

SPECIFICATION FOR APPROVAL

产品规格书

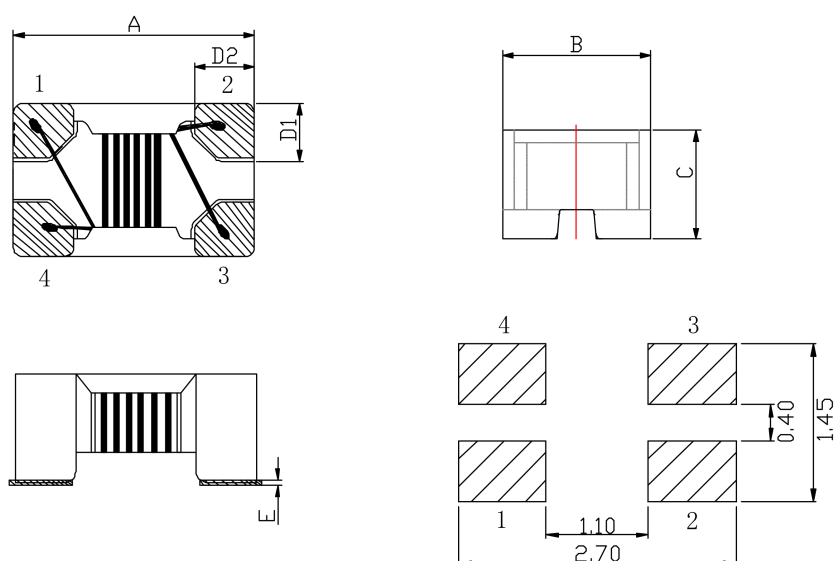
FPE PART NO. :	PB2012F-121Z		
DESCRIPTION:	Wire Wound Type Common Mode Filter		
 广东美信科技股份有限公司 GUANGDONG MISUN TECHNOLOGY CO., LTD TEL: (86)769-86761589 86762589 FAX: (86)769-86761549 广东省东莞市企石镇新南金湖一路 3 号 No.3, Jinhu 1st Road, Xinnan, Qishi Town, Dongguan City, Guangdong Province 为电磁赋能，创工业至美 Enable electromagnetism, Create ultimate beauty		FPE APPROVAL (公司承认章)	
			
		DRAWN BY:	<i>Jingwei XU</i>
		CHECKED BY:	<i>Junmao Zhang</i>
		APPROVAL BY:	<i>Angus Shi</i>

1. 特征 Features

- ◆ High common mode impedance at high frequency cause excellent noise suppression performance.
- ◆ CU2012F series realizes small size and low profile. 2.0x1.2x1.0 mm.
- ◆ 100% Lead(Pb) & Halogen-Free and RoHS compliant.
- ◆ Operating temperature-40~+125°C (Including self - temperature rise)



2. 外形尺寸 Dimension

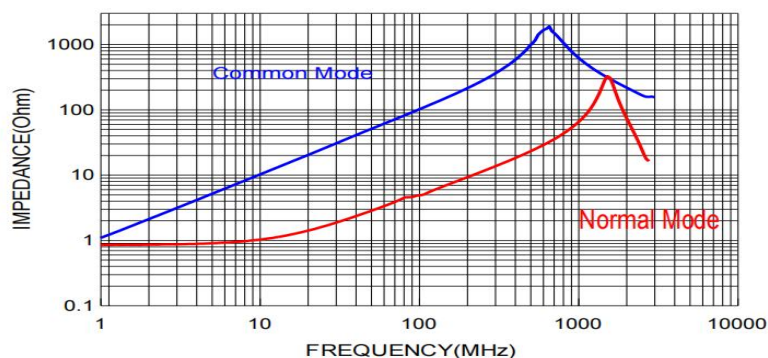


SUGGEST LAYOUT

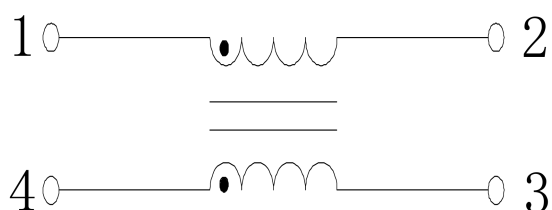
Part Number	A(mm)	B(mm)	C(mm)	D1(mm)	D2(mm)	E(mm)
PB2012F-121Z	2.0±0.20	1.27±0.20	0.9±0.10	0.50±0.10	0.45±0.10	0.18 REF

