Product specifications

Product name: **CBB13 Type Film Capacitor**

Specifications: Series

Parts origin: **China Shantou**

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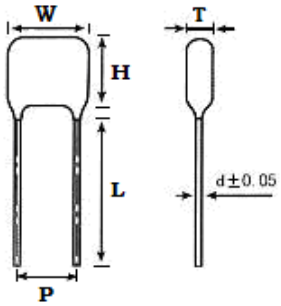
1. Outline Drawing



2. Features

◆Polypropylene film foil,non-inductive winding construction

◆Low loss(DF)and small inherent temperature rise

◆Suitable for high pulse and high current loading circuit,high frequency 100KH$_Z$

◆Epoxy resin sealing

3. Typical applications

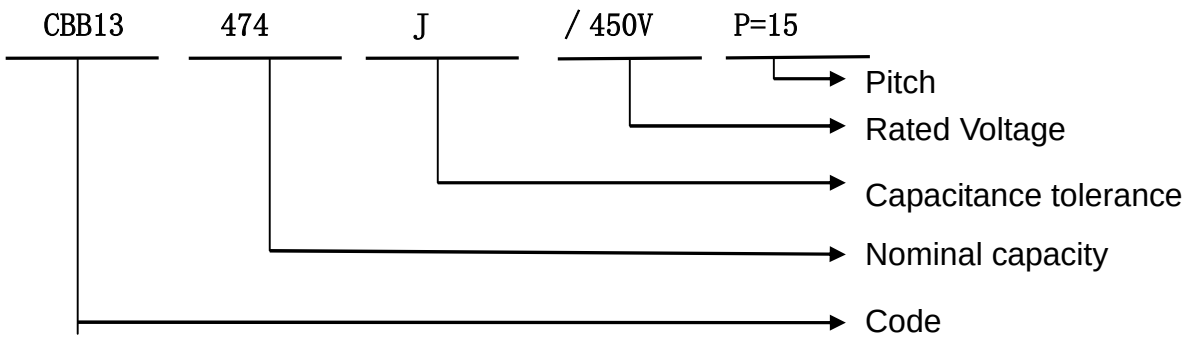
◆Widely used in high frequency,DC and pulse circuits

4. Specifications

No.	Item	Demand of performance	Methods of testing
1	Reference standard	GB/T10188 (IEC60384-13)	
2	Operating Temperature Range	-40～+85℃	
3	Rated Voltage	100VDC、250VDC 400VDC、630VDC	
4	Capacitance Range	0.001μF -0.47μF 1KHz 1V	
5	Capacitance Tolerance	±5％（J） ±10％（K） 1KHz 1V	
6	Voltage Proof（V）	No failure Rated Voltage *2.0U$_R$	Charge current≤50mA Voltage time：5S
7	Dissipation Factor（tgδ）	tgδ≤0.001 1KHz	The capacitance and dissipation factor shall be measured at 25±2℃ with 1±0.1KHz and 1.0Vrms.
8	Insulation Resistance	C≤0.33μF ,IR≥50000MΩ C＞0.33μF ,IR≥15000S(MΩ/μF)	AT 100VDC 60SEC

5. Capacitor series code information

Example：



〈1〉 Nominal capacity

Code	103	104	105	106
PF	10000PF	100000PF		
nF	10nF	100nF	1000nF	
μF	0. 01μF	0. 1μF	1μF	10μF

〈2〉 Capacitance tolerance

Code	J	K
Capacitance tolerance	±5%	±10%

〈3〉 Pitch

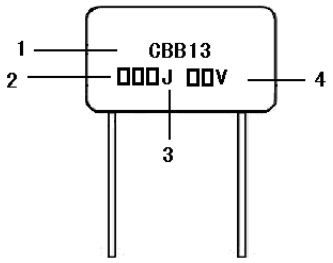
Code	P=10	P=15	P=22. 5	P=27. 5
Pitch（mm）	10 MM	15 MM	22. 5 MM	27. 5 MM

