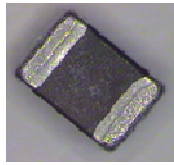


Multi-Layer Ferrite Inductors



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ORDERING CODE

IF 1608 R56 J T S 8

PRODUCT CODE _____

IF : Multilayer Ferrite Inductor (Lead Free)

DIMENSION (L X W) _____

Code	Dimension	EIA
1608	1.6 x 0.80 mm	0603
2012	2.0 X 1.25 mm	0805

INDUCTANCE CODE _____

Code	R47	1R0	1R5	2R2	3R3	4R7
Inductance (uH)	0.47	1.0	1.5	2.2	3.3	4.7

TOLERANCE CODE _____

J: ±5% K: ±10% M: ±20%

PACKAGING CODE _____

T: Paper tape reel
 P: Embossed reel

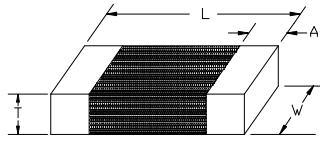
SPECIFICATION CODE _____

S: Standard (for Near Field Communication, Matching, Choke)
 L: Light Loading Current (for General Purpose)

THICKNESS CODE _____

Code	5	7	8	9	B	C
Thickness (mm)	0.5	0.7	0.8	0.9	1.1	1.2

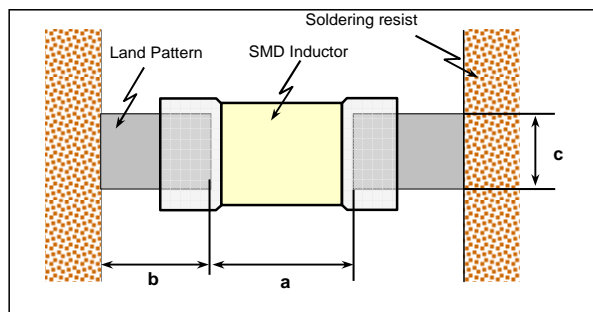
Standard External Dimensions



Unit: mm/(inch)

Series	Size (EIA)	L	W	T	A (Min/Max)
IF1608	0603	1.6±0.15	0.8±0.15	0.95 max	0.1/0.5
IF2012	0805	2.0±0.2	1.25±0.2	0.55 max	0.20/0.80

Recommended Pad Dimensions



Size mm (EIA)	L x W (mm)	a (mm)	b (mm)	c (mm)
1608 (0603)	1.6 x 0.8	0.8 to 1.0	0.6 to 0.8	0.6 to 0.8
2012 (0805)	2.0 x 1.25	0.8 to 1.2	0.8 to 1.2	0.9 to 1.6

Unit: mm/(inch)

Part Numbers & Characteristic

IF1608_S Series (EIA 0603)

Ordering Code	Inductance [nH]	Inductance Tolerance	Measuring frequency [MHz]	DC Resistance [Ω]Max.	Rated Current (mA) Max.	Q (min)	SRF (min.)	Thickness [mm] (max.)	Packing
IF1608R56JTS8	560	$\pm 5\%$	25	0.85	300	25	80	0.80 \pm 0.15	7" Paper 4kpcs

※Operating temperature range from -55°C to 125°C.

IF1608_L Series (0603)

Ordering Code	Inductance [μ H]	Inductance Tolerance	Measuring frequency [MHz]	DC Resistance [Ω]		Idc (mA) (max.)	Q (min)	SRF (min.)	Thickness [mm] (max.)	Packing
				Max.	Typ.					
IF16084R7MTL8	4.7	$\pm 20\%$	10	2.10	0.90	15	35	33	0.80 \pm 0.20	7" Paper 4kpcs
IF1608100KTL8	10.0	$\pm 10\%$	2	1.85	1.00	3	30	17		

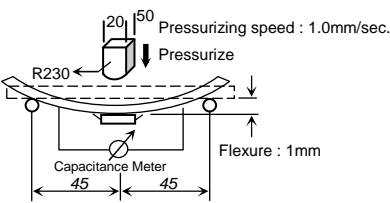
※Operating temperature range from -55°C to 125°C.

