深圳市方磁電子有限公司

SHENZHEN FOUNDS ELECTRONICS CO., LTD

【物料承認書】

APPROVAL SHEET

客戶（Customer）：

產品名稱（Description）：Mutitlayer Ferrite chip inductor

客戶料號（Cus P/N）：

料號（Part NO）：FSCPI201209T Serie

日期（Date）：2019/03/21

版本（Version）：A

核准 APPROVED BY	審核 CHECKED BY	製作 DRAWN BY
TopoCheng	VincentShang	AbbyShi

Please sign back after confirmation:

Client signature: ☐ Qualified ☐ Unqualified

批准 APPROVAL	審核 CHECKED	檢驗 CONFORM

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13號C33科創園2棟209室
電話(TEL):0755-83222650
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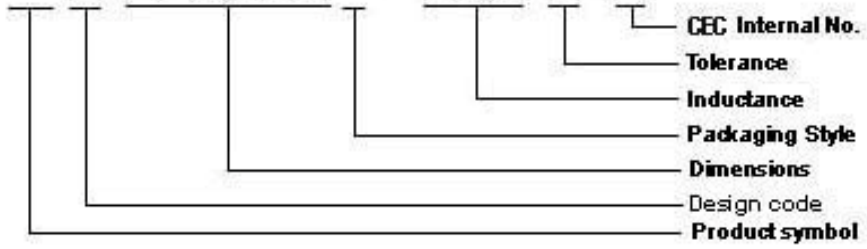
http://www.ele-founds.com

FSCPI201209T Series Specification

1 Scope: This specification applies to Mutitlayer Ferrite chip inductors

2 Part Numbering: Product Identification

FS CPI 201209 T- 2R2 N- NP



3 Rating:

Operating Temperature: －25℃～85℃

Storage Temperature: －25℃～85℃**(after PCB)**
－5℃～40℃,**Humidity** 40%～70%**(before PCB)**

4 Marking:

No Marking

5 Standard Testing Condition

	Unless otherwise specified	In case of doubt
Temperature	Ordinary Temperature(15 to 35℃)	20±2℃
Humidity	Ordinary Humidity(25 to 85% RH)	60 to 70 % RH

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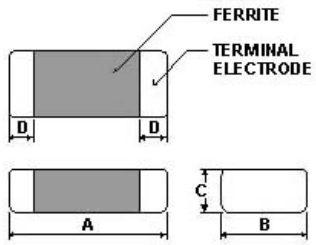
6 Configuration and Dimensions:



Dimensions in mm

TYPE	CP201209
A	2.00±0.20
B	1.25±0.20
C	0.90±0.20
D	0.50±0.30

7 ELECTRICAL CHARACTERISTICS :

Part No.	Inductance (uH)	Test Freq.	RDC (Ω)Max.	Rated Current (mA)Max.	Tolerance (±%)
FSCPI201209T-1R0□-NP	1	1 MHz,200 mV	0.06	2200	20,30
FSCPI201209T-2R2□-NP	2.2	1 MHz,200 mV	0.1	2000	30
FSCPI201209T-3R3□-NP	3.3	1 MHz,200 mV	0.12	1500	30
FSCPI201209T-4R7□-NP	4.7	1 MHz,200 mV	0.3	900	30

NOTE: □-tolerance M=±20% / T=±30%

1.Operating temperature range －２５℃～８５℃

2.Rate Current : Applied the current to coils, the temperature rise shall not be more than 30℃

"-N" FOR COMPLETELY LEAD FREE TYPE(INCLUDING FERRITE BODY & SOLDER)

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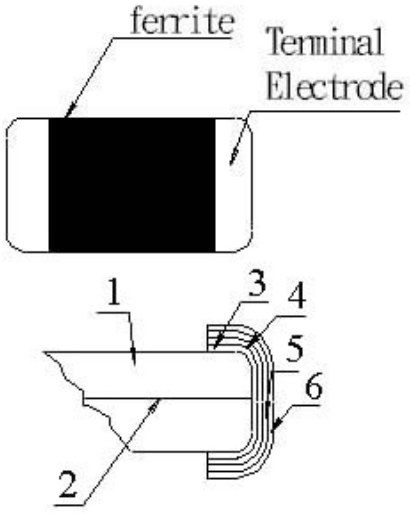
8 FSCPI201209T Series

