

## SPECIFICATION FOR APPROVAL

### CERAMIC DISC CAPACITOR SAFETY RECOGNIZED

**JD SERIES      X1:400VAC      Y1: 400VAC**

#### Specifications:

Operating Temp.Range	-40°C to +85°C, -40°C to +125°C		
Applicable Standards	UL, CSA, CQC, ENEC, VDE		X1
			Y1
Dielectric Withstanding Voltage	Rted Voltage		Test Voltage
	400VAC		4000 VAC for 1 min.
Dissipation Factor (D.F)	Y5P,Y5U	TANδ(DF) ≅ 2.5%,measured at 1KHz±10%,1.0 – 5.0 Vrms,25°C	
	Y5V	TANδ(DF) ≅ 5.0%,measured at 1KHz±10%,1.0 – 5.0 Vrms,25°C	
Capacitance(C)	Range	10 pF to 4700 pF. measured at 1KHz±10%, 1.0 – 5.0 Vrms, 25°C	
	Tolerance	±10%	Y5P
		±20%	Y5U,Y5V
InsulationResiatance(IR)	10000 MΩ , 1 min , 500 VDC		
Temperature Characteristics	Type Code	Temp. Coeff.	Temp. Range
	Y5P,Y5U	±10%, +22~-56%	-40°C to +85°C, -40°C to +125°C
	Y5V	+30%~-80%	-40°C to +85°C, -40°C to +125°C

Part Number Configuration:

JD 102 M 2G Y5V S T 10 L

(1) (2) (3) (4) (5) (6) (Tape) (7) (8)

(1) AC capacitors, safety (F)Y5V, (E)Y5U

(5) Type code **Temperature Characteristic:** (B)Y5P,

(2) Rated capacitance

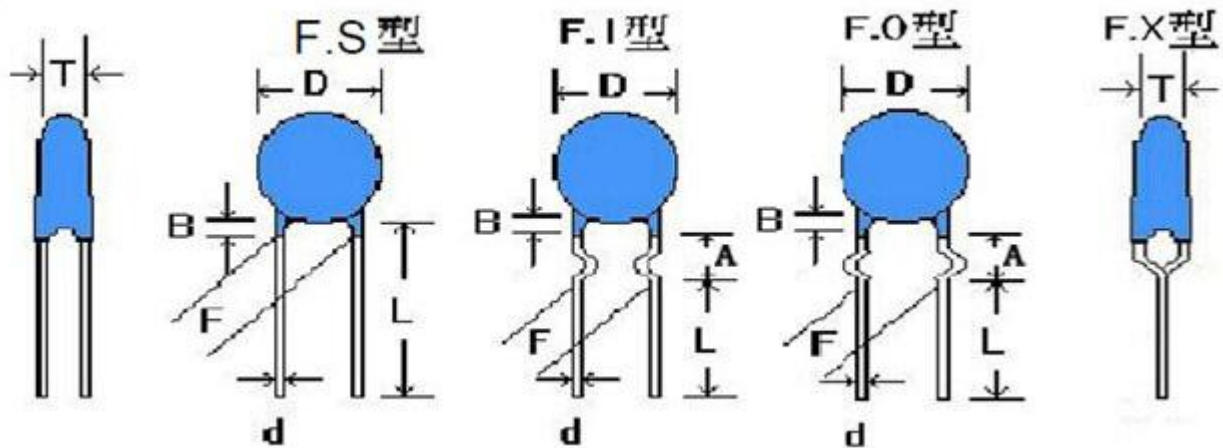
(6) Lead shape: S(直角), I(内弯), O(外弯), X(前后弯)

(3) Tolerance on rated capacitance

(7) Pin pitch : 7.5or9.5or10.0

(4) Rated Voltage

(8) Lead length: 3—25mm



Dimensions and Tolerance

B=3.0mm max for AA

L=3-30mm

Marking:

a. Company name code CJYH

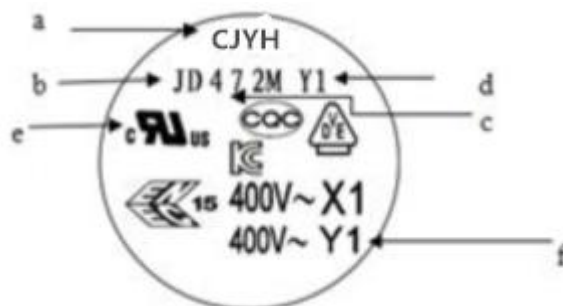
b. Product Type JD Series

c. Nominal Capacitance & Tolerance 472 = 4700pF, K= ±10%, M= ±20%

d. Safety Class such as Y1

e. Recognized Type

f. Rated Voltage



**Packing Quantity:**

Packing	Safety	High Voltage	<i>Ceramic</i>
	Capacitor	Capacitor(Y1, Y2)	<i>Capacitor DC</i>
Bulk	1000pcs	1000pcs	<i>1000pcs</i>
Tape Ammo	2000pcs	1500pcs	<i>2000pcs</i>

ROHS Compliance , SVHC

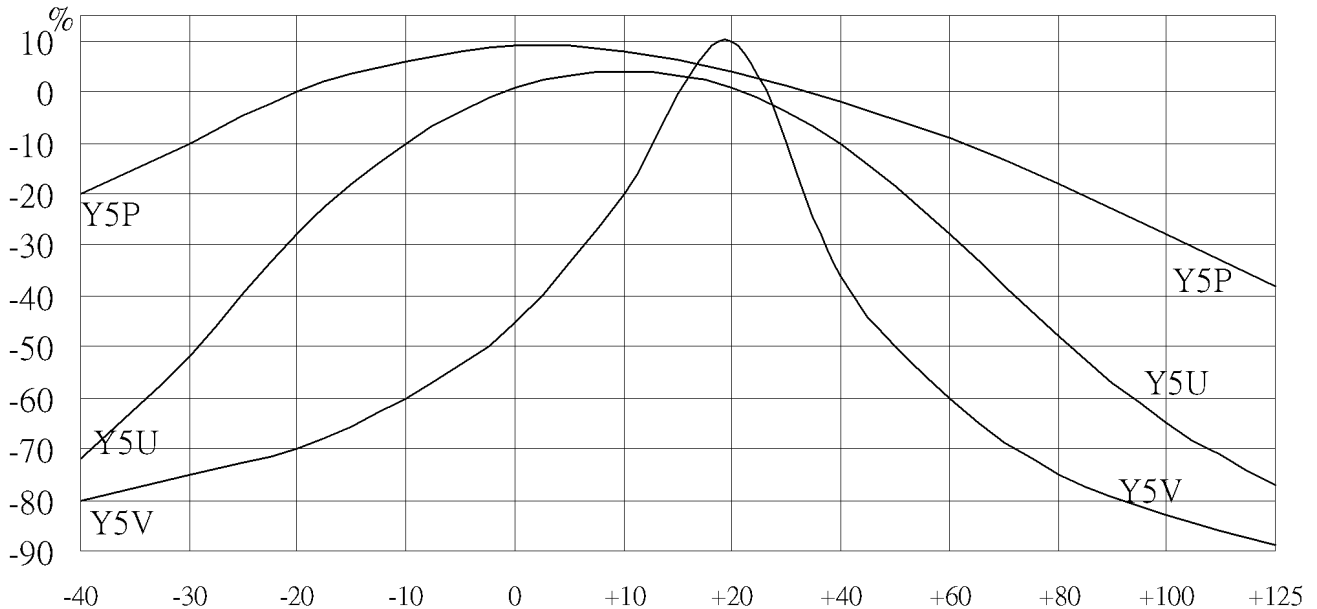
**Capacitance and Dimensions:**

Part Number	T.C.	CAP.	TOL.	Dimension(mm)					
				D max	F	T max	Φ d(±0.05)		
JD10K2GY5P----	± 10% (Y5P)	10pF	K ± 10%	6.5	9.5 or 10 ±0.8	6	0.55		
To		82PF			9.5 or 10 ±0.8	6	0.55		
JD82K2GY5P----		100PF			9.5 or 10 ±0.8	6	0.55		
JD101K2GY5P----		150PF		M± 20%	6.8	9.5 or 10 ±0.8	6	0.55	
JD151K2GY5P----		220PF			6.8	9.5 or 10 ±0.8	6	0.55	
JD221K2GY5P----		330PF			7.2	9.5 or 10 ±0.8	6	0.55	
JD331K2GY5P----		470PF			8.8	9.5 or 10 ±0.8	6	0.55	
JD471K2GY5P----		560PF			8.8	9.5 or 10 ±0.8	6	0.55	
JD561K2GY5P----		680PF			9.8	9.5 or 10 ±0.8	6	0.55	
JD681K2GY5P----		1000PF			10.0	9.5 or 10 ±0.8	6	0.55	
JD102K2GY5P----		1000PF			K ± 10%	6.8	9.5 or 10 ±0.8	6	0.55
JD102M2GY5V----	1500PF	7.8	9.5 or 10 ±0.8			6	0.55		
JD152M2GY5V----	2200PF	8.5	9.5 or 10 ±0.8			6	0.55		
JD222M2GY5V----	3300PF	10.2	9.5 or 10 ±0.8			6	0.55		
JD332M2GY5V----	3900PF	11.5	9.5 or 10 ±0.8	6		0.55			
JD392M2GY5V----	4700PF	11.5or12.5	9.5 or 10 ±0.8	6		0.55			
JD472M2GY5V----	+22 ~-56% (Y5U)	470PF	K ± 10%	6.8	9.5 or 10 ±0.8	6	0.55		
JD471K2GY5U----		560PF		7.8	9.5 or 10 ±0.8	6	0.55		
JD561K2GY5U----		680PF		7.2	9.5 or 10 ±0.8	6	0.55		
JD681K2GY5U----		1000PF		7.8	9.5 or 10 ±0.8	6	0.55		
JD102M2GY5U----		1500PF		M± 20%	9.3	9.5 or 10 ±0.8	6	0.55	
JD152M2GY5U----		2200PF			10.5	9.5 or 10 ±0.8	6	0.55	
JD222M2GY5U----		3300PF			K ± 10%	13.0	9.5 or 10 ±0.8	6	0.55
JD332M2GY5U----									

JD392M2GY5U----		3900PF		14.0	9.5 or 10 ±0.8	6	0.55
JD472M2GY5U----		4700PF		15.0	9.5 or 10 ±0.8	6	0.55

EIA TEMPERATURE CHARACTERISTIC CHART			
Firs Digit is low Temperature	Second Digit is High Temperature	Last Digit is Capacitance Change Over Temperature Range From + 25 C Reading	
X: - 55°C	4: + 65°C	A	± 1.0 %
Y: - 25°C	5: + 85°C	B	± 1.5 %
Z: + 10°C	6: + 105°C	C	± 2.2 %
	7: + 125°C	D	± 3.3 %
	8: + 150°C	E	± 4.7 %
		F	± 7.5 %
		P	± 10 %
		R	± 15 %
		S	± 22 %
		T	+ 22 % - 33 %
		U	+ 22 % - 56 %
		V	+ 22 % - 82 %

Capacitance Temperature Characteristics



**Performance & Tests, draw up by IEC 60384-14:2005 and GB/T 14472**

"Note: (1) Is was defined according with IEC 60384-14:2005, when for qualification approval and periodic tests, the withstanding test must last to 1 minute, and it belong to destroyed test domain, therefore, after the test, capacitors should be scrap. Withstand voltage test should rise slowly at 150V/s, and test time is counted from when the voltage reaches to experiment requirement." (2) The test time is more than 1 second at production period, and the rated test voltage is applied.

Capacitors may cause to damage when withstand voltage test repeated."

NO.	Item		Characteristic	Test Method	
1	Appearance and Dimensions		Please refer to figures and tables on page 2, 3 and 4.	1~1 1~2	"Production line visual inspection must be done in full and remove the defective products." "Dimensions measurement by micrometer and Caliper
2	Marks		Must be clean and clear.	2~1	Label need to be able endure wiping with Isopropanol
3	Withstand voltage test ( I )	Between terminal	Can not have exceptions.	3~1	Rated voltage: 300VAC for Y2, test voltage 2000 VAC or 2600 VAC, time 60s, frequency: 50Hz/60Hz. Rated voltage: 400VAC for Y1, test voltage 4000 VAC, Approval and period test: 60s, Lot inspection 100% and time 2s, discharge current must $\leq 50$ mA."
		Between terminal and coating.	Can not have exceptions.	3~2	Use metal foil test method: use metal foil wrap around the capacitor body, each end extending at least 5mm, and keep 1mm/1kV distance minimum, between metal foil and terminals. for Y2, test voltage 2300VAC; for Y1, test voltage 4000VAC, test time 60s.
4	Withstand voltage test(III) (For safety symbol A2)		(1)Gauze shall not ignite. (2)Capacitors shall not in burned.	4~1	According to IEC 60384-14 and GB / T 14472 requirements.
5	Withstand voltage test (IV)(For safety symbol B2)		(3)Elements and coating must not scattered. (4)Terminals can not be moved away from the mounting position than 3mm.	5~1	According to IEC 60384-14 and GB / T 14472 requirements.
6	I	Between terminals	More than 10000M $\Omega$ .	6~1	Measured voltage is 500 $\pm$ 15V within 1

	R	Between terminals and coating.	More than 10000MΩ.		minute, and IR keeps within the specified value.
7		Capacitance	Within specified tolerance	7~1	The Capacitance shall be measured at 25°C, with 1±0.1kHz and 5Vrms max
8		Dissipation Factor(D.F)	B(Y5P) tan ≅ 2.5% E(Y5U) tan ≅ 2.5% F(Y5V) tan ≅ 5.0%	8~1	"The Dissipation Factor shall be measured at 25°C with 1±0.1kHz and 5Vrms max

NO	Item	Characteristic			Test Method			
9	Temperature  Characteristic	Temperature Coefficient (T.C. category applicable):			9~1	Temperature Coefficient (T.C. category applicable):		
		TYPE Temp.Range	SL	YN	9~2	$PPM/^{\circ}C = (Ct2 - Ct1) / Ct1 * (t2 - t1)$ Ct2: the capacitance of t2 Ct1: the capacitance of t1 t2: 85°C±3°C t1: 20°C±2°C		
		20~85°C	+ 350~ -1000pp m°C	- 800~ -5800 ppm°C	9~3	Temperature phase 1) 20±2°C → 2) -25±2°C → 3) 20±2°C → 4) 85±2°C → 5) 20±2°C Capacitance change: (High Dielectric Category applicable) $C.C(\%) = (Ctx - Ct20) / Ct20 * 100$ Ctx : Except Temp. phase 1、3、5, The capacitance of any temperature between phase 2 to phase 4. Ct20: The capacitance of phase 3 temp.		
		Temperature characteristics: (High Dielectric applicable) Capacitance change rate within the range:  Type B Within ±10% Type E Within +22% -56% Type F Within +30% -80%						
10	Robustness of terminations	Tensile	Lead wires not be snapped		10~1	Diameter(mm)	Load(kgs)	Time(sec)
			Capacitors not be damaged			0.5Φ	0.5	10
						0.6Φ~0.8Φ	1	10
		Bending	Lead wires not be fractured Capacitors not be damaged		10~2	Fix the capacitor's body and apply a tensile weight gradually to each lead wire in the radial direction		
				10~3	Diameter(mm)	Load(kgs)	Bending angle is 90 more than twice.	
					0.5Φ	0.25		
					0.6Φ~0.8Φ	0.5		
11	Vibration resistance	Appearance	No significant abnormal		11~1	Vibration frequency from 10Hz to 55Hz and back to 10Hz, amplitude 1.5mm, period time within 1 minute.		
		Cap. Change	Within specification					
		Q or DF	within initial specification					

12	Soldering Heat Resistance	Appearance	No significant abnormal	12~1	Solder temperature 350±10°C  Immersion time 3.0± 0.5sec  Placed at room condition for 4~24 hours, and then to measure.	
		Dielectric Strength I	compliance with the characteristic as No.3	12~2		
		Capacitance change rate	B: within ±10% E: within ±15% F: within ±20%	12~3		
No	Item	Characteristic		Test Method		
13	Solder ability	The round surface of lead wires, there must be 3/4 area welding with the solder.。		13~1 13~2	Solder temperature 275±10°C Immersion time 2.0± 0.5sec	
14	Humidity (Under Steady State)	Appearance	No significant abnormal	14~1	Temperature: 40±2°C	
		Dielectric Strength I	Must meet the requirements of No.3	14~2	Humidity: 90~95%RH	
		I R	Between terminals	More than the 1/2 value of No.6 requirements.	14~3	Time: 500±12 Hrs
			Between terminal & coating		14~4	Remove & placed at room condition for 1~2 hours, and then to measure.
		Capacitance change rate	Type B within ±15% Type E within ±20% Type F within ±30%			
		Dissipation Factor (D.F)	Type B & E, under 5%. Type F, under 7.5%			
15	Damp heat loading	Appearance	No significant abnormal	15~1	Temperature: 40±2°C  Humidity: 90~95%RH	
		Dielectric Strength I	Must meet the requirements of No.3			
		IR	Between terminals Between terminal & coating	More than the 1/2 value of No.6 requirements.	15~3	Time: 500±12 Hrs

	Capacitance change rate	Type B within $\pm 15\%$ Type E within $\pm 20\%$ Type F within $\pm 30\%$	15~4 15~5	Voltage: AC 180Vrms Current: Less than 50mA
	Dissipation Factor (D.F)	Type B & E, under 5% Type F, under 7.5%.	15~6	Remove & placed at room condition for 1~2 hours, and then to measure.

No	Item	Characteristic		Test Method		
16	Endurance	Appearance		No significant abnormal	16~1	Temperature: $85\pm 3^{\circ}\text{C}$ ; $125\pm 5^{\circ}\text{C}$ Time: $1000\pm 12$ Hrs Voltage: rated voltage of 1.7UR Current: less than 50mA Remove & placed at room condition for 1~2 hours, and then to measure.
		Dielectric Strength I		"Must meet the requirements of No.3	16~2	
		I R	Between terminals	More than the 1/2 value of No.6 requirements.	16~3	
			Between terminal&coating		16~4	
		Capacitance change rate		Type B within $\pm 15\%$ Type E within $\pm 20\%$ Type F within $\pm 30\%$	16~5	
		Dissipation Factor (D.F)		Type B & E, under 5% Type F, under 7.5%		
17	Flame Test	Applicable safety symbols A2, B2.			The capacitor should be subjected to applied flame for 15 sec, and then removed for 15 sec, until 3 cycles are completed. And then continued to flame a minute and never to explode.	
18	Solvent Resistance (Body)	After the test must meet the standards of its electrical properties			The capacitor should be immersed into a isopropyl alcohol for $5\pm 0.5$ minutes, then removed and placed for 48 hrs. at room condition before post measurements.	



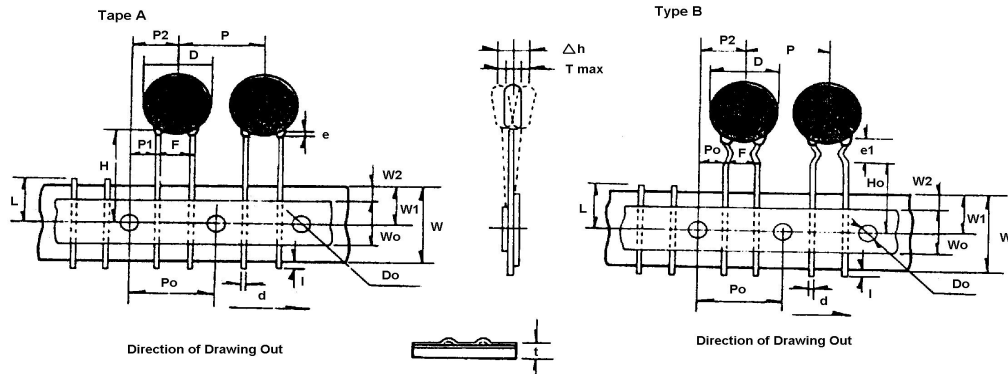
19	Solvent Resistance (Mark)	Marks should be legible		Use cotton yarn dips isopropyl alcohol, by force $5 \pm 0.5 \text{ N/cm}^2$ , 1 second round trip twice to wipe mark on the body, and run 5 cycles.
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## TAPING SPECIFICATIONS

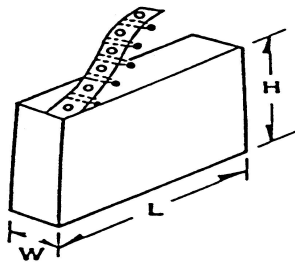
Taping (Radial)--Lead Spacing  $F=7.5 \pm 0.8$  or  $10.0 \pm 0.8$

Item	Code	Dimensions (mm)	Item	Code	Dimensions (mm)
Taping Pitch	P	$12.7 \pm 1.0$	Lead Protrusion	l	$+0.5 \sim 1.0$
Guide Pitch	Po	$12.7 \pm 1.0$	Diameter of Feed Hole	Do	$4.0 \pm 0.3$
Lead Spacing	F	$5.0 \pm 0.8$ $7.5 \pm 0.8$ $9.5 \pm 0.8$	Diameter of Lead	d	$0.55 + 0.06$ $-0.05$
Feed Hole Position Capacitor Body	P2	$6.35 \pm 1.3$	Total Thickness of Tape	t	$0.7 \pm 0.2$
Feed Hole Position Capacitor Lead	P1	$3.85 \pm 0.7$	Thickness of Capacitor Body	T	Differ in each product
Diameter Of ISO	D	See table of each series	Alignment to FR. Direction	$\Delta h$	$0 \pm 2.0$
			Length of snipped Lead	L	$11.0 + 0 - 1.0$
Width Of Base Tape	W	$18.0 \pm 0.5$	Width of Hold-down Tape	Wo	12.5
Feed Hole Vertical Position	W1	$9.0 + 0.75 - 0.05$	Hold-down Tape Position	W2	$1.5 \pm 1.5$
Taping	For Straight	Ho	Coating Extention	e	3.0 以下

Height	For Crimp	H	20 +1.5 -1.0		e1	up to center of crimp
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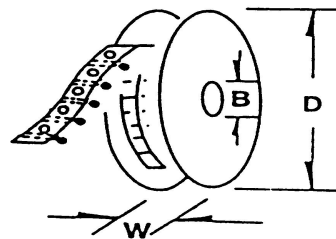
**AMMO PACK**



$H = 241 \pm 5$  mm  
 $L = 332 \pm 5$  mm  
 $W = 42 \pm 3$  mm

Acceptable to standard radial type cartridge.

**REE**



$D \leq 354(13.93)$   
 $B \leq 21(.83)$  but  
 $\leq 30(1.18)$ "  
 $W \leq 55(2.16)$

Acceptable to standard radial type cartridge with a few extra accessories. Reeled axials are also acceptable to standard axial type cartridge with a few accessories.