3. 电性规格 Specification

Part Number	Common mode Impedance (Ω)	Test Frequency (MHz)	DC Resistance (Ω) Max.	Rated Current (mA)Max.	Rated Volt. (Vdc)Max.	Withstand Volt. (Vdc) Max.	IR (Ω) Min.
PB2012F-121Z	120±25%	100	0.45	300	50	125	10M

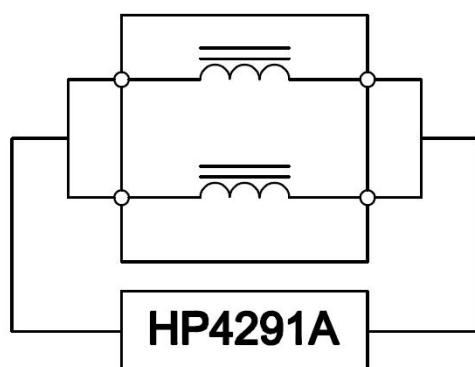


4. 电路图 Schematic Diagram

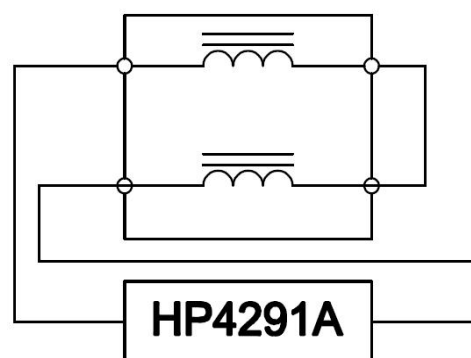


5. 测量电路 Measurement Circuits 2Line

Common mode

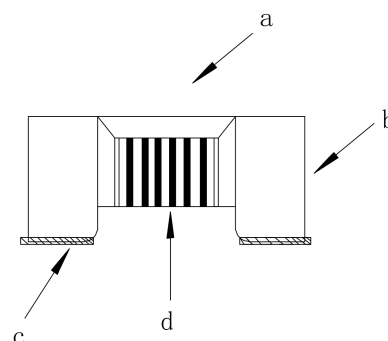


Differential mode



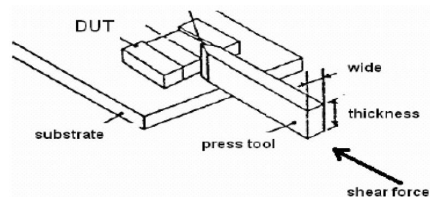
6. 材料 Materials

No.	Description	Specification
a.	Upper Plate	UV Glue
b.	Core	Ferrite Core
c.	Termination	Ag/Ni/Sn
d.	Wire	Enameled Copper Wire



7. 可靠性和试验条件 Reliability and Test Condition

Item	Performance	Test Condition
Operating temperature	-40~+125C (Including self - temperature rise)	
Storage temperature	-40~+125C (on board)	
Electrical Performance Test		
Z(common mode)	Refer to standard electrical characteristics list.	Agilent-4291A+ Agilent -16197A
DCR		Agilent-4338B
I.R.		Agilent4339
Temperature Rise Test	Rated Current 0.3A AT 40°C Max	1 .Applied the allowed DC current . 2.Temperature measured by digital surface thermometer
Reliability Test		
Life Test	Appearance : No damage. Inductance : within±10% of initial value Impedance : within±15% of initial value Q : Shall not exceed the specification value. RDC : within ±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) Temperature : 125±2C Applied current : rated current Duration : 1000±12hrs
Load Humidity		Preconditioning: Run IR 2 .(IPC/JEDEC J-STD-020DClassification Reflow Profiles Humidity : 85±2%R.H, Temperature : 85C±2C Duration : 1000hrs Min. with 100% rated current Measured at room temperature after placing for 24±2 hrs
Moisture Resistance		Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DClassification Reflow Profiles 1. Baked at50C for 25hrs, measured at room temperature after placing for 4 hrs. 2. Raise temperature to 65±2C 90- 100%RH in 2.5hrs, and keep 3 hours, cool down to 25C in 2.5hrs. 3. Raise temperature to 65±2C 90- 100%RH in 2.5hrs, and keep 3 hours, cool down to 25C in 2.5hrs,keep at 25C for 2 hrs then keep at - 10C for 3 hrs 4. Keep at 25C 80-100%RH for 15min and vibrate at the frequency of 10 to 55 Hz to 10 Hz, measure at
Thermal shock		Preconditioning: Run IR 2 .(IPC/JEDEC J-STD-020DClassification Reflow Profiles Condition for 1 cycle Step1 : -40±2C 30±5min Step2 : 25±2C ≡0.5min Step3 : 125±2C 30±5min Number of cycles : 500
Vibration		Oscillation Frequency: 10Hz~2KHz~10Hz 20 minute Equipment : Vibration checker Total Amplitude:10g Testing Time : 12 hours(20 minutes, 12 cycles each of 3 orientations) 。