IF2012_L Series (EIA 0805)

Ordering Code	Inductance [μ H]	Inductance Tolerance	Measuring frequency [MHz]	DC Resistance [Ω]		Idc (mA) (max.)	Q (min)	SRF (min.)	Thickness [mm] (max.)	Packing
				Max.	Typ.					
IF20122R2MTL9	2.2	$\pm 20\%$	10	0.65	0.28	30	45	50	0.90 \pm 0.20	7" Paper 4kpcs
IF20124R7MTL9	4.7	$\pm 20\%$	10	1.50	0.54	30	45	35		
IF2012100KPLC	10.0	$\pm 10\%$	2	1.15	0.75	15	50	24	1.20 \pm 0.20	7" Embossed 3kpcs

※Operating temperature range from -55°C to 125°C.

■ Testing Condition & Requirements (IF Series)

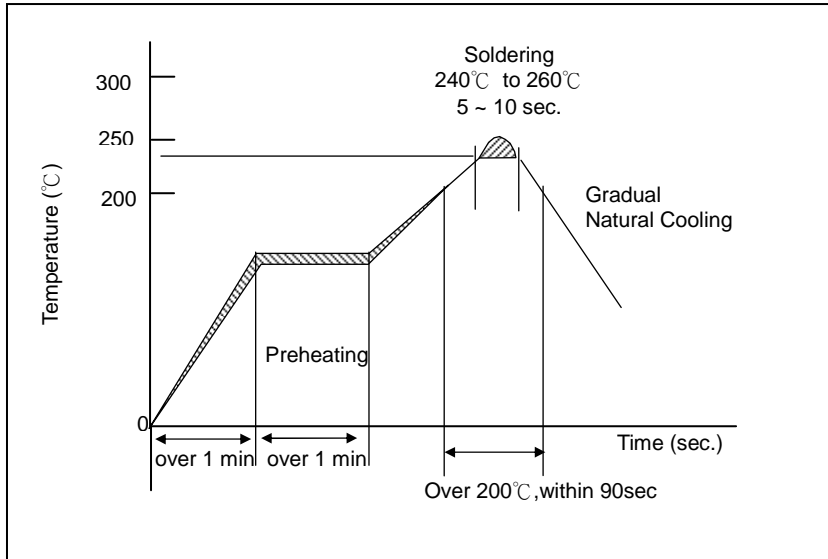
No.	Item	Test Condition	Requirements
1	Appearance	Inductors shall be visually inspected for visible evidence of defect.	No harmful defect for piratical use.
2	Inductance	a. Temperature: 25+/- 3°C b. Relative Humidity: 45 to 75%RH c. Measuring equipment:HP4286A · HP4287A Measuring Jig: HP42851-61100	Within specified tolerance.
3	DC Resistance	Measuring instrument: HP4338B · HIOKI IM-3570	In accordance with electrical specification.
4	Dimension	Dimension shall be measured with caliper or micrometer	In accordance with dimension specification.
5	Solder-ability	Immerse a test sample into a methanol solution containing rosin and immerse into SAC305(Sn96.5Ag3.0Cu0.5) solder of 245±5°C for 3±1 seconds.	90% of the termination is to be soldered evenly and continuously.
6	Resistance to Soldering Heat	Immerse a test sample into a methanol solution containing resin, preheat it at 150 to 180°C for 2~3 minutes and immerse into molten solder of 260+/-5°C for 10+/-1 second so that both terminal electrodes are completely submerged. After this test samples shall be taken out and measured after kept at room temperature for 2 to 3 hours.	No visible damage Remained terminal electrode : 70% min. Inductance variation within 30%
7	Bending Strength	Solder the chip to test jig then apply a force in the direction shown in below. The soldering shall be done with the reflow method and shall be conducted with care so that the soldering is uniform and free of defects such as heat shock. 	No mechanical damage shall be observed.
8	Thermal Shock	Solder a test sample to printed circuit board, and conduct 5 cycles of test under the conditions shown as below. Condition for 1 cycle Step1:-55+0 / -2°C 30±3 min. Step2:Room temperature within 2 to 3 min. Step3:+125 +2 / -0°C 30±3 min. Measured at room temperature after placing for 2 to 3 hrs.	No visible damage Inductance variation within 30%