8.1 Construction:



8.2 Material List:

NO	PART	MATERIAL
1	Ferrite Substance	NiO-CuO-ZnO-Ferrite
2	Silver electrode	Ag
3	Silver electrode	Ag
4	Cu plating	Cu
5	Ni plating	Ni
6	Sn plating	Sn

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9 Reliability Of Ferrite Multilayer Chip Inductor

1-1.Mechanical Performance

No	Item	Specification	Test Method
1-1-1	Flexure Strength	The forces applied on the right conditions must not damage the terminal electrode and the ferrite	Test device shall be soldered on the substrate Substrate Dimension: 100x40x1.6mm Deflection: 2.0mm Keeping Time: 30sec *For 100505, substrate dimension is 100x40x0.8mm
1-1-2	Vibration		Test device shall be soldered on the substrate Oscillation Frequency: 10 to 55 to 10Hz for 1min Amplitude: 1.5mm Time: 2hrs for each axis (X, Y & Z), total 6hrs
1-1-3	Resistance to Soldering Heat	Appearance: No damage More than 75% of the terminal electrode should be covered with solder. Inductance: within ±20% of initial value	Pre-heating: 150℃, 1min Solder Composition: Sn/Pb = 63/37 Solder Composition: Sn/Ag3.0/Cu0.5(Pb-Free) Solder Temperature: 260±5℃ Immersion Time: 10±1sec
1-1-4	Solder ability	The electrodes shall be at least 95% covered with new solder coating	Pre-heating: 150℃, 1min Solder Composition: Sn/Pb = 63/37 Solder Temperature: 220±5℃ Solder Composition: Sn/Ag3.0/Cu0.5(Pb-Free) Solder Temperature: 245±5℃(Pb-Free) Immersion Time: 4±1sec

1-2.Environmental Performance

No	Item	Specification	Test Method
1-2-1	Temperature Cycle	Appearance: No damage Inductance:within±20% of initial value	One cycle: Step / Temperature (℃) / Time (min) 1 / -25±3 / 30 2 / 25±2 / 3 3 / 85±3 / 30 4 / 25±2 / 3 Total: 100cycles Measured after exposure in the room condition for 24hrs
1-2-2	Humidity Resistance		Temperature: 40±2℃ Relative Humidity: 90 ~ 95% / Time: 1000hrs Measured after exposure in the room condition for 24hrs
1-2-3	High Temperature Resistance		Temperature: 85±3℃ Relative Humidity: 20% Applied Current: Rated Current / Time: 1000hrs Measured after exposure in the room condition for 24hrs
1-2-4	Low Temperature Resistance		Temperature: -25±3℃ Relative Humidity: 0% / Time: 1000hrs Measured after exposure in the room condition for 24hrs

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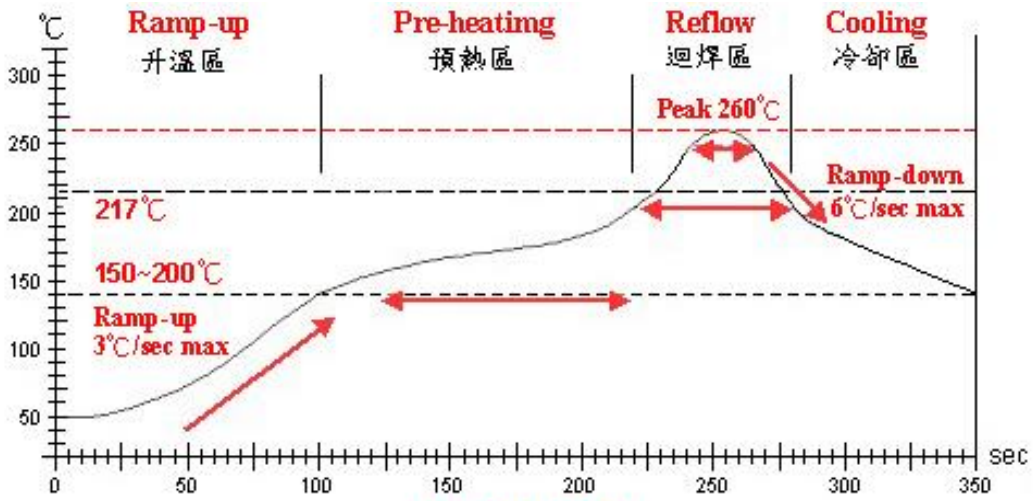