Item	Performance	Test Condition															
Bending		SShall be mounted on a FR4 substrate of the following dimensions: >=0805 inch(2012mm):40x100x1.2mm <0805 inch(2012mm):40x100x0.8mm Bending depth: >=0805 inch(2012mm):1.2mm <0805 inch(2012mm):0.8mm duration of 10 sec.															
Shock	Appearance: No damage. Impedance: within±15% of initial value Inductance: within±10% of initial value Q: Shall not exceed the specification value. RDC: within ±15% of initial value and shall not exceed the specification value	<table><tr><td>Type</td><td>Peak value (g's)</td><td>Normal duration (D) (ms)</td><td>Wave form</td><td>Velocity change (Vi)ft/sec</td></tr><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></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
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													
Solder ability	More than 95% of the terminal electrode should be covered with solder.	Preheat: 150°C,60sec.。 Solder: Sn96.5% Ag3% Cu0.5% Temperature: 245±5°C。 Flux for lead free: Rosin. 9.5%。 Dip time: 4±1sec.。 Depth: completely cover the termination															
Resistance to Soldering Heat		Depth: completely cover the termination <table><tr><td>Temperature(°C)</td><td>Time(s)</td><td>Temperature ramp/immersion and emersion rate</td><td>Number of heat cycles</td></tr><tr><td>260 ±5 (solder temp)</td><td>10 ±1</td><td>25mm/s ±6 mm/s</td><td>1</td></tr></table>	Temperature(°C)	Time(s)	Temperature ramp/immersion and emersion rate	Number of heat cycles	260 ±5 (solder temp)	10 ±1	25mm/s ±6 mm/s	1							
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260 ±5 (solder temp)	10 ±1	25mm/s ±6 mm/s	1														
Terminal Strength	Appearance: No damage. Impedance: within±15% of initial value Inductance: within±10% of initial value Q: Shall not exceed the specification value. RDC: within ±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 With the component mounted on a PCB with the device to be tested apply a force(>0805:1kg , <=0805:0.5kg)to the side of a device being tested. This force shall be applied for 60 +1 seconds. Also the force shall be applied gradually as not to apply a shock to the component being tested. 															

8. 焊接和安装 Soldering and Mounting

8-1. Soldering

Mildly activated rosin fluxes are preferred. FPE terminations are suitable for all wave and re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.

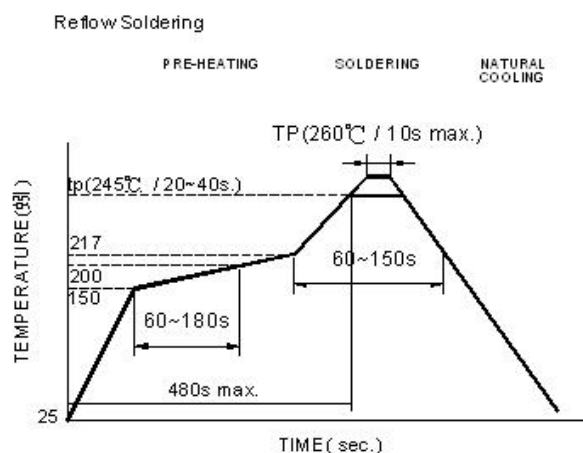
8-1.1 Solder re-flow:

Recommended temperature profiles for re-flow soldering in Figure 1.