No.	Item	Test Condition	Requirements
9	High Humidity State Life Test	Keep a test sample in an atmosphere with a temperature of $40\pm 2^{\circ}\text{C}$, 90~95%RH for 500 +24/-0 hours. After the removal from test chamber, 2 to 3 hours of recovery under standard condition, and measurement shall be made after 24 ± 2 hrs of recovery under standard condition.	No visible damage. Inductance variation within 30%.
10	High Humidity Load Life Test	Solder a test sample to printed circuit board then keep the test sample in an atmosphere with a temperature of $40\pm 2^{\circ}\text{C}$, 90~95%RH for 500+24/-0 hours while supplying the rated current. After the removal from test chamber, 2 to 3 hours of recovery under standard condition, and measurement shall be made after 24 ± 2 hrs of recovery under standard condition.	No visible damage. Inductance variation within 30%.
11	High Temperature State Life Test	Keep a test sample in an atmosphere with a temperature of $85\pm 2^{\circ}\text{C}$ for 500+24/-0 hours. After the removal from test chamber, 2 to 3 hours of recovery under standard condition, and measurement shall be made after 24 ± 2 hrs of recovery under standard condition.	No visible damage. Inductance variation within 30%.
12	High Temperature Load	Solder a test sample to printed circuit board then keep the test sample in an atmosphere with a temperature of $85\pm 2^{\circ}\text{C}$ for 500+24/-0 hours while supplying the rated current. After the removal from test chamber, 2 to 3 hours of recovery under standard condition, and measurement shall be made after 24 ± 2 hrs of recovery under standard condition.	No visible damage. Inductance variation within 30%.

Reflow Profile Chart (Reference)

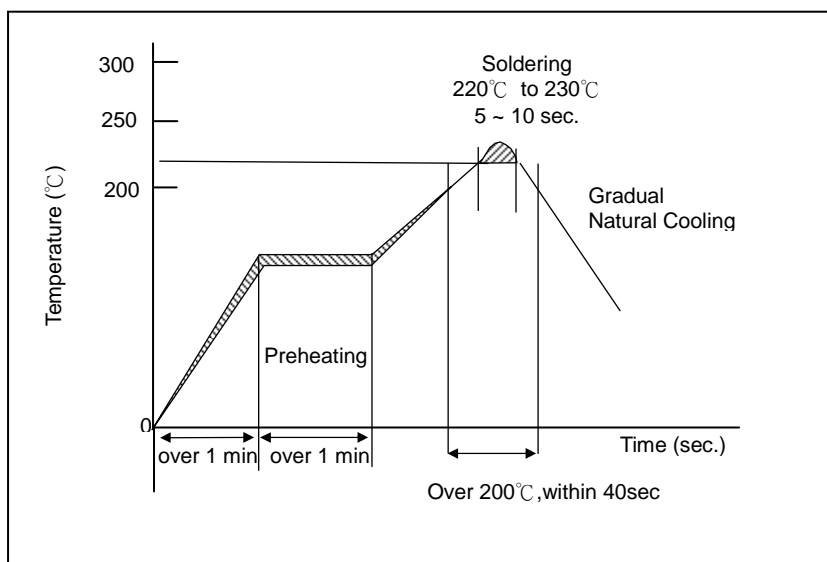
● **Soldering Profile for SMT Process with Lead Free Solder Paste.**

The rate of preheat should not exceed 4°C/sec and a target of 2°C/sec is preferred. Ceramic chip components should be preheated to within 100 to 130 °C of the soldering.



