

## 阅读申明

- 1.本站收集的数据手册和产品资料都来自互联网，版权归原作者所有。如读者和版权方有任何异议请及时告之，我们将妥善解决。
- 2.本站提供的中文数据手册是英文数据手册的中文翻译，其目的是协助用户阅读，该译文无法自动跟随原稿更新，同时也可能存在翻译上的不当。建议读者以英文原稿为参考以便获得更精准的信息。
- 3.本站提供的产品资料，来自厂商的技术支持或者使用者的心得体会等，其内容可能存在描述上的差异，建议读者做出适当判断。
- 4.如需与我们联系，请发邮件到marketing@iczoom.com，主题请标有“数据手册”字样。

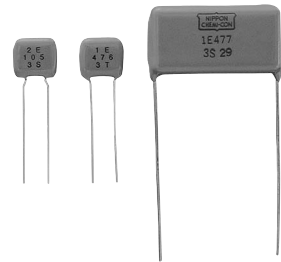
## Read Statement

1. The datasheets and other product information on the site are all from network reference or other public materials, and the copyright belongs to the original author and original published source. If readers and copyright owners have any objections, please contact us and we will deal with it in a timely manner.
2. The Chinese datasheets provided on the website is a Chinese translation of the English datasheets. Its purpose is for reader's learning exchange only and do not involve commercial purposes. The translation cannot be automatically updated with the original manuscript, and there may also be improper translations. Readers are advised to use the English manuscript as a reference for more accurate information.
3. All product information provided on the website refer to solutions from manufacturers' technical support or users the contents may have differences in description, and readers are advised to take the original article as the standard.
4. If you have any questions, please contact us at marketing@iczoom.com and mark the subject with "Datasheets" .



# DIPPED RADIAL LEAD MULTILAYER CERAMIC CAPACITORS

## THD Series



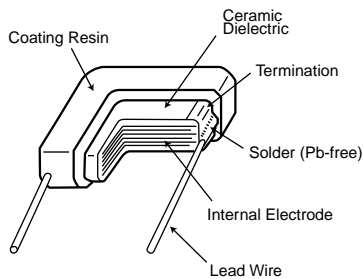
### ◆FEATURES

1. Small size and large capacitance, high ripple current.
2. Temperature characteristic is Y5U in EIA code.
3. Superior humidity characteristic and long life.
4. Excellent noise absorption.
5. Resin(UL94 V-0) used for coating.

### ◆APPLICATIONS

1. Automotive equipments.
2. Smoothing circuit of switching mode AC-DC or DC-DC converter.
3. Noise suppressor for various kinds of equipments.
4. By-pass or decoupling circuits.

### ◆CONSTRUCTION



### ◆RATINGS

1. Category Temperature Range	-55 to +125°C
2. Rated Voltage Range	16, 25, 50, 100, 250 V <sub>dc</sub>
3. Rated Capacitance Range	0.1 to 680μF
4. Rated Capacitance Tolerance	M(±20%), Z(±20%)
5. Temperature Characteristics	E(JIS) ≡ Y5U(EIA)
6. Rated Ripple Current	See No.5 on the following table

### ◆SPECIFICATIONS

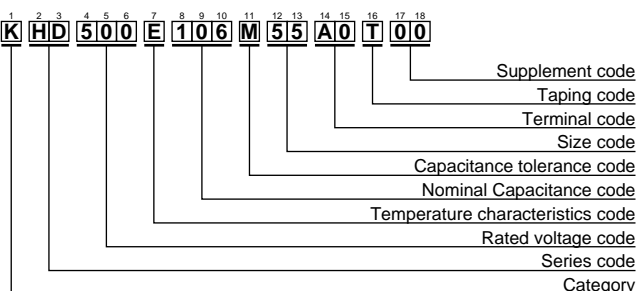
No.	Items		Specification	Test Condition
1	Withstand Voltage	Between Terminals	No abnormality.	250% of rated voltage shall be applied for 5 seconds.
		Terminals to Coating Resin		
2	Insulation Resistance		1000/C <sub>R</sub> (MΩ) or 10000(MΩ) whichever is less.	Rated voltage shall be applied for 60±5 seconds at temperature 20±2°C.
3	Rated Capacitance		Within specified tolerance.	Temperature : 20±2°C Frequency : 1±0.1kHz(≥100μF, 120Hz) Voltage : 1±0.2V <sub>rms</sub>
4	Dissipation Factor		5.0% maximum.	Temperature : 20±2°C Frequency : 1±0.1kHz(≥100μF, 120Hz) Voltage : 1±0.2V <sub>rms</sub>

