

零件承认书



客户名称: _____

客户料号: A-6-9007-2-3

规格描述: FBMA-11-201209-401A20 0805

增益料号: HCB2012KF-401T20

日期: _____

版本: A

增益签核:

制订	审核	核准
张翔	刘业明	柯文学

客户签核:

工程	审核	核准



东莞市增益实业有限公司

地址: 东莞市清溪镇三星路1号

电话: 0769-87321000

传真: 0769-87891229

物料类型:

贴片电感

日期:

版本:

A

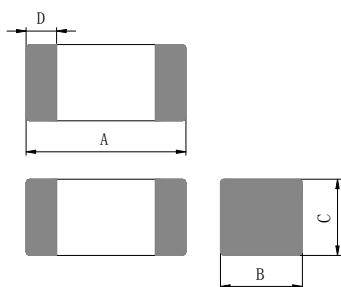
High Current Ferrite Chip Bead(Lead Free)

HCB2012KF-401T20

1.Features

- 1.Monolithic inorganic material construction.
- 2.Low DC resistance structure of electrode to prevent wasteful electric power consumption.
- 3.Closed magnetic circuit avoids crosstalk.
- 4.Suitable for flow and reflow soldering.
- 5.Shapes and dimensions follow E.I.A. spec.
- 6.Available in various sizes.
- 7.Excellent solderability and heat resistance.
- 8.High reliability.
- 9.This component is compliant with RoHS legislation and also support lead-free soldering.

2.Dimensions



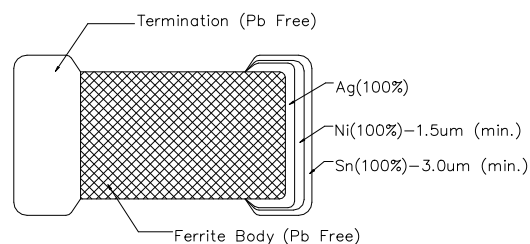
Chip Size	
A	2.00±0.20
B	1.25±0.20
C	0.85±0.20
D	0.50±0.30

Units: mm

3.Part Numbering

HCB
2012
KF
-
401
T
30

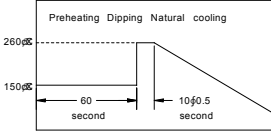
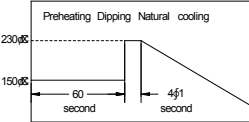
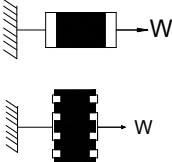
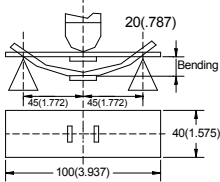
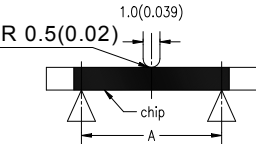
A: Series
 B: Dimension L x W
 C: Material [Lead Free Material](#)
 D: Impedance 501=500Ω
 E: Packaging T=Taping and Reel, B=Bulk(Bags)
 F: Rated Current 30=3000mA



4.Specification

Tai-Tech Part Number	Impedance (Ω)	Test Frequency (Hz)	DC Resistance (Ω) max.	Rated Current (mA)
HCB2012KF-401T20	400±25%	60mV/100M	0.10	3000

