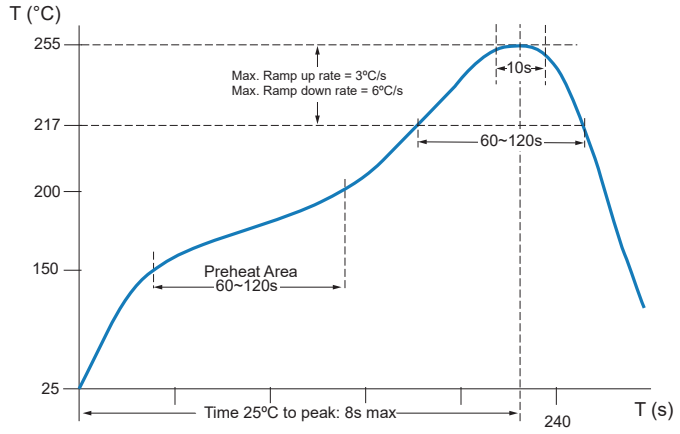
F1F3-1004T-330M



F1F3-1004T-470M



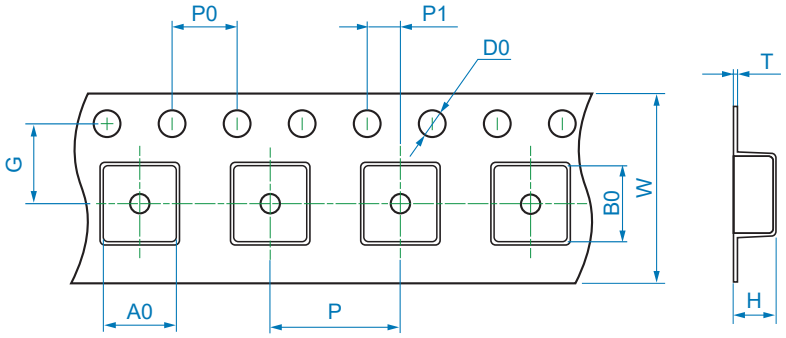
REFLOW SOLDERING TEMPERATURE CURVE



The recommended reflow conditions are set according to the soldering equipment used.
Since various manufactures may have different reflow soldering equipment, products, process conditions, set methods, etc., when setting the reflow contions, please adjust and confirm according to users' environment/equipment.

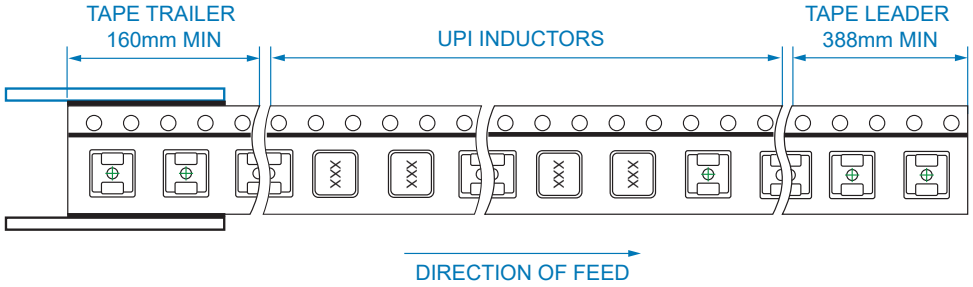
QUANTITY PER REEL & PACKING INFORMATION

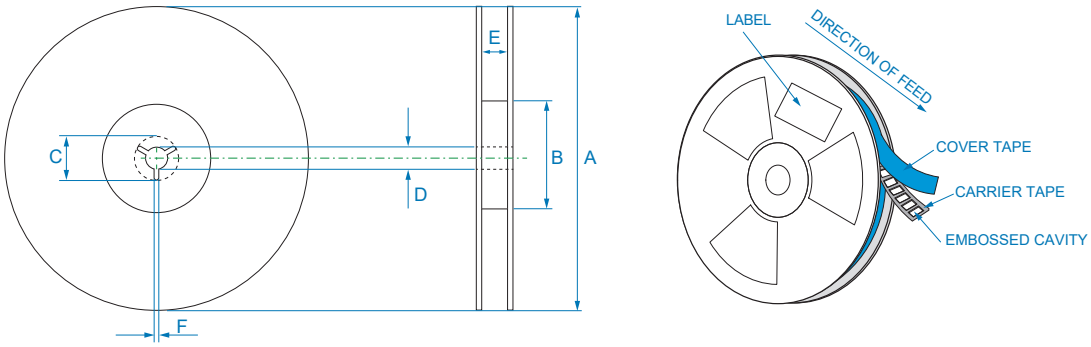
Units: mm



TAPE DIMENSIONS (mm)