## ◆SPECIFICATIONS

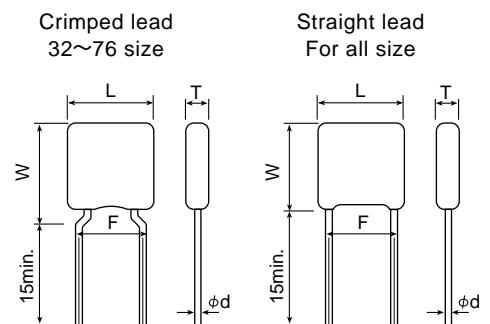
No.	Items	Specification	Test Condition																		
5	Rated Ripple Current	<table border="1"> <tr> <td>Size code</td> <td>32</td> <td>43</td> <td>55</td> <td>76</td> <td>80</td> <td>90</td> <td>99</td> </tr> <tr> <td>Arms</td> <td>0.3</td> <td>0.8</td> <td>1.0</td> <td>1.5</td> <td>2.0</td> <td>3.0</td> <td>4.0</td> </tr> </table>	Size code	32	43	55	76	80	90	99	Arms	0.3	0.8	1.0	1.5	2.0	3.0	4.0	10kHz to 1MHz (sine curve) Ripple voltage $V_p$ shall be less than the rated voltage.		
Size code	32	43	55	76	80	90	99														
Arms	0.3	0.8	1.0	1.5	2.0	3.0	4.0														
6	Robustness of Terminations	No visible damage.	The force applied shall be : <table border="1"> <tr> <td>Lead <math>\phi</math> (mm)</td> <td>Tensile(N)</td> <td>(sec.)</td> </tr> <tr> <td>0.5 max.</td> <td>5</td> <td>10<math>\pm</math>1</td> </tr> <tr> <td>0.6 to 0.8 max.</td> <td>10</td> <td>10<math>\pm</math>1</td> </tr> </table> <table border="1"> <tr> <td>Lead <math>\phi</math> (mm)</td> <td>Bending(N)</td> <td>(kg)</td> </tr> <tr> <td>0.5 max.</td> <td>2.5</td> <td>0.25</td> </tr> <tr> <td>0.6 to 0.8 max.</td> <td>5</td> <td>0.51</td> </tr> </table> Time : 2times.	Lead $\phi$ (mm)	Tensile(N)	(sec.)	0.5 max.	5	10 $\pm$ 1	0.6 to 0.8 max.	10	10 $\pm$ 1	Lead $\phi$ (mm)	Bending(N)	(kg)	0.5 max.	2.5	0.25	0.6 to 0.8 max.	5	0.51
Lead $\phi$ (mm)	Tensile(N)	(sec.)																			
0.5 max.	5	10 $\pm$ 1																			
0.6 to 0.8 max.	10	10 $\pm$ 1																			
Lead $\phi$ (mm)	Bending(N)	(kg)																			
0.5 max.	2.5	0.25																			
0.6 to 0.8 max.	5	0.51																			
7	Vibration	Appearance : No abnormality. Capacitance : To meet the initial specification. D.F. : To meet the initial specifications.	Amplitude : 1.5mm Frequency range : 10-55-10Hz (1 min) Direction and time : 2 hours each to X, Y, Z axis. Total 6 hours.																		
8	Solderability	Min. 75% of surface of the termination shall be covered with new solder.	<table border="1"> <tr> <td>Solder</td> <td>Pb Free</td> <td>Eutectic</td> </tr> <tr> <td>Solder Temperature</td> <td>245<math>\pm</math>5<math>^{\circ}</math>C</td> <td>235<math>\pm</math>5<math>^{\circ}</math>C</td> </tr> <tr> <td>Dipping Time</td> <td colspan="2">2<math>\pm</math>0.5sec.</td> </tr> </table>	Solder	Pb Free	Eutectic	Solder Temperature	245 $\pm$ 5 $^{\circ}$ C	235 $\pm$ 5 $^{\circ}$ C	Dipping Time	2 $\pm$ 0.5sec.										
Solder	Pb Free	Eutectic																			
Solder Temperature	245 $\pm$ 5 $^{\circ}$ C	235 $\pm$ 5 $^{\circ}$ C																			
Dipping Time	2 $\pm$ 0.5sec.																				
9	Resistance to Soldering Heat	Appearance : No abnormality. $\Delta C/C$ : $\pm 15\%$ D.F. : Satisfy the initial spec.	Solder Temperature : 350 $\pm$ 10 $^{\circ}$ C Dipping Time : 3 $\pm$ 0.5 sec. Depth : 1.5 to 2mm																		
10	Temperature Cycle	Appearance : No abnormality. $\Delta C/C$ : $\pm 15\%$ D.F. : To meet the initial specification I.R. : To meet the initial specification	<table border="1"> <tr> <th>Step</th> <th>Temperature (<math>^{\circ}</math>C)</th> <th>(min.)</th> </tr> <tr> <td>1</td> <td>Min. Category temperature <math>\pm 3</math></td> <td>30<math>\pm</math>3</td> </tr> <tr> <td>2</td> <td>Room temperature</td> <td>3 max.</td> </tr> <tr> <td>3</td> <td>Max. Category temperature <math>\pm 3</math></td> <td>30<math>\pm</math>3</td> </tr> <tr> <td>4</td> <td>Room temperature</td> <td>3 max.</td> </tr> </table> For 5 cycles for above temperature cycle.	Step	Temperature ( $^{\circ}$ C)	(min.)	1	Min. Category temperature $\pm 3$	30 $\pm$ 3	2	Room temperature	3 max.	3	Max. Category temperature $\pm 3$	30 $\pm$ 3	4	Room temperature	3 max.			
Step	Temperature ( $^{\circ}$ C)	(min.)																			
1	Min. Category temperature $\pm 3$	30 $\pm$ 3																			
2	Room temperature	3 max.																			
3	Max. Category temperature $\pm 3$	30 $\pm$ 3																			
4	Room temperature	3 max.																			
11	Humidity Load Life	Appearance : No abnormality. $\Delta C/C$ : $\pm 20\%$ D.F. : 7% maximum I.R. : 50/ $C_R$ (M $\Omega$ ) or 1000(M $\Omega$ ) whichever is less.	Temperature : 40 $\pm$ 2 $^{\circ}$ C Humidity : 90 to 95%RH Voltage : Rated voltage Time : 500 $\pm$ <sub>0</sub> <sup>24</sup> hours																		
12	Endurance	Appearance : No abnormality. $\Delta C/C$ : $\pm 20\%$ D.F. : 7% maximum I.R. : 100/ $C_R$ (M $\Omega$ ) or 1000(M $\Omega$ ) whichever is less.	Temperature : 85 $\pm$ 2 $^{\circ}$ C Voltage : 200% of rated voltage. Time : 1000 $\pm$ <sub>0</sub> <sup>48</sup> hours  Temperature : 125 $\pm$ 3 $^{\circ}$ C Voltage : Rated voltage Time : 1000 $\pm$ <sub>0</sub> <sup>48</sup> hours																		