5. Reliability and Test Condition

Item	Performance										Test Condition																											
	FCB	FCM	HCB	HPB	HFB	FCA	FCI	FHI	FCH	HCI																												
Series No.											--																											
Operating Temperature	-55~+125℃					-40~+85℃					--																											
Storage Temperature	-55~+125℃					-40~+85℃					--																											
Impedance (Z)	Refer to standard electrical characteristics list										HP4291A, HP4287A+16092A																											
Inductance (Ls)																																						
Q Factor																																						
DC Resistance											HP4338B																											
Rated Current											**																											
Temperature Rise Test	30℃ max. (ΔT)										1. Applied the allowed DC current. 2. Temperature measured by digital surface thermometer.																											
Solder heat Resistance	Appearance: No significant abnormality. Impedance change: Within $\pm 30\%$.				No mechanical damage. Remaining terminal electrode: 70% min.				Preheat: 150℃, 60sec. Solder: Sn-Ag3.0-Cu0.5 Solder temperature: 260 \pm 5℃ Flux for lead free: rosin Dip time: 10 \pm 0.5sec. 																													
Solderability	More than 90% of the terminal electrode should be covered with solder.								Preheat: 150℃, 60sec. Solder: Sn-Ag3.0-Cu0.5 Solder temperature: 230 \pm 5℃ Flux for lead free: rosin Dip time: 4 \pm 1sec.																													
Terminal strength	The terminal electrode and the dielectric must not be damaged by the forces applied on the right conditions.								For FCB FCM HCB HPB HFB FCI FHI FCH HCI: Size Force (Kfg) Time(sec) 1005 0.2 1608 0.5 2012 0.6 3216 1.0 >25 3225 1.0 4516 1.0 4532 1.5 5750 2.0 For FCA: Size Force (Kfg) Time(sec) 3216 0.5 >25																													
Flexure strength	The terminal electrode and the dielectric must not be damaged by the forces applied on the right conditions.								Solder a chip on a test substrate, bend the substrate by 2mm (0.079in) and return.																													
Bending Strength	The ferrite should not be damaged by Forces applied on the right condition.								<table border="1"> <thead> <tr> <th>Size</th> <th>mm(inches)</th> <th>P-Kgf</th> </tr> </thead> <tbody> <tr> <td>1608</td> <td>0.80(0.033)</td> <td>0.3</td> </tr> <tr> <td>2012</td> <td>1.40(0.055)</td> <td>1.0</td> </tr> <tr> <td>FCA3216</td> <td>2.00(0.079)</td> <td>1.5</td> </tr> <tr> <td>3216</td> <td>2.00(0.079)</td> <td>2.5</td> </tr> <tr> <td>3225</td> <td></td> <td></td> </tr> <tr> <td>4516</td> <td>2.70(0.106)</td> <td>2.5</td> </tr> <tr> <td>4532</td> <td></td> <td></td> </tr> <tr> <td>5750</td> <td></td> <td></td> </tr> </tbody> </table>			Size	mm(inches)	P-Kgf	1608	0.80(0.033)	0.3	2012	1.40(0.055)	1.0	FCA3216	2.00(0.079)	1.5	3216	2.00(0.079)	2.5	3225			4516	2.70(0.106)	2.5	4532			5750		
Size	mm(inches)	P-Kgf																																				
1608	0.80(0.033)	0.3																																				
2012	1.40(0.055)	1.0																																				
FCA3216	2.00(0.079)	1.5																																				
3216	2.00(0.079)	2.5																																				
3225																																						
4516	2.70(0.106)	2.5																																				
4532																																						
5750																																						
Random Vibration Test	Appearance: Cracking, shipping and any other defects harmful to the characteristics should not be allowed. Impedance: within $\pm 30\%$								Frequency: 10-55-10Hz for 1 min. Amplitude: 1.52mm Directions and times: X, Y, Z directions for 2 hours. A period of 2 hours in each of 3 mutually perpendicular directions (Total 6 hours).																													
Drop	Drop 10 times on a concrete floor from a height of 75cm								a: No mechanical damage b: Impedance change: $\pm 30\%$																													

Item	Performance	Test Condition
Loading at High Temperature	Appearance: no damage.	Temperature: 125±5°C (bead), 85±5°C (inductor) Applied current: rated current. Duration: 500±12hrs. Measured at room temperature after placing for 2 to 3hrs.
Humidity	Impedance: within±30%of initial value. Inductance: within±10%of initial value. Q: within±30%of initial value. (FCI FHI FCH) Q: within±20%of initial value. (HCI)	Humidity: 90~95%RH. Temperature: 40±2°C. Temperature: 60±2°C.(HCI) Duration: 500±12hrs. Measured at room temperature after placing for 2 to 3hrs.
Thermal shock	Appearance: no damage. Impedance: within±30%of initial value. Inductance: within±10%of initial value. Q: within±30%of initial value. (FCI FHI FCH) Q: within±20%of initial value. (HCI)	For FCB FCM HCB HPB HFB FCA : Condition for 1 cycle Step1: -55±2°C 30±3 min. Step2: +125±5°C 30±3 min. Number of cycles: 5 For FCI FHI FCH HCI : Condition for 1 cycle Step1: -40±2°C 30±3 min. Step2: +85±5°C 30±3 min. Number of cycles: 100 Measured at room temperature after placing for 2 to 3 hrs.
Low temperature storage test		Temperature: -55±2°C. Duration: 500±12hrs. Measured at room temperature after placing for 2 to 3hrs.
Drop	Drop 10 times on a concrete floor from a height of 75cm	a: No mechanical damage b: Impedance change: ±30%

For Bead :

Phase	Temperature(°C)	Time(min.)
1	-55±2°C	30±3
2	+125±5°C	30±3

Measured: 5 times

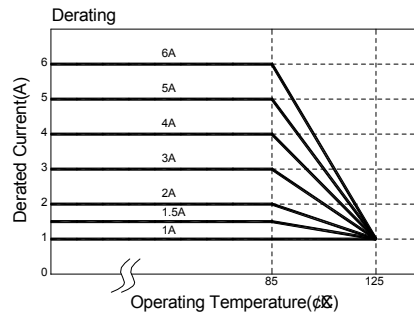
For Inductor :

Phase	Temperature(°C)	Time(min.)
1	-40±2°C	30±3
2	+85±5°C	30±3

Measured: 100 times

****Derating Curve**

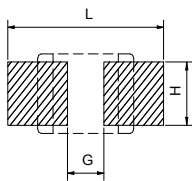
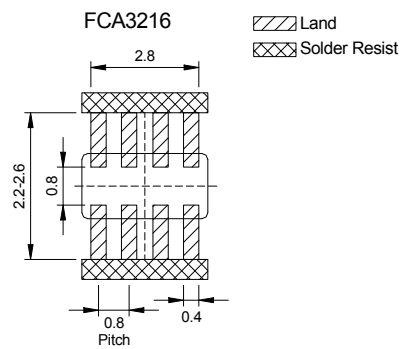
For the ferrite chip bead which withstanding current over 1.5A, as the operating temperature over 85°C, the derating current information is necessary to consider with. For the detail derating of current, please refer to the Derated Current vs. Operating Temperature curve.