Reflow profile

Lead-Free(LF) 標準溫度分析範圍 Refer to J-STD-020C

管制項目 Item.	升溫區 Ramp-up	預熱區 Pre-heatimg	迴焊區 Reflow	Peak Temp	冷卻區 Cooling
溫度範圍 Temp.scope	R.T.~150℃	150℃~200℃	217℃	260±5℃	Peak Temp.~150℃
標準時間 Time spec.	—	60~180 sec	60~150 sec	20~40 sec	—
實際時間 Time result	—	75~100 sec	90~120 sec	20~35 sec	—

NOTE :

1. Re-flow possible times : within 2 times
2. Nitrogen adopted is recommended while in re-flow

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10 TEST DATA FOR PREPRODUCTION SAMPLES

QF-1419

DESCRIPTION: FSCPI201209T-2R2N-NP

MEAS. Item		L (uH)	RDC (Ω)	A m/m	B m/m	C m/m	D m/m					
Spec	Customer	2.2±30%										
	Suggest		0.1+0	2.0±0.2	1.25±0.2	0.9±0.2	0.5±0.3					
Test Freq.		1 MHz 200 mV										
1		2.27	0.075	2.01	1.27	0.91	0.54					
2		2.28	0.072	2.02	1.27	0.89	0.53					
3		2.25	0.072	2.01	1.27	0.92	0.56					
4		2.17	0.066	1.99	1.28	0.92	0.52					
5		2.26	0.069	1.98	1.28	0.93	0.52					
6		2.23	0.071	2.02	1.26	0.92	0.55					
7		2.18	0.072	2.04	1.26	0.92	0.56					
8		2.27	0.075	2.03	1.26	0.91	0.54					
9		2.22	0.068	1.99	1.26	0.89	0.51					
10		2.25	0.071	1.99	1.27	0.93	0.52					
11												
12												
13												
14												
15												
$\overline{X}$		2.238	0.0711	2.008	1.268	0.914	0.535					
R		0.11	0.009	0.06	0.02	0.04	0.05					
CUSTOMER												
SAMPLE												

TEST INSTRUMENT:

HP4291A RF IMPEDANCE / MATERIAL ANALYZER FOR L

CHEN HWA 502BC / HP4338B FOR RDC

APPEARANCE AND DIMENSIONS :

SPEC : MEET ITEM 6.

TEST METHOD : VISUAL INSPECTION AND MEASURED WITH SILDE CALIPERS.

TESTING CONDITIONS :

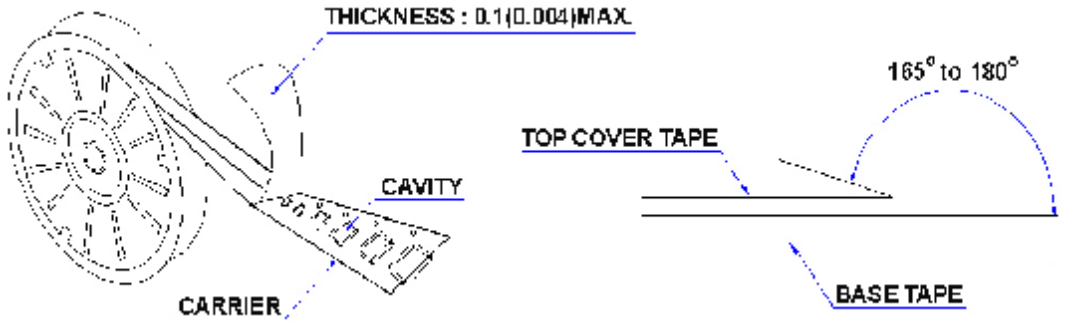
	Unless otherwise specified	In case of doubt
Temperature	Ordinary Temperature (15 to 35℃)	20 ± 2 ℃
Humidity	Ordinary Humidity (25 to 85 %RH)	60 to 70 %RH

