SPECIFICATIONS FOR APPROVAL

DESCRIPTION DC fixed Metallized Polypropylene Film Capacitor

BP393J630DP10T6GR

MKP 39nF 630V 5% P10

Metallized Polypropylene Film Capacitor		

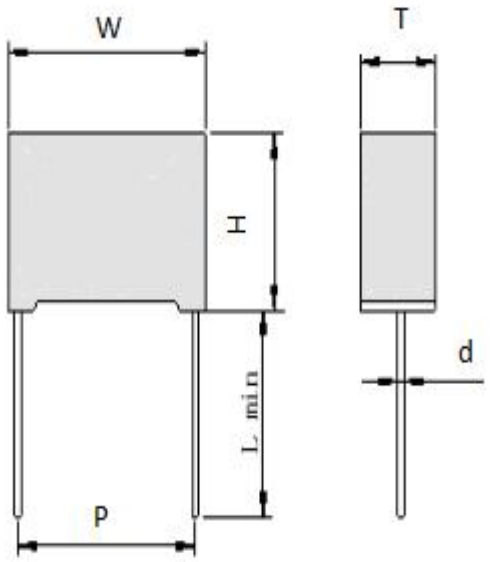
(mm)　1 Dimensions (mm)　sheet 1

P/N	CAP (uF)	R. V (VDC)	DF (1KHZ) ≦%	TOL±%	W	H	T	P (±0.5)	L (±0.5)
BP393J630DP10T6GR-01	0.039	630V	0.1	5%	13	12	6.0	10	22
Remark	**Appearance is gray box。**								

Laser printing on the front of the capacitor

MPB

393J630V



1.

Product features and usages

1.1 Product features:

1.

Small size, good self-healing effect;

2.

Low dissipation at high frequency, small internal-temperature-rise; high impact strength;

3

Good compression performance under the condition of high frequency AC; good durability under the high temperature.

1.2 Usages:

Single aluminum, High frequency, DC、 AC pulse high current occasions, such as light, Monitoring equipment, power supply, etc.

2. Reference standard

GB2693

GB2693 《 Capacitors For Electronic Equipments The 1st part: General specification 》;

IEC384-1

GB10190

GB10190 《 Capacitors For Electronic Equipments The 16th part: Points specification: DC fixed

Metallized Polypropylene Film Capacitor 》;

Electronic components detailed specification: CBB21 type DC fixed Metallized Polypropylene Film Capacitor evaluate level E》;

3. Product coding

3.1 Capacitance code:

ode	102	103	104	105
μF	0.001	0.01	0.1	1.0

3.1 Tolerance:

Capacitance Tolerance	±2%	±5%	±10%	±20%
Sign	G	J	K	M

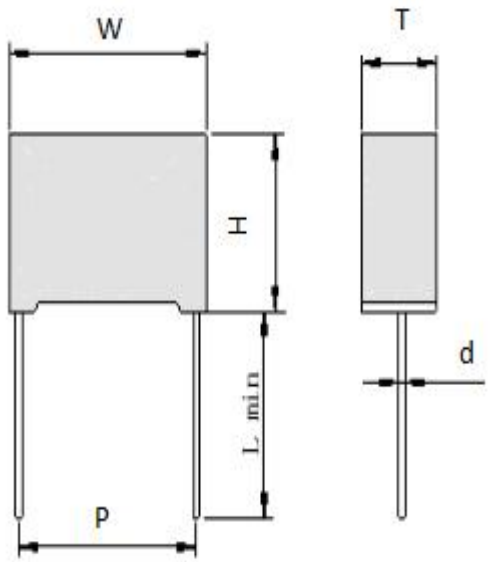
4. Marks and geometry size

4.1 Appearance requirements

Marks correct and clear, no visible damage, good box surface, lead wire don' t have serious damage.

