



SPECIFICATIONS FOR APPROVAL

ITEM	:	POLYPROPYLENE FILM CAPACITOR TYPE: CBB20
DIYA'S P/N	:	CBB20 METALLIZED POLYPROPYLENE FILM CAPACITOR
ISSUED DATE	:	2006-07-03

LIAONING DIYA CAPACITOR CO.,LTD.

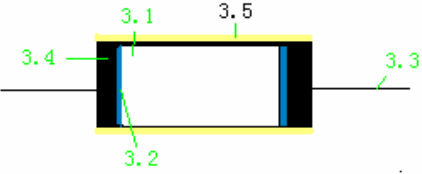
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PRODUCT SPECIFICATIONS

TYPE : CBB20

NO.	ITEM	DESCRIPTIONS	
1.	SCOPE	This specifications cover the requirements of DIYA's Metallized Polypropylene Film Capacitor Type : CBB20	
2.	STANDARD ATMOSPHERIC CONDITIONS FOR MAKING MEASUREMENTS		
2.1.	AMBIENT TEMPERATURE	15°C to 35°C there is any doubt on the results, the measurements shall be made at +20 +/- 5°C.) (If	
2.2.	RELATIVE HUMIDITY (R.H.)	45% to 75% (If there is any doubt on the results, the measurements shall be made at 60% to 70%.)	
2.3.	AIR PRESSURE	86 kpa to 106 kpa.	
2.4.	OPERATING TEMPERATURE RANGE	-40°C to +85°C for which the capacitor can be operated continuously at rated voltage.	
3.	CONSTRUCTION		
3.1.	DIELECTRIC		
3.2.	METAL SPRAY		Metallized Polypropylene Film
3.3.	LEAD WIRE		Special Solder
3.4.	INNER COATING		Copper-clad Steel Wire
3.4.	INNER COATING	Epoxy Resin	
4.	MARKING		
4.1.	CAPACITANCE	"47n" to "0.047μF"	
4.2.	TOLERANCE	"J" to "±5%"	
4.3.	RATED VOLTAGE	"630" to "630VDC"	
4.4.	MARKING COLOR	Black	

5. ELECTRICAL CHARACTERISTICS				
NO.	ITEM		PERFORMANCE	TEST CONDITIONS
5.1.	Withstand Voltage (TV)	Between Terminals	Shall be no abnormality.	Apply 120% of rated voltage for 60 sec., or 140% of rated voltage for 1~5 sec. at +20 +/- 5°C. The charging current must be <= 1 Amp.
		Between Terminals & Enclosure	Shall be no abnormality.	Apply 160% of rated voltage for 2 to 5 sec.
5.2.	Insulation Resistance (I.R.)		>=25000 MOhm (C <= 0.33 uF) >= 7500 MOhm*uF/C (C > 0.33 uF)	Apply Vt +/- 15% for 60 +/- 5 sec. at +20 +/- 5°C. Vt = 100 VDC if 100 VDC < rated voltage <= 500 VDC;
5.3.	Capacitance (CAP)		Within the tolerance specified. (at +20 +/- 5°C).	Measuring Frequency : 1 KHz +/- 10%. Measuring Voltage : <= 1 Vrms.max.
5.4.	Dissipation Factor (DF)		<= 0.0010 (0.10%) at 1 KHz.	Measuring Frequency : 1KHz +/- 10% Measuring Voltage : <= 1 Vrms.max.
5.5.	Solderability		More than 90% of circumferential surface of lead wire shall be covered with new solder.	Testing method per IEC 68-2-20 Ta. Soldering temperature : +235 +/- 5°C. Immersion duration : 2 +/- 0.5 sec.
6. MECHANICAL CHARACTERISTICS				
NO.	ITEM		PERFORMANCE	TEST CONDITIONS
6.1.	Terminal Strength	Tensil	Shall be no abnormality.	Testing method per IEC 68-2-21. Apply 1.0 kg for 10 +/- 1 sec. to the terminal in the axial direction, and acting in a direction away from the body.
		Bending	Shall be no abnormality.	Apply 0.5 kg for 2 cycles. Each cycle includes: 90° once, return to its initial position for 2-3 sec., and then to the opposite direction once.
7. ENDURANCE CHARACTERISTICS				
NO.	ITEM		PERFORMANCE	TEST CONDITIONS
7.1.	Temperature Cycle	Appearance	Shall be no remarkable change.	Test Temperature Cycle : Total 5 cycles. Each cycle includes : 1. +20 +/- 2°C for 3 min. 2. -40 +/- 3 °C for 30 min. 3. +20 +/- 2°C for 3 min. 4. +85 +/- 3/- 0 °C for 30 min. 5. +20 +/- 2°C for 3 min.
		Withstand Voltage	Shall satisfy No. 5.1.	
		Capacitance Change Rate ($\Delta C/C$)	Within +/- 5% of the value before test.	
		Appearance	Shall be no remarkable change.	

