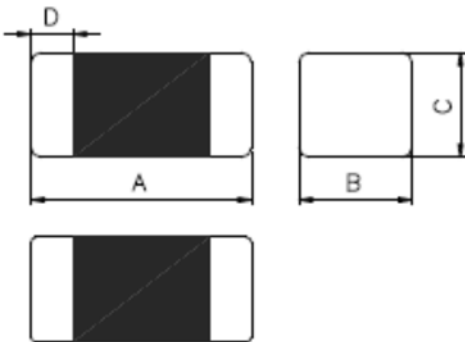


## FEATRLRES

- Monolithic inorganic material construction.
- Closed magnetic circuit avoids crosstalk.
- S.M.T. type.
- Suitable for reflow soldering.
- Shapes and dimensions follow E.I.A. spec.
- Available in various sizes.
- Excellent solder ability and heat resistance.
- High reliability.
- 100% Lead(Pb) & Halogen-Free and RoHS compliant.

## CONFIGLRATIONS & DIMENSIONS ( unit in mm )



Size	A	B	C	D
FCI1608	1.6±0.15	0.8±0.15	0.8±0.15	0.3±0.20

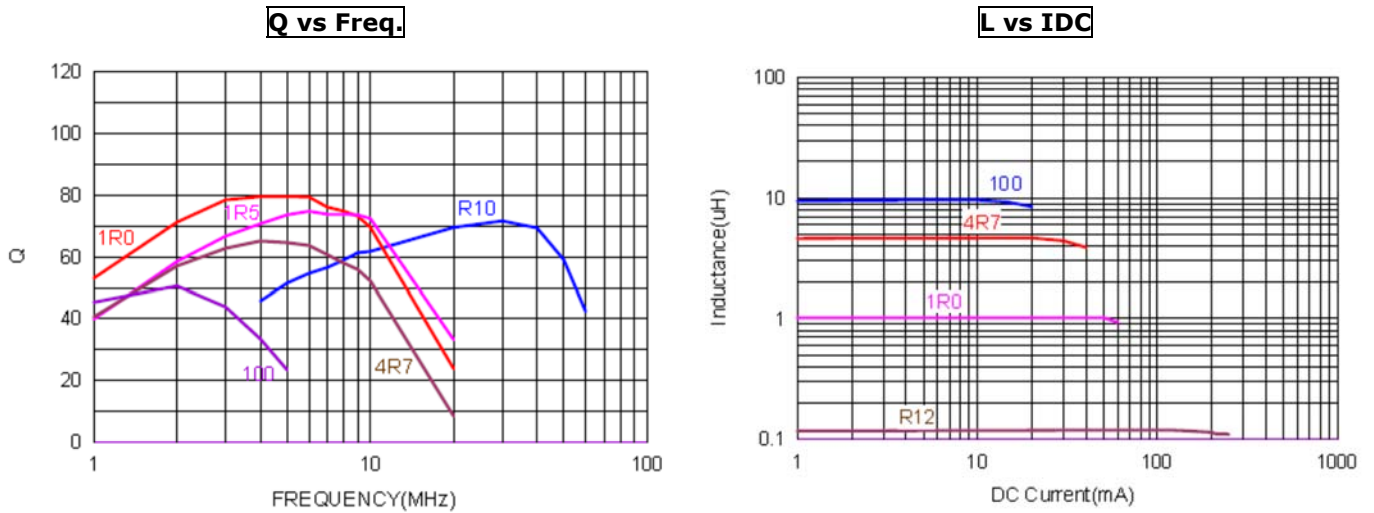
## ELECTRICAL CHARACTERISTICS

Part Number	Inductance(uH)		Q		Rated Current (mA) max.	DCR (Ω) max.	SRF (MHz) min.
	Tolerance	Test	min.	Test			
FCI1608F-47N□	0.047	60mV / 50M	10	50	50	0.30	260
FCI1608F-68N□	0.068	60mV / 50M	10	50	50	0.30	250
FCI1608F-82N□	0.082	60mV / 50M	10	50	50	0.30	245
FCI1608F-R10□	0.10	60mV / 25M	15	25	50	0.50	240
FCI1608F-R12□	0.12	60mV / 25M	15	25	50	0.50	205
FCI1608F-R15□	0.15	60mV / 25M	15	25	50	0.60	180
FCI1608F-R18□	0.18	60mV / 25M	15	25	50	0.60	165
FCI1608F-R22□	0.22	60mV / 25M	15	25	50	0.80	150
FCI1608F-R27□	0.27	60mV / 25M	15	25	50	0.80	136
FCI1608F-R33□	0.33	60mV / 25M	15	25	35	0.85	125
FCI1608F-R39□	0.39	60mV / 25M	15	25	35	1.00	110
FCI1608F-R47□	0.47	60mV / 25M	15	25	35	1.35	105
FCI1608F-R56□	0.56	60mV / 25M	15	25	35	1.55	95