4.2 Outline drawing and structure drawing

4.2.1 Outline drawing



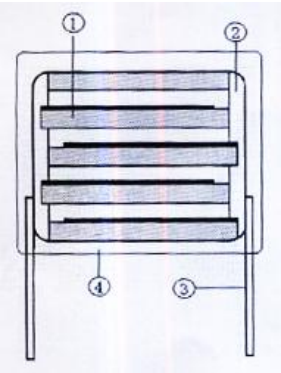
4.3.2 structure drawing

1. Metallized Polypropylene Film

2. Metal spraying layer

3. CP wire

4. (UL94V-0) Plastic box



4.3.3 PRODUCT DIMENSIONS (see sheet 1)

5. Technical requirements（sheet 2）

NO	Items	performance requirement		test method
5.1	Temperature range	- 40℃~+105℃		
5.2	U_RDC Rated voltage URDC	100V、250V、400V、450V、630V、1000V		
5.3	Capacitance range	0.0010μF ~8.2μF J(±5%) K(±10%)		1KHz，1V
5.4	Tangent of loss angle (tangent)	tgδ≤0.0010 (20℃ 1KHz)		20℃ 1 KHz，1V
5.5	Withstand voltage	Between Lead Wire	No breakdown or arcing	Test Voltage:1.5U , Duration: 1~5sec
		Lead Wire and Shells	No breakdown or arcing	Test Voltage：2U_R, duration: 60sec
5.6	Insulation resistance	C≤0.33μF, ≥15000MΩ C＞0.33μF, ≥7500S		100V charging 1min
5.7	Weldability	More than 90% area with tin		Welding groove method Ta，method 1 Solder temperature：260±5℃ Wetting time：2.0±0.5S
5.8	Appearance	a. No damage, stomata, air bubbles and white part on the surface. b. Lead wire is no paint, no oxidation, no bending, length and diameter of both 2 pins are same . c. Marks are clear, print in the middle, no loss oil / words.		Visual

6. Test requirements: sheet 3

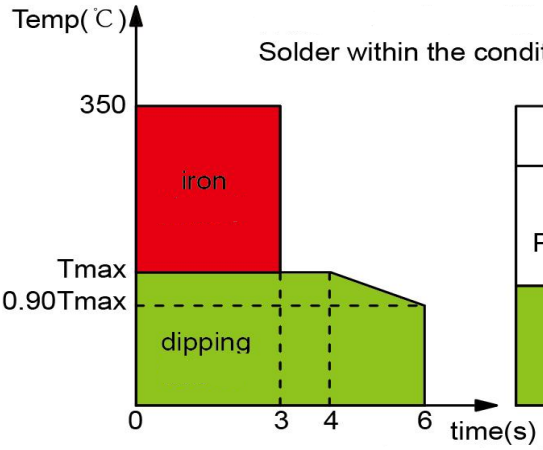
NO	Item	Performance requirements	Test method
6.1	Initial test	: 1KHz Capacitance Tangent of loss angle (tangent): 1KHz	
	Strength of lead wire	No visible damage on surface	Pull test: Ua1: Pull: 0.5 < φd≤0.8mm; 10N Bending test Ub: bending twice in a row on each direction, bending angle =180°
	Welding heat resistant	No visible damage on surface, clear marks	Tb, 1A, 260±5%, 10±1S Welding groove method Tb, method 1A, 260±5%, 10±1S
	Final test	tgδ ≤0.004 (1KHz) Capacitance: △C/C≤ Initial test ±5% Tgδ increase ≤0.0010 (1KHz)	
6.2	Initial test	Capacitance , Tangent of loss angle (tangent), 1KHz	
	Rapid changes in temperature	No visible damage on surface	0_A= - 40℃, 0=+105℃ : t=30min 0_A= - 40℃, 0=+105℃ 5 cycles, duration: t=30min
	Vibration	No visible damage on surface	, Amplitude 0.75mm or acceleration 98m/s^2 (Take smaller severe degree) , Frequency 10~500Hz , Each 2 hours on 3 directions, total duration time is 6h.

NO	Item	Performance requirements	Test method
6.2	Collision	No visible damage on surface	6ms 4000 times, acceleration 390m/s^2

				Pulse duration time：6ms
		Final test	Capacitance：△C/C≤ Initial test ±5% Tangent of loss angle (tangent)： tgδ increase ≤0.001 Insulation resistance IR：≥ 50% rating	
6.3	Orderly climate	Initial test	Capacitance，Tangent of loss angle (tangent)：1KHz	
		Hot		+105℃，16h
		Circulating hot and humid		Test Db，severe degree b，the first cycle
		Cold		-40℃，2h
		Depression	No breakdown , arcing or damaged box forever	15~35℃，8.5Kpa,1h At the end of the last 5 minutes of the trial, the UR was applied 15 ~ 35 ℃ and 8.5 Kpa, 1 h
		Circulating hot and humid		Test Db, severity b, remaining cycles At the end of the trial, within 15 minutes, the UR was applied for 1 minute
		Final test	No visible damage on surface, clear marks Capacitance：I △C/C I≤10% Tangent of loss angle (tangent)： tgδ increase ≤0.004 Insulation resistance IR： C ≤ 0.33 μ F, ≥ 3500MΩ	