FSCPI201209T Series Specification

11 PACKAGING

11.1 Packaging -Cover tape

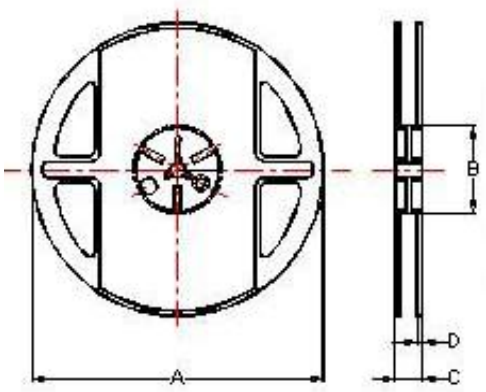
The force for tearing off cover tape is 10 to 100 grams in the arrow direction.



11.2 Packaging Quantity

TYPE	BULK	PCS/REEL
CP160808	✓	4000
CP201209	✓	4000
CP201212	✓	3000
CP321611	✓	3000

11.3 Reel Dimensions



Dimensions in mm

TYPE	A	B	C	D
CP Series	178	60	12	1.5

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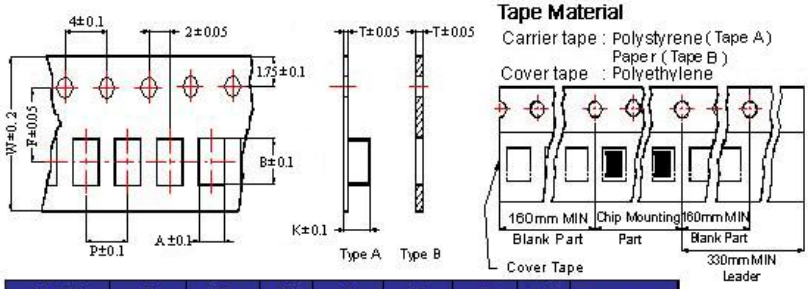
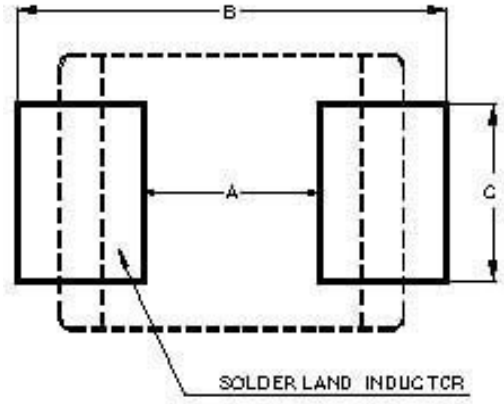
11 PACKAGING

11.4 Tape Dimensions in mm



TYPE	A	B	T	W	P	F	K	Tape Typ.
CP160808	1.05	1.85	0.95	8	4	3.5		B
CP201209	1.50	2.30	0.97	8	4	3.5		B
CP201212	1.35	2.25	0.22	8	4	3.5	1.35	A
CP321611	1.88	3.50	0.22	8	4	3.5	1.27	A

12 Recommended Pattern



Dimensions in mm

TYPE	A	B	C
CP160808	0.7 ~ 0.8	1.8 ~ 2.0	0.6 ~ 0.8
CP201209	1.0 ~ 1.2	2.6 ~4.0	1.0 ~ 1.2
CP201212	1.0 ~ 1.2	2.6 ~4.0	1.0 ~ 1.2
CP321611	2.0	4.2 ~ 5.2	1.2

13 Note:

1. Please make sure that your product is has been evaluated and confirmed against your specifications when our product is mounted to your product.
2. Do not knock nor drop.
3. All the items and parameters in this product specification have been prescribed on the premise that our product is used for the purpose,under the condition and in the environment agreed upon between you and us. You are requested not to use our product deviating from such agreement.
4. Please keep the distance between transformer/coil and other components (refer to the standard IEC 950)

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14 Curve:

FSCPI201209T-2R2M-NP