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NO.	ITEM	PERFORMANCE	TEST CONDITIONS
7.2.	High Temperature Loading	Appearance	Shall be no remarkable change.
		Withstand Voltage	Shall satisfy No. 5.1.
		Capacitance Change Rate ($\Delta C/C$)	Within +/-8% of the value before test.
		Dissipation Factor	Tan δ :1.0% max.(1KHz)
		Insulation Resistance (I.R.)	>= 50% of the limit value of No. 5.2.
7.3.	Damp Heat Loading	Appearance	Shall be no remarkable change. The marking shall be legible.
		Withstand Voltage	Shall satisfy No. 5.1.
		Capacitance Change Rate ($\Delta C/C$)	Within +/- 10% of the value before test.
		Dissipation Factor	Tan δ :1.0% max.(1KHz)
		Insulation Resistance (I.R.)	>= 50% of the limit value of No. 5.2.
7.4.	Soldering Heat Resistance	Appearance	Shall be no remarkable change. The marking shall be legible.
		Withstand Voltage Between Terminals	Shall satisfy No. 5.1.
		Capacitance Change Rate ($\Delta C/C$)	Within +/- 3% of the value before test.
		Connection of Element	Shall be stable.
7.5.	Dry Heat Resistance	Appearance	Shall be no remarkable change.
		Withstand Voltage	Shall satisfy No. 5.1.
		Capacitance Change Rate ($\Delta C/C$)	Within +/- 5% of the value before test.
		Dissipation Factor	Tan δ :1.0% max.(1KHz)
		Insulation Resistance (I.R.)	>= 50% of the limit value of No. 5.2.
7.6.	Cold Resistance	Appearance	Shall be no remarkable change.
		Withstand Voltage	Shall satisfy No. 5.1.
		Capacitance Change Rate ($\Delta C/C$)	Within +0/- 10% of the value before test.
		Dissipation Factor	Tan δ :1.0% max.(1KHz)
		Insulation Resistance (I.R.)	>= 50% of the limit value of No. 5.2.

Testing method per IEC 6038-17.
Refer to JIS C 5102-1994.
Test Temperature : +70 +/- 2 °C.
Apply 125% of rated voltage for 240 +/- 0hrs;
After test, allow it stay alone for 1.5 +/- 0.5 hrs at standard temperature and humidity before making measurements.

Refer to JIS C 0022.
Test temperature : +40 +/- 2 °C
Test humidity : 90% to 95% R.H.
Test voltage : rated voltage.
Test duration : 500 +/- 24/-0 hrs.
After test, allow it stay alone for 1.5 +/- 0.5 hrs at standard temperature and humidity before making measurements.

Testing method per IEC 68-2-20 Tb.
Soldering Temperature : +260 +/- 5 °C.
Immersion Duration : 3 +/- 0.5 sec.
Immersion Depth : 4 +/- 0.8 mm from roots.
After test, allow it stay alone for 1.5 +/- 0.5 hrs. at standard temperature and humidity before making measurements.

Test Temperature : +85 +/- 2 °C
Test Duration : 16 +/- 0 hrs.

Test Temperature : -40 +/- 2 °C
Test Duration : 2 +/- 1 hrs.