6. Specifications

NO.	Type	630VDC					1KVDC				
		W	H	T	P	d	W	H	T	P	d
1	102	13.0	8.0	4.5	10.0	0.6	13.0	8.0	4.5	10.0	0.6
2	122	13.0	8.0	4.5	10.0	0.6	13.0	8.0	4.5	10.0	0.6
3	152	13.0	8.0	4.5	10.0	0.6	13.0	8.0	4.5	10.0	0.6
4	182	13.0	8.5	4.5	10.0	0.6	13.0	8.5	4.5	10.0	0.6
5	222	13.0	8.5	4.5	10.0	0.6	13.0	8.5	4.5	10.0	0.6
6	272	13.0	9.5	5.0	10.0	0.6	13.0	9.5	5.0	10.0	0.6
7	332	13.0	9.5	5.0	10.0	0.6	13.0	9.5	5.0	10.0	0.6
8	392	13.0	8.5	4.5	10.0	0.6	18.0	9.5	5.0	15.0	0.8
9	472	13.0	8.5	4.5	10.0	0.6	18.0	9.5	5.0	15.0	0.8
10	562	18.0	9.0	5.0	15.0	0.8	18.0	9.0	5.0	15.0	0.8
11	682	18.0	10.5	5.0	15.0	0.8	18.0	10.5	5.0	15.0	0.8
12	822	18.0	10.5	5.0	15.0	0.8	18.0	11.0	5.5	15.0	0.8
13	103	18.0	10.5	5.0	15.0	0.8	18.0	11.5	6.5	15.0	0.8
14	123	18.0	10.5	5.5	15.0	0.8	18.0	13.0	6.5	15.0	0.8
15	153	18.0	10.5	5.5	15.0	0.8	18.0	14.0	7.0	15.0	0.8
16	183	18.0	11.0	6.0	15.0	0.8	18.0	14.5	8.0	15.0	0.8
17	223	18.0	11.5	6.0	15.0	0.8	18.0	15.5	9.0	15.0	0.8
18	273	18.0	11.5	6.0	15.0	0.8					
19	333	18.0	13.0	6.0	15.0	0.8					

Note: Dimension Tolerance:P=10 (W、H、T、) ±1; P=15 (W、H、T、) ±1.5; d±0.05 ,L:20 min (Unit: mm)

7. Marking

Example	Explain	
	1	CBB13: Series code
	2	□□□: Nominal capacity
	3	J: Capacitance tolerance
	4	□□V: Rated Voltage

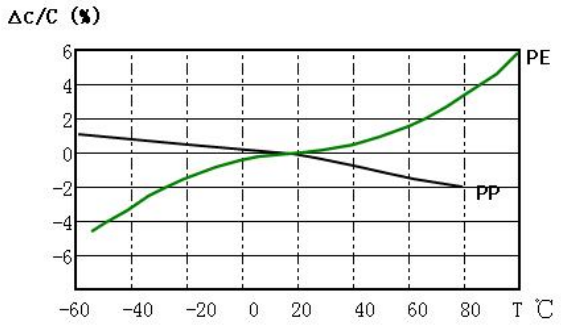
8. Test Method And Performance

No.	Item	Demand of performance		Methods of testing
1	Lead strength Test	Tensile Strength	Pin and capacitance ontology was found no damage	① Lead wire diameter ≤ 0.5 mm, tensile strength ≥ 0.5kg/10S; ②Lead wire diameter＞0.5mm, ≤0.8mm，tensile strength ≥ 1.0kg/10S; ② Lead wire diameter＞0.8mm, tensile strength ≥ 2.0kg/20S.
		Bending Strength	Pin and capacitance ontology was found no damage	Bending strength：0.5 ㎏（5N） Bending time: both sides continuous bending 4 times, each time bending 90 ℃.
2	Welding heat resistance test	①Appearance: No visible damage ②Flag is clear ③Change rate of capacitance(1KHz) ΔC/C≤5% of the initial value ④tgδ≤0.003		Soldering Temperature: 260±5℃ Soldering Time: 5±1SEC
3	Solder ability Test	①About 95% of the wire covered with tin ②Flag is clear ③Change rate of capacitance(1KHz) ΔC/C≤5% of the initial value ④tgδ≤0.003		Soldering Temperature: 235±5℃ Soldering Time: 2±0.5SEC Solder composition： Sn 97.5％+ Ag 2％+Cu 0.5％
4	Vibration Test	① Appearance: No visible damage ② Change rate of capacitance(1KHz) ΔC/C≤1％ ③tgδ：C≤1uF，≤0.001 Added value C＞1uF，≤0.003 Added value ④IR：≥50% of the initial value		Testing frequency： 10-55Hz，10-500Hz，10-2000Hz Amplitude：0.75mm Maximum acceleration：98m/S^2 Duration:6 hours
5	Dry and heat Test	① Appearance: No visible damage ② Change rate of capacitance(1KHz) ΔC/C≤1％ ③tgδ：C≤1uF,≤0.0015 Added value C＞1uF, ≤0.003 Added value ④IR：≥50% of the initial value		Testing temperature：85±2℃ Testing time：1 hours