6.Soldering and Mounting

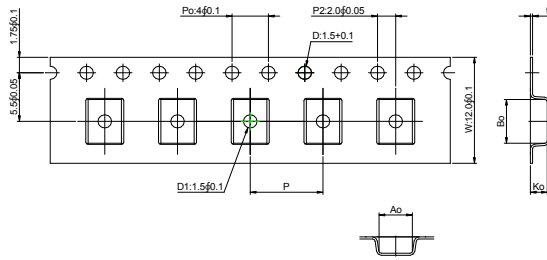
6-1. Recommended PC Board Pattern

Chip Size						Land Patterns For Reflow Soldering		
Series	Type	A(mm)	B(mm)	C(mm)	D(mm)	L(mm)	G(mm)	H(mm)
FCB	1005	1.0±0.10	0.50±0.10	0.50±0.10	0.25±0.10	2.10	0.50	0.55
FCM	1608	1.6±0.15	0.80±0.15	0.80±0.15	0.30±0.20	2.60	0.60	0.80
HCB	2012	2.0±0.20	1.25±0.20	0.85±0.20	0.50±0.30	3.00	1.00	1.00
HPB		2.0±0.20	1.25±0.20	1.25±0.20	0.50±0.30			
HFB	2520	2.5±0.20	2.00±0.20	1.60±0.20	0.50±0.30	3.90	1.50	1.50
FCI	3216	3.2±0.20	1.60±0.20	1.10±0.20	0.50±0.30	4.40	2.20	1.40
FHI	3225	3.2±0.20	2.50±0.20	1.30±0.20	0.50±0.30	4.40	2.20	3.40
FCH	4516	4.5±0.20	1.60±0.20	1.60±0.20	0.50±0.30	5.70	2.70	1.40
HCI	4532	4.5±0.20	3.20±0.20	1.50±0.20	0.50±0.30	5.90	2.57	4.22
UHI	5750	5.7±0.20	5.00±0.30	1.80±0.20	0.50±0.30	8.00	4.00	5.80



PC board should be designed so that products are not sufficient under mechanical stress as warping the board.
Products shall be positioned in the sideways direction against the mechanical stress to prevent failure.

7-2.2 Tape Dimension / 12mm

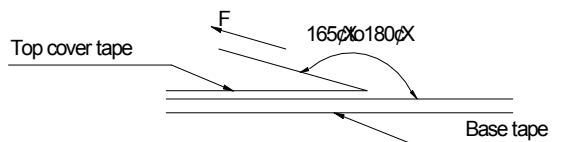


Series	Size	Bo(mm)	Ao(mm)	Ko(mm)	P(mm)	t(mm)	D1(mm)
FCB,	451616	4.95±0.1	1.93±0.1	1.93±0.1	4.0±0.1	0.24±0.05	1.5±0.1
HC.B.FCM	453215	4.95±0.1	3.66±0.1	1.85±0.1	8.0±0.1	0.24±0.05	1.5±0.1
FCI	575018	6.10±0.1	5.40±0.1	2.00±0.1	8.0±0.1	0.30±0.05	1.5±0.1

7-3. Packaging Quantity

Chip Size	575018	453215	451616	322513	321611	201212	201209	160808	100505
Chip / Reel	1000	1000	2000	2500	3000	2000	4000	4000	10000
Inner box	4000	4000	8000	12500	15000	10000	20000	20000	50000
Middle box	20000	20000	40000	62500	75000	50000	100000	100000	250000
Carton	40000	40000	80000	125000	150000	100000	200000	200000	500000
Bulk (Bags)	7000	12000	20000	30000	50000	100000	150000	200000	300000

7-4. Tearing Off Force



The force for tearing off cover tape is 15 to 60 grams in the arrow direction under the following conditions.

Room Temp. (°C)	Room Humidity (%)	Room atm (hPa)	Tearing Speed mm/min
5~35	45~85	860~1060	300

Application Notice

- Storage Conditions

To maintain the solderability of terminal electrodes:

1. Temperature and humidity conditions: -10~ 40°C and 30~70% RH.
2. Recommended products should be used within 6 months from the time of delivery.
3. The packaging material should be kept where no chlorine or sulfur exists in the air.

- Transportation

1. Products should be handled with care to avoid damage or contamination from perspiration and skin oils.
2. The use of tweezers or vacuum pick up is strongly recommended for individual components.
3. Bulk handling should ensure that abrasion and mechanical shock are minimized.