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NO.	ITEM		PERFORMANCE	TEST CONDITIONS
7.7.	Vibration Resistance	Connection Strength	Shall be no open nor short-circuiting. The connection shall be stable.	Testing method per IEC 68-2-6 Fc. Frequency Change : 10--500Hz. Vibration Distance : 0.75mm. Test Direction : X, Y, Z. Test Duration : 2 hrs +1/-0 each direction.
		Appearance	Shall be no mechanical damage.	
7.8.	Rapid Temperature Change	Appearance	Shall be no remarkable change.	Testing method per IEC 68-2-14 Na. Test Temperature Cycle : Total 5 cycles. High Temperature : +85 +5/-5 °C Low Temperature : -40 +5/-5°C 30 min +/- 10% for each temperature.
		Withstand Voltage	Shall satisfy No. 5.1.	
		Appearance	Shall be no mechanical damage.	

8. ACCEPTABLE QUALITY LEVEL (AQL)

NO.	ITEM	AQL	SAMPLING PLAN
8.1.	Appearance AQL	0.65	According to MIL-STD-105E level II. By lot outgoing inspection.
8.2.	Dimension AQL	0.65	
8.3.	Mechanical Characteristics AQL	0.40	
8.4.	Electrical Characteristics AQL		
	CAP, DF,	0.04	
	TV, IR,	Zero Defect	

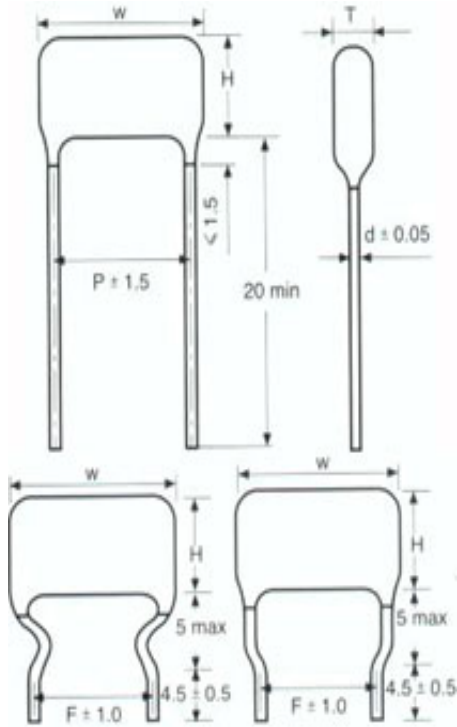


Diagrams & Dimension Allowances

Products Drawing and Tolerance (Unit:mm)

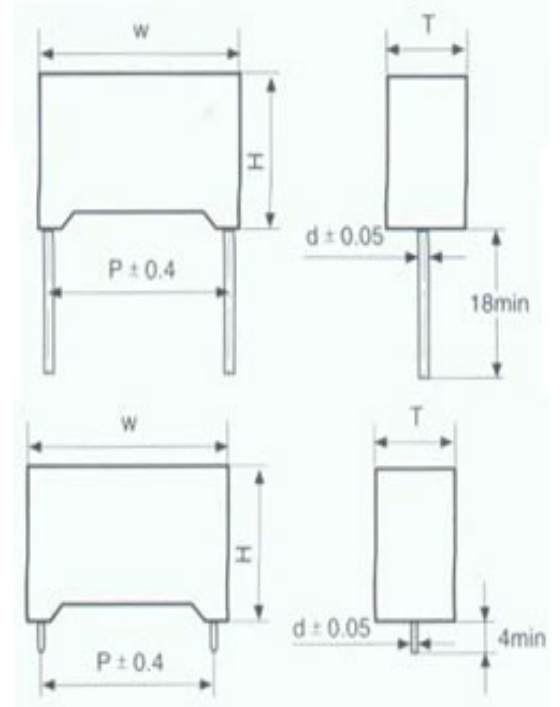
1 Radial,Dipped,non-Inductive

(PEN, PENM, DMPE, MPEM, DMPC, PPN, PPNM, MPP, MPPS, MPFA, MPH, MPSA)