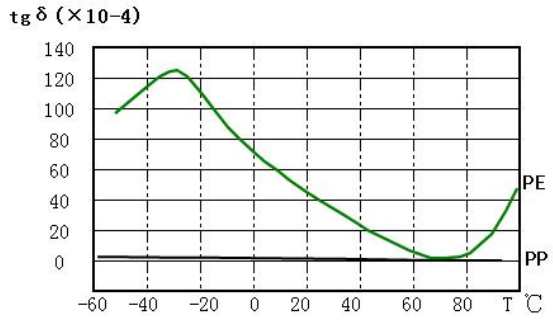
No.	Item	Demand of performance	Methods of testing
6	Cold Test	① Appearance: No visible damage ② Change rate of capacitance(1KHz) ΔC/C≤1% ③tgδ：C≤1uF，≤0.0015 Added value C＞1uF，≤0.003 Added value ④IR：≥50% of the initial value	Testing temperature：-40±2℃ Testing time：1 hours
7	Temperature change quickly test	① Appearance: No visible damage ② Change rate of capacitance(1KHz) ΔC/C≤1% ③tgδ：C≤1uF，≤0.0015 Added value C＞1uF，≤0.003 Added value ④IR：≥50% of the initial value	temperature cycling test： In the -40 ℃ conditions-keep 30 min, again in +85 ℃ conditions keep 30 min, this is a cycle. The above conditions process cycle 5 times.
8	Steady-state wet-hot tests	① Appearance: No visible damage ② Change rate of capacitance(1KHz) ΔC/C≤1% ③tgδ：C≤1uF,≤0.001 Added value C＞1uF, ≤0.003 Added value ④IR：≥50% of the initial value ⑤Testing withstand voltage vent voltage without any breakdown.	Testing temperature：40±2℃ Relative humidity：90-95% Testing time：5 hours
9	Endurance Test	① Appearance: No visible damage ② Change rate of capacitance(1KHz) ΔC/C≤5% ③tgδ：C≤1uF,≤0.001 Added value C＞1uF, ≤0.003 Added value ④IR：≥50% of the initial value	Testing temperature：85±3℃ Testing time：1000 hours Testing Voltage: Rated Voltage*1.25VDC 1Ω Lines should be added - varistor, varistor for each volt applied voltage is 1Ω

9. Film capacitor characteristics typical curve

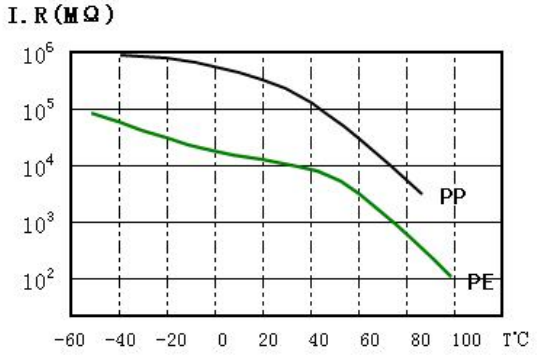
Temperature Characteristics



Capacitance vs. temperature at 1kHz



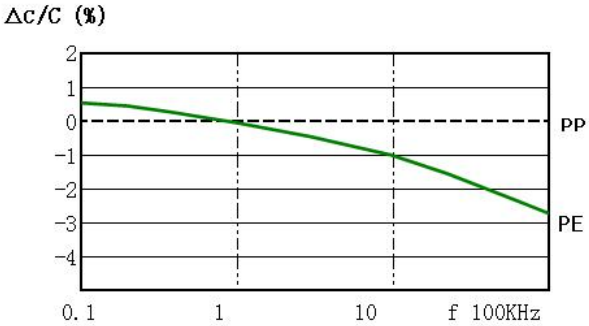
Dissipation factor vs. temperature at 1KHz