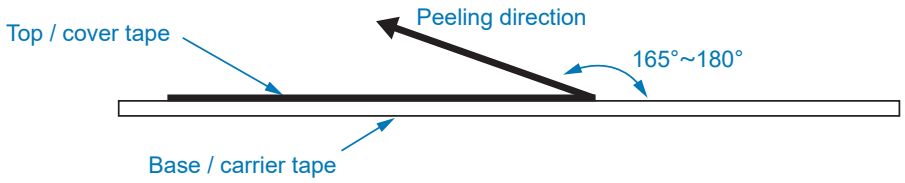
Product Series	G	W	P	P0	P1	D0	T	A0	B0	H
F1F3-1004	11.5 ± 0.1	24 ± 0.3	16 ± 0.1	4 ± 0.1	2 ± 0.1	1.5 +0.1/-0.0	0.40 ± 0.05	10.7 ± 0.1	12.0 ± 0.1	4.5 ± 0.1
F1F3-1004T	11.5 ± 0.1	24 ± 0.3	16 ± 0.1	4 ± 0.1	2 ± 0.1	1.5 +0.1/-0.0	0.40 ± 0.05	10.7 ± 0.1	12.0 ± 0.1	4.5 ± 0.1





REEL DIMENSIONS (mm)

Product Series	A	B	C	D	E	F
F1F3-1004	330 ± 1.0	100 ± 0.5	20.2 min	13.0 +0.5/-0.2	24.4 +2.0/-0.0	2.5 ± 0.5
F1F3-1004T	330 ± 1.0	100 ± 0.5	20.2 min	13.0 +0.5/-0.2	24.4 +2.0/-0.0	2.5 ± 0.5

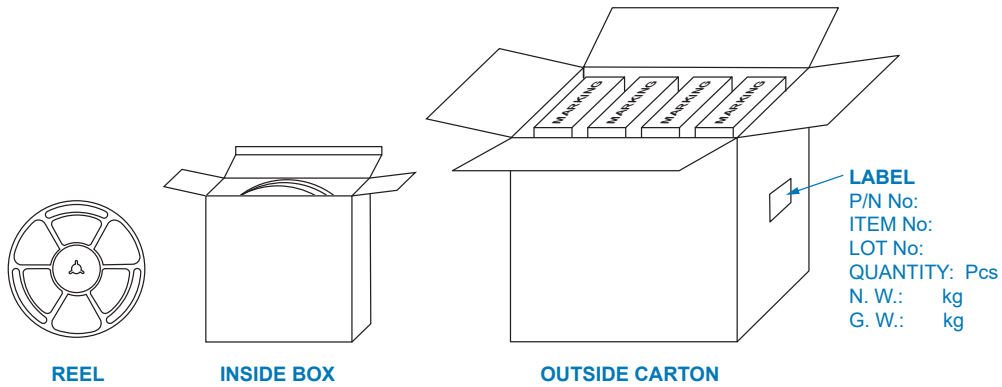


Peel-off Force

The peel-off speed shall be about 300 mm/min.
The peel-off force of top cover tape shall be between 10g to 120g.
Ensure no damage is done to the base/carrier tape when removing the top/cover tape.

QUANTITY PER PACKAGE

Product Series	Pcs per Reel	Pcs per Inside Box	Pcs per Outside Carton
F1F3-1004	900	1800	7200
F1F3-1004T	900	1800	7200



Storage Conditions

a) Temperature conditions: <35°C.
b) Humidity conditions between 35% - 65%.
c) Storage of material to be in a sulfur and chlorine free environment.

REVISION HISTORY

Rev.	Description	Date
1	initial release	December/01/2024

POWER | PROTECT | CONNECT

Bel Fuse Inc.
300 Executive Drive, Suite 300
West Orange, NJ 07052
United States

Toll Free 866-239-5777
Tel 516-239-5777 | Fax 516-239-7208
sales@signaltransformer.com
techhelp@signaltransformer.com

belfuse.com