\* $C_R$  : Rated Capacitance( $\mu$ F)

## ◆PART NUMBERING SYSTEM



## ◆DIMENSIONS





# DIPPED RADIAL LEAD MULTILAYER CERAMIC CAPACITORS

## THD Series

### ◆THD SERIES STANDARD RATINGS

Rated voltage (Vdc)	Rated Capacitance (μF)	Dimensions (mm)					Maximum ripple current (Arms)	Part Number	Previous Part Number (Just for your reference)				
		Lmax.	Wmax.	Tmax.	F±0.8	φd±0.05							
16	6.8	5.0	6.5	3.5	5.0	0.5	0.3	KHD160E685M32A0T00	THD21E1C685MT				
	10							KHD160E106M32A0T00	THD21E1C106MT				
	15							KHD160E156M43A0T00	THD30E1C156MT				
	22	6.5	7.5	4.0	5.0	0.5	0.8	KHD160E226M43A0T00	THD30E1C226MT				
	33							KHD160E336M55A0T00	THD31E1C336MT				
	47							KHD160E476M55A0T00	THD31E1C476MT				
	68	8.0	9.0	4.5	5.0	0.5	1.0	KHD160E686M76A0T00	THD41E1C686MT				
	100							KHD160E107M76A0T00	THD41E1C107MT				
	150							10.0	11.5	4.5	5.0	0.5	1.5
	220	KHD160E227M80A0B00	THD51E1C227M										
	330	KHD160E337M90C0B00	THD60E1C337M										
	470	22.5	20.0	6	20.0	0.8	3.0	KHD160E477M90C0B00	THD60E1C477M				
680	KHD160E687M99C0B00							THD61E1C687M					
25	3.3	5.0	6.5	3.0	5.0	0.5	0.3	KHD250E335M32A0T00	THD21E1E335MT				
	4.7			3.5				KHD250E475M32A0T00	THD21E1E475MT				
	6.8			6.5				7.0	3.5	5.0	0.5	0.8	KHD250E685M43A0T00
	10	4.0	KHD250E106M43A0T00		THD30E1E106MT								
	15	4.0	KHD250E156M43A0T00		THD30E1E156MT								
	22	7.5	9.0	4.0	5.0	0.5	1.0	KHD250E226M55A0T00	THD31E1E226MT				
	33			4.5				KHD250E336M55A0T00	THD31E1E336MT				
	47			10.0				11.5	4.5	5.0	0.5	1.5	KHD250E476M76A0T00
	68	5.0	KHD250E686M80A0B00		THD51E1E686M								
	100	5.5	KHD250E107M80A0B00		THD51E1E107M								
	150	22.5	20.0	6.0	20.0	0.8	3.0	KHD250E157M90C0B00	THD60E1E157M				
	220							KHD250E227M90C0B00	THD60E1E227M				
	330							KHD250E337M99C0B00	THD61E1E337M				
	470	28.5	20.0	7.5	25.0	0.8	4.0	KHD250E477M99C0B00	THD61E1E477M				
50	1.0	5.0	6.5	3.0	5.0	0.5	0.3	KHD500E105M32A0T00	THD21E1H105MT				
	1.5			3.5				KHD500E155M32A0T00	THD21E1H155MT				
	2.2			6.5				7.0	3.5	5.0	0.5	0.8	KHD500E225M32A0T00
	3.3	4.0	KHD500E335M43A0T00		THD30E1H335MT								
	4.7	4.0	KHD500E475M43A0T00		THD30E1H475MT								
	6.8	7.5	9.0	4.0	5.0	0.5	1.0	KHD500E685M55A0T00	THD31E1H685MT				