8-1.2 Soldering Iron(Figure 2):

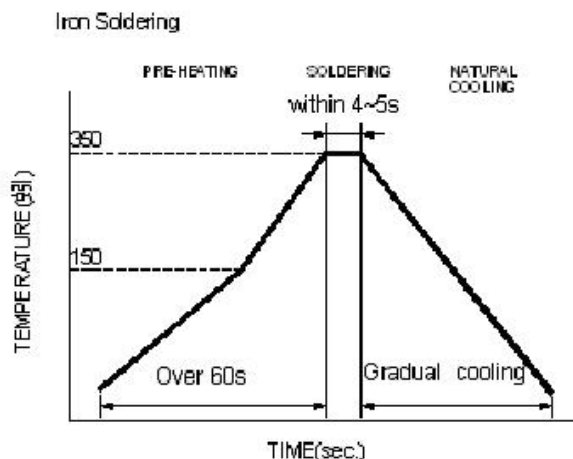
Products attachment with a soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended.

- Preheat circuit and products to 150°C
- Never contact the ceramic with the iron tip
- Use a 20 watt soldering iron with tip diameter of 1.0mm
- 350°C tip temperature (max)
- 1.0mm tip diameter (max)
- Limit soldering time to 4~5 sec.



Reflow times: 3 times max.

Fig.1

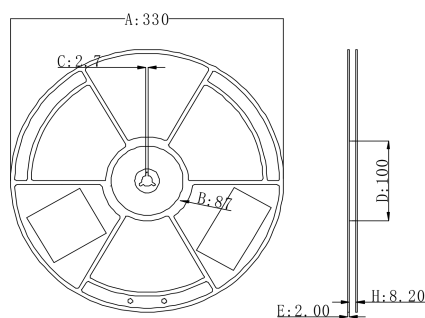


Iron Soldering times: 1 times max.

Fig.2

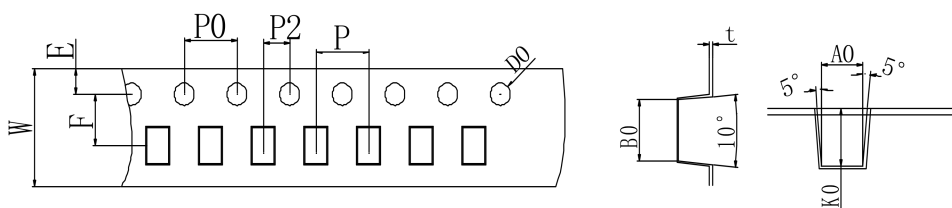
9. 包装信息 Packaging Information

9-1. Reel Dimension



Type	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	H(mm)
13"x8mm	330±2	87±1	2.7±0.5	100±1	1.9±0.2	8±0.5

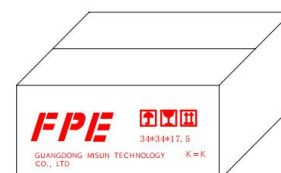
9-2. Tape Dimension / 8mm



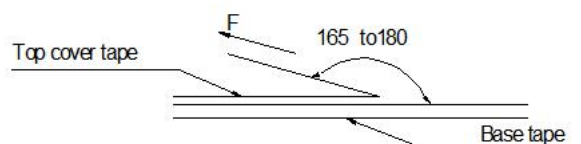
P/N	W(mm)	E(mm)	F(mm)	P0(mm)	P2(mm)	P(mm)	DO(mm)	t(mm)	B0(mm)	A0(mm)	K0(mm)
2012 系列	8.00±0.10	1.75±0.10	3.50±0.05	4.00±0.10	2.00±0.05	4.00±0.10	1.50+0.10/-0.00	0.28±0.05	2.35±0.10	1.50±0.10	1.2±0.10

9-3. Packaging Quantity

Chip size	Chip/Reel	Carton
2012 系列	10000	100000



9-4. Tearing Off Force



The force for tearing off cover tape is 15 to 85 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. FPE products meet IPC/JEDEC J-STD-020D standard-MSL, level 1.
2. Temperature and humidity conditions: Less than 40°C and 60% RH.
3. Recommended products should be used within 12 months from the time of delivery.
4. 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.