FCI1608F-R68□	0.68	60mV / 25M	15	25	35	1.70	80
FCI1608F-R82□	0.82	60mV / 25M	15	25	35	2.10	75
FCI1608F-1R0□	1.0	60mV / 10M	30	10	25	0.60	70
FCI1608F-1R5□	1.5	60mV / 10M	30	10	25	0.80	55
FCI1608F-1R8□	1.8	60mV / 10M	30	10	25	0.95	50
FCI1608F-2R2□	2.2	60mV / 10M	30	10	15	1.15	45
FCI1608F-3R3□	3.3	60mV / 10M	30	10	15	1.55	38
FCI1608F-4R7□	4.7	60mV / 10M	30	10	15	2.10	33
FCI1608F-100□	10	60mV / 2M	30	2	15	2.55	17

- NOTE: □: TOLERANCE    K=±10%, L=±15%, M=±20%
- Rated current: based on temperature rise test
- In compliance with EIA 595

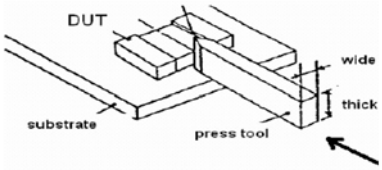
## Q vs Frequency, DC Bias Characteristics(Typical)



## Reliability and Test Condition

Item	Performance	Test Condition
Operating temperature	-40~+125°C (Including self - temperature rise)	
Storage temperature	1. -10~+40°C, 50~60%RH (Product with taping) 2. -40~+125°C (on board)	
<b>Electrical Performance Test</b>		
Inductance	Refer to standard electrical characteristics list.	HP4284A, CH11025, CH3302, CH1320, CH1320S LCR Meter.
DCR		CH16502, Agilent33420A Micro-Ohm Meter.
Saturation Current (Isat)	Approximately ΔL30%	Saturation DC Current (Isat) will cause L0 to drop ΔL(%)