	10			4.5				KHD500E106M55A0T00	THD31E1H106MT				
	15			4.5				KHD500E156M55A0T00	THD31E1H156MT				
	22	10.0	11.5	4.5	5.0	0.5	1.5	KHD500E226M76A0T00	THD41E1H226MT				
	33			5.0				KHD500E336M80A0B00	THD51E1H336M				
	47			10.0				KHD500E476M90C0B00	THD60E1H476M				
	68	22.5	20.0	6.0	20.0	0.8	3.0	KHD500E686M90C0B00	THD60E1H686M				
	100							KHD500E107M90C0B00	THD60E1H107M				
	150							KHD500E157M99C0B00	THD61E1H157M				
	220	28.5	20.0	7.5	25.0	0.8	4.0	KHD500E227M99C0B00	THD61E1H227M				
100	0.33	5.0	6.5	3.0	5.0	0.5	0.3	KHD101E334M32A0T00	THD21E2A334MT				
	0.47			3.5				KHD101E474M32A0T00	THD21E2A474MT				
	0.68			6.5				7.0	3.5	5.0	0.5	0.8	KHD101E684M32A0T00
	1.0	4.0	KHD101E105M43A0T00		THD30E2A105MT								
	1.5	4.0	KHD101E155M43A0T00		THD30E2A155MT								
	2.2	7.5	9.0	4.0	5.0	0.5	1.0	KHD101E225M43A0T00	THD30E2A225MT				
	3.3			4.5				KHD101E335M55A0T00	THD31E2A335MT				
	4.7			4.5				KHD101E475M55A0T00	THD31E2A475MT				
	6.8	10.0	11.5	4.5	5.0	0.5	1.5	KHD101E685M76A0T00	THD41E2A685MT				
	10			5.0				KHD101E106M80A0B00	THD51E2A106M				
	15			10.0				KHD101E156M80A0B00	THD51E2A156M				
	22	22.5	20.0	6.0	20.0	0.8	3.0	KHD101E226M90C0B00	THD60E2A226M				
	33			6.0				KHD101E336M90C0B00	THD60E2A336M				
	47			6.0				KHD101E476M99C0B00	THD61E2A476M				
	68	28.5	20.0	7.5	25.0	0.8	4.0	KHD101E686M99C0B00	THD61E2A686M				
	100			7.5				KHD101E107M99C0B00	THD61E2A107M				
250	0.1	6.5	7.0	3.5	5.0	0.5	0.8	KHD251E104M43A0T00	THD30E2E104MT				
	0.15			4.0				KHD251E154M43A0T00	THD30E2E154MT				
	0.22			4.0				KHD251E224M43A0T00	THD30E2E224MT				
	0.33	7.5	9.0	4.0	5.0	0.5	1.0	KHD251E334M43A0T00	THD30E2E334MT				
	0.47			4.5				KHD251E474M55A0T00	THD31E2E474MT				
	0.68			4.5				KHD251E684M55A0T00	THD31E2E684MT				
	1.0	10.0	11.5	4.5	5.0	0.5	1.5	KHD251E105M76A0T00	THD41E2E105MT				
	1.5			5.0				KHD251E155M76A0T00	THD41E2E155MT				
	2.2			10.0				KHD251E225M80A0B00	THD51E2E225M				
	3.3	22.5	20.0	6.0	20.0	0.8	3.0	KHD251E335M90C0B00	THD60E2E335M				
	4.7			6.0				KHD251E475M90C0B00	THD60E2E475M				
	6.8			6.0				KHD251E685M99C0B00	THD61E2E685M				
	10	28.5	20.0	7.5	25.0	0.8	4.0	KHD251E106M99C0B00	THD61E2E106M				
	15			7.5				KHD251E156M99C0B00	THD61E2E156M				