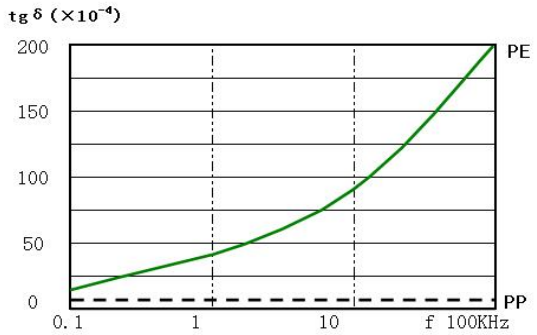
I.R. vs. temperature

PE:聚酯薄膜 (Polyester Film)
PP:聚丙烯薄膜 (Polypropylene Film)

Freqency Characteristics

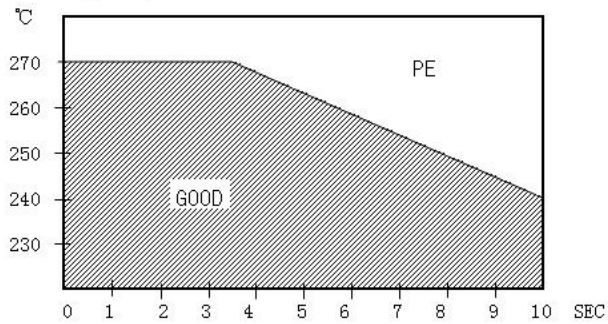


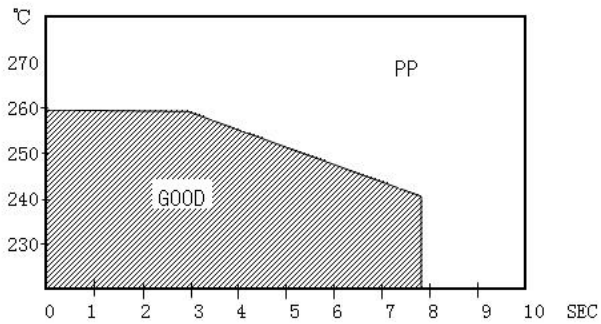
Capacitance vs. frequency(Room temperature)



Dissipation factor vs. frequency(Room temperature)

Soldering Temperature VS Time





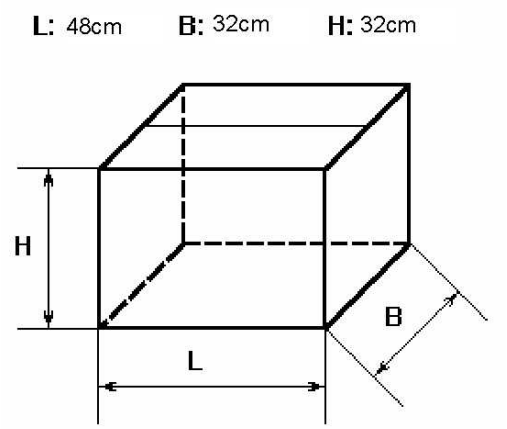
Note: film capacitor is not suitable for reflow soldering welding, otherwise the product due to thermal contraction lead to performance problems

10. Package transports

10.1 capacitors with plastic bags before packing, each bag is an exact multiple of 100, bags were placed within the product label, and then loaded into the packaging cartons.

10.2 transport packaging carton in any way, but you should avoid direct rain and snow shower water and mechanical damage

10.3 sketch of packaging carton：



11. Storage conditions

11.1 It must be noted that the solder ability of the terminals may be deteriorated when stored in an atmosphere filled with moisture, dust or a reactive oxidizing gas.(hydrogen chloride, hydrogen sulfide, sulfuric acid, etc.)

11.2 It shouldn't be located in particularly high temperature and high humidity, it must submit to the following conditions (under the unchanging primal package):

A、Temperature: 20±5℃

B、Humidity：65±5％RH

C、Storage time：(from the date marked on the capacitor's body or the label glued to the package)

Bulk：≤24 months
Taping：≤12 months

12. Environmental management control material

NO.	Types of hazardous substances	The name of the hazardous substances	Limited level
1	Heavy metals	Cadmium (Cd)/Cadmium Compounds	＜100ppm
		Lead (Pb)/Lead Compounds	＜1000ppm
		Mercury (Hg)/Mercury Compounds	＜1000ppm
		Hexavalent-Chromiun (Cr^{6+}) Compounds	＜1000ppm
2	Organic bromide	PBBs	＜1000ppm
		PBDEs	＜1000ppm

13. Test Report

（ROHS report see attachment）