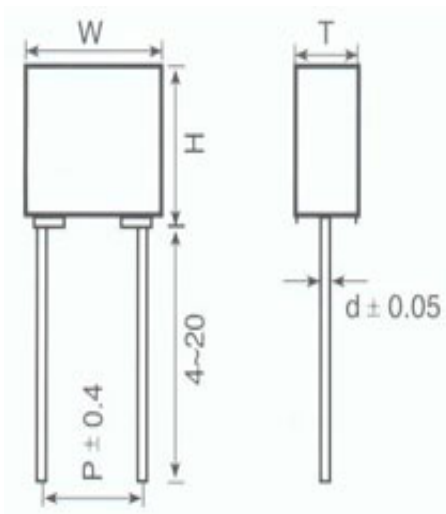
2 Radial, Encapsulated

(MPEB, MPPB, MPAB, PPSB, MP+R)



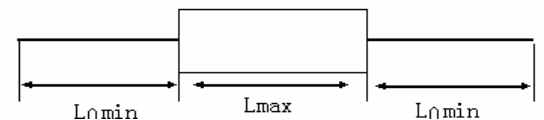
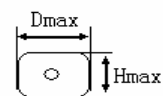
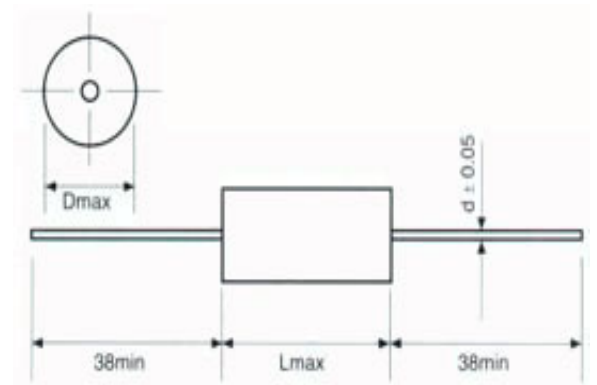
3 Radial, Minibox

(EMPE)



4 Axial, Flat FMPE, FMPP, FMFH,

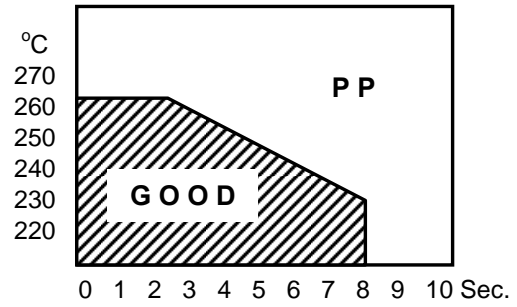
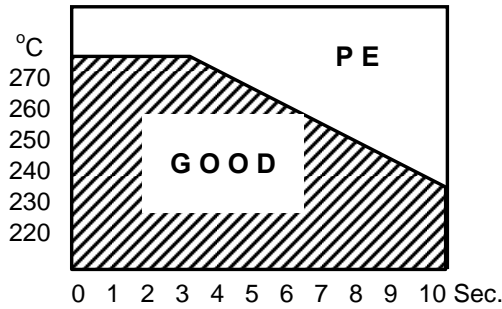
FMFA, FPPS, FPSA, FPFA



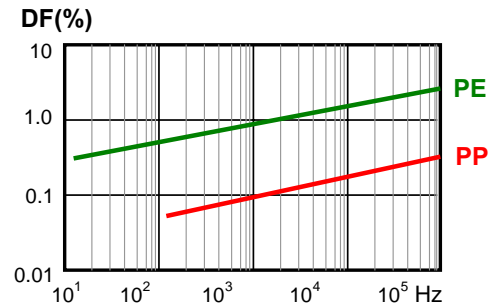
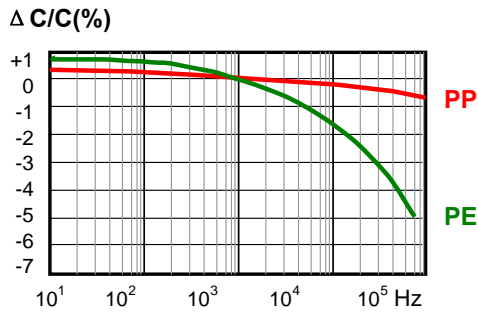
CHARACTERISTICS REFERENCE

Graph

Soldering Temperature VS Time



Frequency Characteristics



Temperature Characteristics