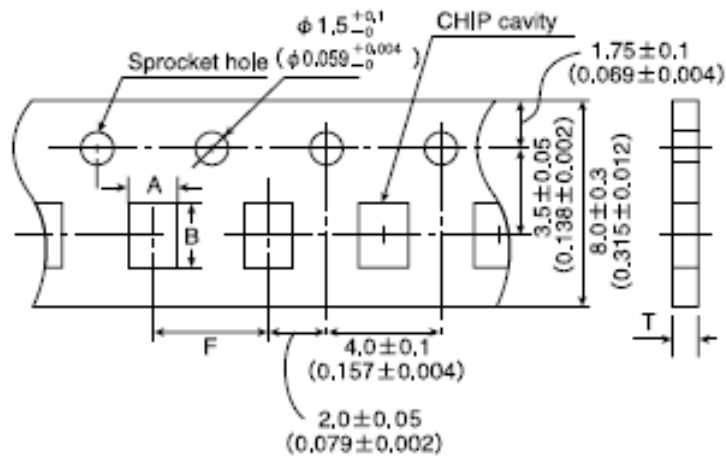
● **Soldering Profile for SMT Process with SnPb Solder Paste.**

The rate of preheat should not exceed 4°C/sec and a target of 2°C/sec is preferred. Ceramic chip components should be preheated to within 100 to 130 °C of the soldering.



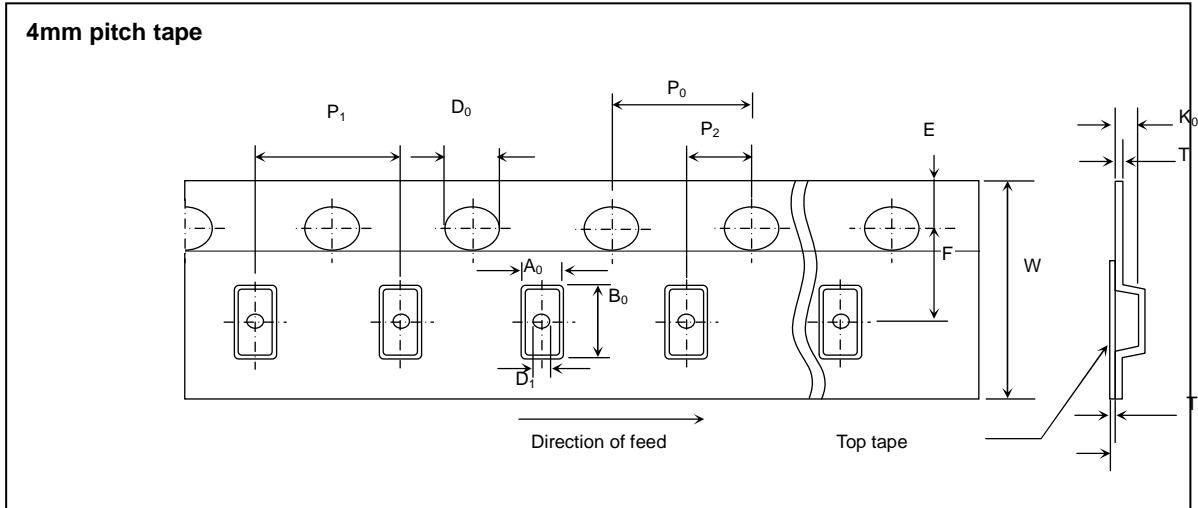
Packaging Specification

- Paper Tape



	Symbol	Product Size Code	
		1608(0603)	2012(0805)
		(mm)	(mm)
Chip cavity	A	1.0 ±0.2	1.5 ±0.2
	B	1.8 ±0.2	2.3 ±0.2
Insertion Pitch	F	4.0 ±0.1	4.0 ±0.1
Tape Thickness	T	1.1 max	0.8 max