		C > 0.33μF, ≥1000S	
6.4	The steady state hot and humid	No visible damage on surface, clear marks Capacitance: I △C/C I≤10% Tangent of loss angle (tangent) (1KHz): tgδ increase ≤0.003 Insulation resistance IR: C ≤ 0.33 μ F, ≥ 3500MΩ C > 0.33μF, ≥1000S	Temperature 40±2℃ Humidity: 93 %RH applied voltage: UR 持 Duration time: 500 Hours
6.5	Durability	No visible damage on surface, clear marks Capacitance: I △C/C I≤10% Tangent of loss angle (tangent) (1KHz): tgδ: ≤0.003 Insulation resistance IR: C ≤ 0.33 μ F, ≥ 3500MΩ C > 0.33μF, ≥1000S	+85℃, 1000h Applied voltage: 1.1 × U_R rated voltage
6.6	With the characteristics of temperature change and decide	When the upper limit of category temperature is 105℃: -4%≤△C/C≤0	Static method, capacitor in turn in the following each temperature: a. (20±2℃) b. (-40±3℃) d. (20±2℃) f. (85±2℃) g. (20±2℃)
6.7	charge and discharge	Capacitance: I △C/C I≤10% Loss tangent: the increase of tgδ≤0.005 Insulation Resistance (I.R.): ≧50% of initial value	Counts: 10000 times Charging duration: 0.5S Discharging duration: 0.5S Charging voltage: UR (dc) Charging resistance: 220/C_R (Ω) Or 20Ω (whichever is greater) C_R it is the nominal capacitance (μF)

7 . Welding



Solder within the conditions mentioned in the following diagram.

	Tmax	Time	Note
Pre-heating	110℃	1min	
	100℃	1min	MPP P≤7.5
Soldering	270℃	4s	
	260℃	4s	MPP P≤7.5

If re-working or dipping twice in necessary, it should be done after the capacitor returned to the normal temparature.

a.

During manual soldering, MPP film capacitors are the components with the worst temperature resistance among all components. Please pay special attention to the soldering time, try not to exceed 5 seconds, and try to keep the solder joints as far away from the body as possible. In addition, it is not suitable for reflow soldering, otherwise the product will be damaged by the film. Thermal shrinkage causes performance issues;

b.

When wave soldering is used, the capacitor should not be installed horizontally. It is better to directly insert it into the PC board to prevent the tin wave from scalding the internal materials of the capacitor during soldering; it is recommended not to cover the solder carrier, and try to reduce the temperature of the capacitor through the tin furnace; preheat the three-stage temperature Between 80-100℃, the temperature is 260℃+/-5; (the lower the temperature, the safer) the soldering time should be completed within 5S; (the total time of double-wave soldering) the soldering process must not have pause/jam, which will lead to the heating time of the finished solder board And the soldering time becomes longer, causing potential scalds; (other soldering methods must follow this requirement)

c.

When the ambient temperature of metallized film capacitor is ≧85℃, keep away from high-heat components to prevent the heat of other components from affecting the normal operation of the capacitor.

8.

The proportion of the capacitor operating temperature and rated voltage

1. Operating temperature: The operating temperature of the capacitor should be -40℃ ~ +105℃

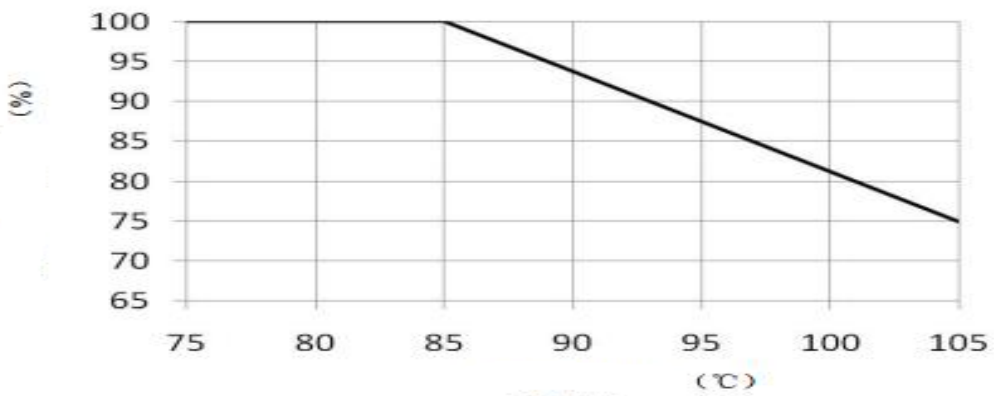
1.1 The max operating temperature:

The capacitor can maintain the highest surface temperature of the continuous operation (ambient temperature+ self heating and heating up+radiation and sensing the temperature generated by other electronic devices)

1.2

Minimum operating temperature: The lowest temperature range at which the capacitor can maintain continuous operation.

2.

Rated voltage: The rated voltage refers to the voltage that can maintain continuous operation within the rated operating temperature range.

However, when the operating temperature is between +85℃ and + 105℃, the voltage needs to be reduced according to the amplitude of 1.25%/℃, as shown below: