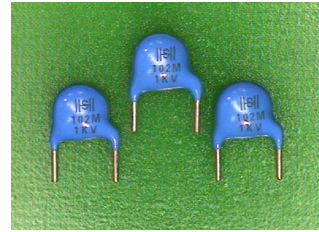


Ceramic Disc Capacitors [High Voltage Disc Capacitor]

HDC Series – Low Loss/ Low Dissipation



The series (R type) used in electronic product and the voltage ratings from 1KV to 3KV. Ideal for use on high frequency pulse circuits such as a horizontal resonance circuits for CTV and snubber circuits for switching power supplies.

◆ Features

- Wide operation temperature up to +125°C
- Ultra low dissipation factor
- Small size a special designed
- High reliability
- RoHS compliant
- Halogen Free available

◆ Applications

- Suitable for LAN/WLAN interface
- Ballast circuit of back-lighting inverter
- DC-DC converters,
- Snubber circuit of switching power supplies
- Modems & communication

◆ Summary of Specification

Operation Temperature	-25~+125 °C
Capacitance Range	100pF to 47nF
Rated Voltage	1KVdc to 3KVdc
Temperature Coefficient	≤ +15/-30%, -25~+125 °C
Dissipation Factor	≤ 0.2%
Insulation Resistance	10GΩ or 500/C Ω whichever is smaller
Aging	3.5 % per decade of time
Dielectric Strength	V ≤ 2KV : 200% Rated Voltage
	3KV : 175% Rated Voltage

◆ How To Order

HDC
R
471
K
102
5
A
9
L

Product Code	Dielectric	Capacitance Unit : pF	Tolerance	Rated Voltage	Lead Space	Lead Length & Packaging	Lead Shape Style	Optional Suffix
HDC: Ceramic Disc Capacitor	Ex.: R:Y5R	Ex.: 101:10x10 ¹ 472:47x10 ²	Ex.: K: +/- 10% M: +/- 20%	Ex.: 102:1000Vdc 202:2000Vdc 302:3000Vdc	Ex.: 5 : 5.00mm 6 : 6.35mm 7 : 7.50mm A : 10.0mm B : 12.5mm	Ex.: H:3.1mm C:3.5mm S:5.0mm M:10.0mm L: 25mm min. T: Tape Reel A: Ammo Box	Ex.: S Type 1: φ=0.50mm 2: φ=0.60mm 3: φ=0.65mm 4: φ=0.80mm D Type 9: φ=0.50mm A: φ=0.60mm B: φ=0.65mm C: φ=0.80mm	Ex.: L:Low Loss/ Low Dissipation R :Halogen Free Indicator

HDC Series Specification & Test Condition

Item	Specification		Test Condition			
Operating Temperature Range	-25°C ~ +125°C					
Capacitance	Within specified tolerance.		<u>Frequency</u>	<u>Voltage</u>		
Dissipation Factor	0.2% Maximum		1KHz±10%	5.0Vrms max.		
Insulation Resistance	More than 10,000MΩ		The measurement at reference temperature 25 °C. Applied Voltage : 500±5Vdc Charge Time : 60±5sec. Is applied less than 50mA current.			
Dielectric Strength	Between Lead Wires	No Failure	V≤2KV:200% of Rated Voltage V≤3KV 175% of Rated Voltage For 1~5 sec. Current is limited to less than 50mA.			
	Body Insulation	No Failure	The capacitor is place in the container with metal balls of diameter 1mm so that each lead wire, short circuited is kept about 2mm off the ball and DC1.3KV is applied for1 to 5s. Between capacitor lead wires and small metals. Current is limited to less than 50mA.			
Temperature Capacitance Coefficient	<u>Operation Temp.</u> -25°C ~+125°C	<u>Cap.Change</u> +15 ~ -30%	(C2-C1)/C1 × 100% T1:Standard Temperature(25°C) T2:Test Temperature C1:Capacitance at Standard Temperature C2:Capacitance at Test Temperature			
Strength of Terminal	Tensile Strength	Lead wire shall not be disconnected and capacitor shall not be damaged.	<u>Nominal cross section area (mm)</u> 0.07-0.2 Over 0.2-0.5	<u>Wire Diameter (mm)</u> 0.3-0.5 over0.5-0.8	<u>Tensile Force (N)</u> 5 10	<u>Holding Time (s)</u> 10 ±1
	Bending Strength	Lead wire shall not be disconnected and capacitor shall not be damaged.	<u>Nominal cross section area (mm)</u> 0.07-0.2 Over 0.2-0.5	<u>Wire Diameter (mm)</u> 0.3-0.5 over0.5-0.8	<u>Tensile Force (N)</u> 2.5 5	<u>Mass of Weight (Kg)</u> 10 ±1
Solderability of leads	More than 75% of the circumferential surface dipped into solder shall be covered with new solder.		Solder Temperature : 235±5°C Dip Time : 2 ± 0.5 sec. Solder: H60A or H63A Flux: Ethanol solution of Rosin (25wt%) Immersion depth: 1.5 to 2mm Immersion speed: 25±2.5mm/s			
Resistance to Soldering Heat	Appearance	No mechanical damage shall occur	<u>Soldering Temperature</u>	<u>350±10 °C</u>	<u>260 ±5°C</u>	
	Capacitance	≤±5.0% of initial value	<u>Dipping Time</u>	<u>3.5±0.5sec.</u>	<u>10 ±1sec.</u>	
	Withstand Voltage (Between Terminal)	No dielectric breakdown or abnormality	The capacitor shall stored for 24±2hr at room temperature.			

HDC Series Specification & Test Condition

Item	Specification	Test Condition																											
Temperature and Dipping Cycle	Appearance	No mechanical damage shall occur																											
	Capacitance	$\leq \pm 10\%$ of initial value																											
	Tan δ	$\leq 0.4\%$																											
	Insulation Resistance	More than 1,000M Ω																											
	Withstand Voltage (Between Terminal)	No dielectric breakdown or abnormality																											
		Capacitor shall be subjected to five cycles of the temperature cycle as following: <table border="1"> <thead> <tr> <th>Step</th> <th>Temp.(°C)</th> <th>Time(min)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Min Rated Temp.+0/-3 (-55)</td> <td>30</td> </tr> <tr> <td>2</td> <td>25</td> <td>3</td> </tr> <tr> <td>3</td> <td>Max Rated Temp.+3/-0 (125)</td> <td>30</td> </tr> <tr> <td>4</td> <td>25</td> <td>3</td> </tr> </tbody> </table> <p>After 5 temperature cycle then consecutively to 2 dipping cycles</p> <table border="1"> <thead> <tr> <th>Step</th> <th>Temp.(°C)</th> <th>Time(min)</th> <th>Dipping Liquid</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>65 +5/-0</td> <td>15\pm2</td> <td>Pure Water</td> </tr> <tr> <td>2</td> <td>0\pm3</td> <td>15\pm2</td> <td>Salt Water</td> </tr> </tbody> </table> <p>The capacitor shall stored for 24\pm2hr at room temperature.</p>	Step	Temp.(°C)	Time(min)	1	Min Rated Temp.+0/-3 (-55)	30	2	25	3	3	Max Rated Temp.+3/-0 (125)	30	4	25	3	Step	Temp.(°C)	Time(min)	Dipping Liquid	1	65 +5/-0	15 \pm 2	Pure Water	2	0 \pm 3	15 \pm 2	Salt Water
Step	Temp.(°C)	Time(min)																											
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Step	Temp.(°C)	Time(min)	Dipping Liquid																										
1	65 +5/-0	15 \pm 2	Pure Water																										
2	0 \pm 3	15 \pm 2	Salt Water																										
Humidity (Under Steady State)	Appearance	No mechanical damage shall occur																											
	Capacitance	$\leq \pm 10\%$ of initial value																											
	Tan δ	$\leq 0.4\%$																											
	Insulation Resistance	More than 1,000M Ω																											
		Temperature : 40 \pm 2 °C Relative Humidity : 90 ~95%RH Test Time : 500 +24/-0 hr The capacitor shall stored for 24 \pm 2hr at room temperature																											
Humidity Loading	Appearance	No mechanical damage shall occur																											
	Capacitance	$\leq \pm 10\%$ of initial value																											
	Tan δ	$\leq 0.4\%$																											
	Insulation Resistance	More than 500M Ω																											
		Temperature : 40 \pm 2 °C Relative Humidity : 90 ~95%RH Test Time : 500 +24/-0 hr Applied Voltage : 100% of Rated Voltage Is applied less than 50mA current. The capacitor shall stored for 24 \pm 2hr at room temperature																											
High Temperature Load (Life Test)	Appearance	No mechanical damage shall occur																											
	Capacitance	$\leq \pm 10\%$ of initial value																											
	Tan δ	$\leq 0.4\%$																											
	Insulation Resistance	More than 2000M Ω																											
		Applied Voltage: 150% of rated voltage Temperature: max. operation temperature Test Time : 1000 +48/-0 Hr Is applied less than 50mA current. The capacitor shall stored for 24 \pm 2hr at room temperature.																											
Vibration	Appearance	No mechanical damage shall occur																											
	Capacitance	To satisfy the specified initial value																											
	Q / Tan δ	To satisfy the specified initial value																											
		The capacitor shall firmly be solder to the supporting terminal and vibration which is 10 to 55Hz in the vibration frequency range 1.5mm in total amplitude and about 1mm in the rate of vibration change from 10Hz to 55Hz and back to 10Hz is applied for a total of 6 hours ; 2 hours each in three mutually perpendicular directions.																											