

# POLYPROPYLENE FILM/FOIL CAPACITOR (NON-INDUCTIVE)

## CBB13

### FEATURES

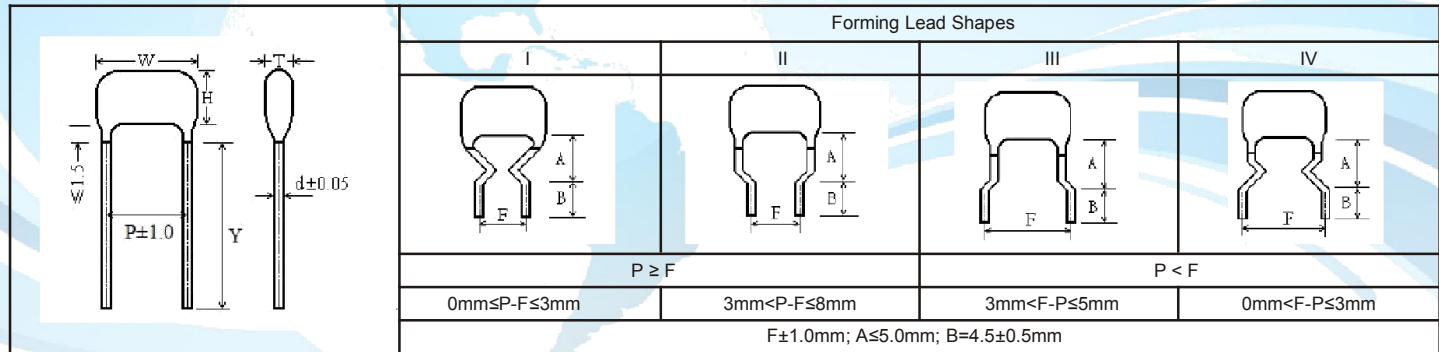
- Film/Foil, non-inductive wound type, dipped
- Excellent frequency and temperature characteristics
- Very small loss even at high frequency
- Flame retardant epoxy resin powder coating (UL94 V-0)

### TYPICAL APPLICATIONS

- Widely used in high frequency, DC and pulse circuits



### OUTLINE DRAWING



### SPECIFICATIONS

Reference Standard	GB/T 10188 (IEC 60384-13)
Climatic Category	40/105/21
Rated temperature	85°C
Operating Temperature	-40°C~105°C (+85°C to +105°C: decreasing factor 1.25% per °C for V <sub>R</sub> (DC))
Rated Voltage	100V, 160V, 200V, 250V, 400V, 630V, 800V
Capacitance Range	0.0010μF~0.10μF
Capacitance Tolerance	±2%(G), ±5%(J), ±10%(K)
Voltage Proof	2.0U <sub>R</sub> (5s)
Dissipation Factor	≤10×10 <sup>-4</sup> (20°C,1kHz)
Insulation Resistance	≥50 000MΩ, C <sub>R</sub> ≤0.1μF ≥15 000s, C <sub>R</sub> >0.1μF (20°C,100V,1min)

### TEST METHOD AND PERFORMANCE

No.	Item	Performance	Test method (IEC60384-13)
1	Solderability	Good quality of tinning	Solder temperature:245°C±5°C Immersion time: 2.0s±0.5s
2	Initial measurement	Capacitance	
	Terminal strength	There shall be no visible damage	Tension U <sub>a1</sub> : Pull: 10N Bend U <sub>b</sub> : The pull of bend: 5N The terminals shall be bent 2 times in each direction
	Resistance to solder heat	There shall be no visible damage	Solder temperature:260°C±5°C Immersion time: 10s±1s
	Final measurement	ΔC/C≤(2%+2pF) (relative to the initial value)	
	Initial measurement	Capacitance, Tgδ:1kHz	
3	Rapid change of temperature	There shall be no evidence of deterioration.	θ <sub>A</sub> =-40°C,θ <sub>B</sub> =+105°C5 cycles Duration: t=30min
	Vibration	There shall be no visible damage ΔC/C≤(2%+2pF) (relative to the initial value) Tgδ:rated value	Amplitude 0.75mm or acceleration 98m/s <sup>2</sup> (whichever is the smaller severity), f: 10Hz to 500Hz.Three directions, 2h for each direction, total 6h.
	Bump	There shall be no evidence of deterioration.	4000 times,Acceleration: 390m/s <sup>2</sup> ,Pulse duration, 6ms
4	Final measurement		
	Climate sequence	Initial measurement Capacitance, Tgδ:1kHz Dry heat	+105°C, 16h

No.	Item	Performance	Test method (IEC60384-13)
4	Damp heat, Cyclic		Test Db, Severity: b, the first cycle
	Cold		-40°C, 2h
	Low air pressure	There shall be no permanent breakdown, flashover or other harmful deformation when applying $U_R$ at the last 1 minute.	15°C~ 35°C, 8.5kPa, 1h,
	Damp heat, cyclic other	Applying $U_R$ for 1 minute after the test finished	Test Db, Severity b, the other cycles
	Final measurement	There shall be no evidence of deterioration and the marking shall be legible. $\Delta C/C \leq \pm(2\%+2pF)$ (relative to the initial value) $tg\delta$ : rated value or 1.4 times initial value (whichever is the greater) I.R.: $\geq 50\%$ of the rated value	
5	Damp heat steady state	There shall be no evidence of deterioration and the marking shall be legible. $\Delta C/C \leq \pm(2\%+2pF)$ (relative to the initial value) $tg\delta$ : rated value or 1.4 times initial value (whichever is the greater) I.R.: $\geq 50\%$ of the rated value	Temperature: $40 \pm 2^\circ\text{C}$ Humidity: 93 %RH Duration: 21 days
6	Endurance	There shall be no evidence of deterioration and the marking shall be legible. $\Delta C/C \leq \pm(2\%+2pF)$ (relative to the initial value) $tg\delta$ : rated value or 1.4 times initial value (whichever is the greater) I.R.: $\geq 50\%$ of the rated value	Temperature: $+85^\circ\text{C}$ Voltage: $1.5 \times U_R$ Duration: 1 000h
7	Temperature characteristic	Measuring capacitance and temperature at test point a, b, d, f, g.: 1. Temperature coefficient of the capacitance ( $\alpha$ ): At lower category Temperature: $\alpha_t = \frac{C_t - C_d}{C_d (t - t_d)}$ At upper category temperature : Temperature: $\alpha_t = \frac{C_t - C_d}{C_d (t - t_d)}$ $-500 \times 10^{-6}/^\circ\text{C} \leq \alpha_t$ and $\alpha_t \leq 0 \times 10^{-6}/^\circ\text{C}$ 2. Temperature cycle excursion of the capacitance ( $\delta$ ): $\delta_{t,b} = \frac{C_t - C_b}{C_d}$ , $\delta_{t,d} = \frac{C_t - C_d}{C_d}$ $\delta_{t,f} = \frac{C_t - C_f}{C_d}$ $\delta_{t,g} = \frac{C_t - C_g}{C_d}$ $\delta_{t,b}, \delta_{t,d}, \delta_{t,f}, \delta_{t,g} \leq \pm (2\%+2pF)$	Static method: The Capacitors should be kept at the following temperature in turn: a( $20 \pm 2$ )°C, b( $-40 \pm 3$ )°C, d( $20 \pm 2$ )°C, f( $85 \pm 2$ )°C, g( $20 \pm 2$ )°C