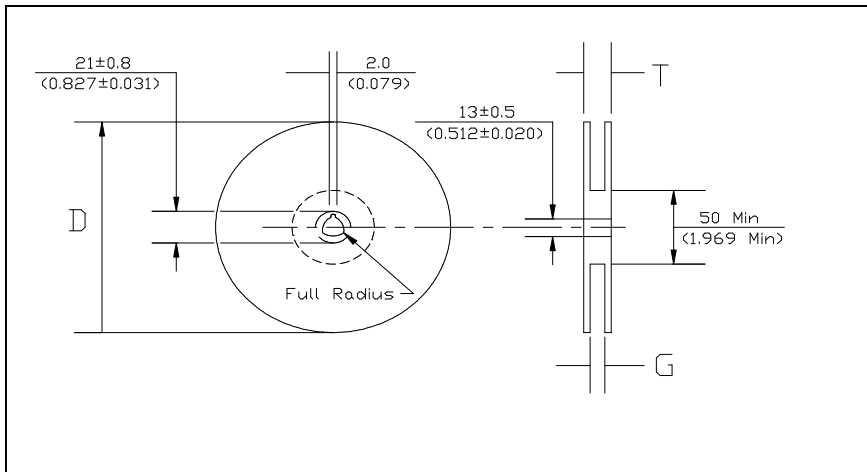
● Embossed Tape



Symbol	2012 (0805)	2016 (0806)	2520 (1008)
P₁	4±0.1	4±0.1	4±0.1
P₀	4±0.1	4±0.1	4±0.1
P₂	2±0.05	2±0.05	2±0.05
A₀	1.55±0.2	1.8±0.1	2.3±0.1
B₀	2.3±0.2	2.2±0.1	2.8±0.1
K₀	1.3±0.1	1.3±0.1	1.4±0.1
W	8±0.3	8±0.3	8±0.3
E	1.75±0.1	1.75±0.1	1.75±0.1
F	3.5±0.05	3.5±0.05	3.5±0.05
D₀	1.5 (+0.1/-0.0)	1.5 (+0.1/-0.0)	1.5 (+0.1/-0.0)
T	0.3 max	0.3 max	0.3 max

Unit: mm/(inch)

● Reel Specifications

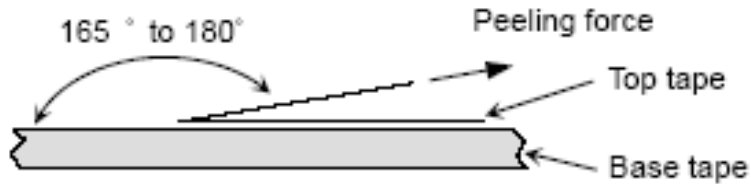


Tape Width (mm)	G (mm)	T max.(mm)	D (mm)
8	10.0±1.5	14.5	178±2.0

- **Peel Strength of Top Cover Tape**

The peel speed shall be about 300 mm/min.

The peel strength of top cover tape shall be between 0.1 to 1.0N.



Cautions

- **Storage**

1. The inductor shall be packaged in carrier tapes.
2. To keep storage place temperature from +5 to 35°C, humidity from 45 to 70% RH.
3. The storage atmosphere must be free of gas containing sulfur and chlorine. Also, avoid exposing the product to saline moisture. If the product is exposed to such atmospheres, the terminals will oxidize and solderability will be affected.
4. The solder ability is assured for 12 months from our final inspection date if the above storage condition is followed.

- **Handling**

Inductor should be handled with care to avoid contamination or damage. The use of vacuum pick-up or plastic tweezers is recommended for manual placement. Tape and reeled packages are suitable for automatic pick and placement machine.