Heat Rated Current (Irms)	Approximately $\Delta T40^{\circ}\text{C}$	Heat Rated Current (Irms) will cause the coil temperature rise $\Delta T(^{\circ}\text{C})$ . 1.Applied the allowed DC current 2.Temperature measured by digital surface thermometer															
<b>Reliability Test</b>																	
Life Test		Preconditioning: Run through IR reflow for 2 times.( IPC/JEDEC J-STD-020DClassification Reflow Profiles) Temperature : $125\pm 2^{\circ}\text{C}$ (Inductor) Applied current : rated current Duration : $1000\pm 12$ hrs Measured at room temperature after placing for $24\pm 2$ hrs															
Load Humidity		Preconditioning: Run through IR reflow for 2 times.( IPC/JEDEC J-STD-020DClassification Reflow Profiles Humidity : $85\pm 2 \times \text{R.H.}$ , Temperature : $85^{\circ}\text{C} \pm 2^{\circ}\text{C}$ Duration : 1000hrs Min. with 100% rated current Measured at room temperature after placing for $24\pm 2$ hrs															
Moisture Resistance	Appearance : No damage. Inductance : within $\pm 10\%$ of initial value Q : Shall not exceed the specification value. RDC : within $\pm 15\%$ of initial value and shall not exceed the specification value	Preconditioning: Run through IR reflow for 2 times.( IPC/JEDEC J-STD-020DClassification Reflow Profiles 1. Baked at $50^{\circ}\text{C}$ for 25hrs, measured at room temperature after placing for 4 hrs. 2. Raise temperature to $65\pm 2^{\circ}\text{C}$ 90-100%RH in 2.5hrs, and keep 3 hours, cool down to $25^{\circ}\text{C}$ in 2.5hrs. 3. Raise temperature to $65\pm 2^{\circ}\text{C}$ 90-100%RH in 2.5hrs, and keep 3 hours, cool down to $25^{\circ}\text{C}$ in 2.5hrs,keep at $25^{\circ}\text{C}$ for 2 hrs then keep at $-10^{\circ}\text{C}$ for 3 hrs 4. Keep at $25^{\circ}\text{C}$ 80-100%RH for 15min and vibrate at the frequency of 10 to 55 Hz to 10 Hz, measure at room temperature after placing for 1~2 hrs.															
Thermal shock		Preconditioning: Run through IR reflow for 2 times.( IPC/JEDEC J-STD-020DClassification Reflow Profiles Condition for 1 cycle Step1 : $-40\pm 2^{\circ}\text{C}$ 30 $\pm$ 5min Step2 : $25\pm 2^{\circ}\text{C}$ $\leq 0.5$ min Step3 : $125\pm 2^{\circ}\text{C}$ 30 $\pm$ 5min Number of cycles : 500 Measured at room temperature after placing for $24\pm 2$ hrs															
Vibration		Oscillation Frequency: 10 ~ 2K ~ 10Hz for 20 minutes Equipment : Vibration checker Total Amplitude: $1.52\text{mm} \pm 10\%$ Testing Time : 12 hours(20 minutes, 12 cycles each of 3 orientations).															
Bending		Shall be mounted on a FR4 substrate of the following dimensions: $\geq 0805$ inch(2012mm): $40 \times 100 \times 1.2\text{mm}$ $< 0805$ inch(2012mm): $40 \times 100 \times 0.8\text{mm}$ Bending depth: $\geq 0805$ inch(2012mm): $1.2\text{mm}$ $< 0805$ inch(2012mm): $0.8\text{mm}$ duration of 10 sec.															
Shock	Appearance : No damage. Impedance : within $\pm 15\%$ of initial value Inductance : within $\pm 10\%$ of initial value Q : Shall not exceed the specification value. RDC : within $\pm 15\%$ of initial value and shall not exceed the specification value	<table border="1"> <thead> <tr> <th>Type</th> <th>Peak value (g's)</th> <th>Normal duration (D) (ms)</th> <th>Wave form</th> <th>Velocity change (Vi)/ft/sec</th> </tr> </thead> <tbody> <tr> <td>SMD</td> <td>50</td> <td>11</td> <td>Half-sine</td> <td>11.3</td> </tr> <tr> <td>Lead</td> <td>50</td> <td>11</td> <td>Half-sine</td> <td>11.3</td> </tr> </tbody> </table>	Type	Peak value (g's)	Normal duration (D) (ms)	Wave form	Velocity change (Vi)/ft/sec	SMD	50	11	Half-sine	11.3	Lead	50	11	Half-sine	11.3
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SMD	50	11	Half-sine	11.3													
Lead	50	11	Half-sine	11.3													
Solder ability	More than 95% of the terminal electrode should be covered with solder.	Preheat: $150^{\circ}\text{C}$ ,60sec. Solder: Sn96.5% Ag3% Cu0.5% Temperature: $245\pm 5^{\circ}\text{C}$ ◦ Flux for lead free: Rosin. 9.5% ◦ Dip time: $4\pm 1$ sec ◦ Depth: completely cover the termination															
Resistance to Soldering Heat		Depth: completely cover the termination <table border="1"> <thead> <tr> <th>Temperature(<math>^{\circ}\text{C}</math>)</th> <th>Time(s)</th> <th>Temperature ramp/immersion and emersion rate</th> <th>Number of heat cycles</th> </tr> </thead> <tbody> <tr> <td><math>260 \pm 5</math> (solder temp)</td> <td><math>10 \pm 1</math></td> <td><math>25\text{mm/s} \pm 6 \text{mm/s}</math></td> <td>1</td> </tr> </tbody> </table>	Temperature( $^{\circ}\text{C}$ )	Time(s)	Temperature ramp/immersion and emersion rate	Number of heat cycles	$260 \pm 5$ (solder temp)	$10 \pm 1$	$25\text{mm/s} \pm 6 \text{mm/s}$	1							
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<p>Terminal Strength</p>	<p>Appearance : No damage.          Impedance : within <math>\pm 15\%</math> of initial value          Inductance : within <math>\pm 10\%</math> of initial value          Q : Shall not exceed the specification value.          RDC : within <math>\pm 15\%</math> of initial value and shall not exceed the specification value e</p>	<p>Preconditioning: Run through IR reflow for 2 times.( IPC/JEDEC J-STD-020D Classification Reflow Profiles          With the component mounted on a PCB with the device to be tested, apply a force (<math>&gt;0.805:1\text{kg}</math> , <math>\leq 0.805:0.5\text{kg}</math>) to the side of a device being tested. This force shall be applied for <math>60 \pm 1</math> seconds. Also the force shall be applied gradually as not to apply a shock to the component being tested.</p> 
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Note : When there are questions concerning measurement result : measurement shall be made after  $48 \pm 2$  hours of recovery under the standard condition.