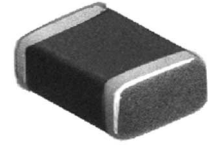


## THC Series / TMC Series (High Reliability)



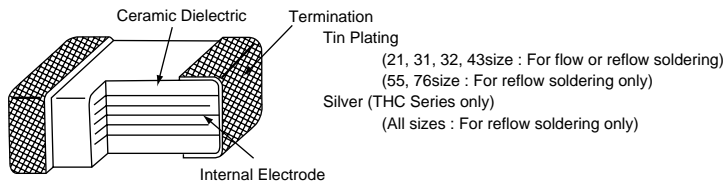
### ◆FEATURES

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.

### ◆APPLICATIONS

1. Smoothing circuit of small size DC-DC converter.
2. On-board power supply.
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, 200V <sub>dc</sub>
3. Rated Capacitance Range	0.047 to 100μF
4. Rated Capacitance Tolerance	M (±20%), Z (±20%) <sup>80</sup>
5. Temperature Characteristics	E (JIS) ≒ Y5U (EIA)
6. Rated Ripple Current	See No.5 on the following table

### ◆SPECIFICATIONS

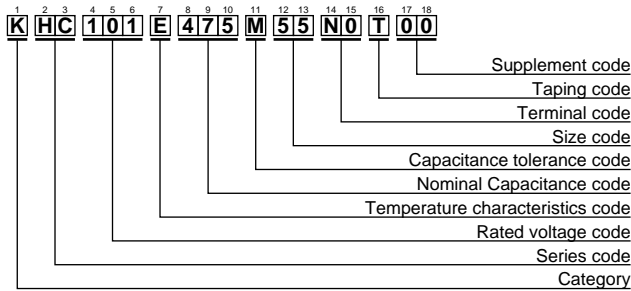
No.	Items	Specification	Test Condition														
1	Withstand Voltage	No abnormality.	250% of rated voltage shall be applied for 5 seconds.														
2	Insulation Resistance	1000/C <sub>R</sub> (MΩ) or 10000(MΩ) whichever is less.	Rated voltage shall be applied for 60±5 seconds at temperature 20±2°C.														
3	Rated Capacitance	Within specified tolerance.	Temperature : 20±2°C Frequency : 1±0.1kHz Voltage : 1±0.2V <sub>rms</sub>														
4	Dissipation Factor	5.0% maximum.	Temperature : 20±2°C Frequency : 1±0.1kHz Voltage : 1±0.2V <sub>rms</sub>														
5	Rated Ripple Current	<table border="1"> <tr> <td>Size code</td> <td>21</td> <td>31</td> <td>32</td> <td>43</td> <td>55</td> <td>76</td> </tr> <tr> <td>Arms</td> <td>0.2</td> <td>0.3</td> <td>0.5</td> <td>1.0</td> <td>2.0</td> <td>3.0</td> </tr> </table>	Size code	21	31	32	43	55	76	Arms	0.2	0.3	0.5	1.0	2.0	3.0	10kHz~1MHz (sine curve) Ripple voltage V <sub>p</sub> shall be less than the rated voltage.
Size code	21	31	32	43	55	76											
Arms	0.2	0.3	0.5	1.0	2.0	3.0											

### ◆SPECIFICATIONS

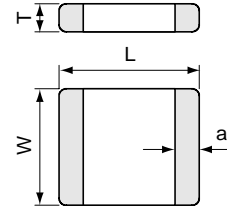
No.	Items	Specification	Test Condition															
6	Adhesion	No visible damage.	<p>Substrate 5N (0.51kgf) for 10±1 seconds Capacitor</p>															
7	Bend strength of the face plating	Appearance : No visible damage. $\Delta C/C : \pm 15\%$	<p>The substrate shall be bend by 1mm at a rate of 1mm/s for 5 seconds.</p> <p>Press Press bar Capacitor Substrate 1.0mm Support 45±2mm 45±2mm</p>															
8	Solderability	Min. 75% of surface of the termination shall be covered with new solder	<p>Solder Temperature : 235±5°C Dipping Time : 2±0.5 sec. Solder : Eutectic solder containing Ag2.5 to 3wt%</p>															
9	Resistance to Soldering Heat	Appearance : No visible damage. $\Delta C/C : \pm 15\%$ D.F. : To meet the initial specification. I.R. : To meet the initial specification.	<p>Solder Temperature : 260±5°C Dipping Time : 2±0.5 seconds Solder : Eutectic solder containing Ag2.5 to 3wt%</p>															
10	Temperature Cycle	Appearance : No visible damage. $\Delta C/C : \pm 15\%$ D.F. : To meet the initial specification. I.R. : To meet the initial specification.	<table border="1"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> <th>(min.)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Min. Category temperature ±3</td> <td>30±3</td> </tr> <tr> <td>2</td> <td>Room temperature</td> <td>3 max.</td> </tr> <tr> <td>3</td> <td>Max. Category temperature ±3</td> <td>30±3</td> </tr> <tr> <td>4</td> <td>Room temperature</td> <td>3 max.</td> </tr> </tbody> </table> <p>&lt;Cycle&gt; THC series : 5 cycles TMC series : 100 cycles</p>	Step	Temperature (°C)	(min.)	1	Min. Category temperature ±3	30±3	2	Room temperature	3 max.	3	Max. Category temperature ±3	30±3	4	Room temperature	3 max.
Step	Temperature (°C)	(min.)																
1	Min. Category temperature ±3	30±3																
2	Room temperature	3 max.																
3	Max. Category temperature ±3	30±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 <sub>R</sub> (MΩ) or 1000(MΩ) whichever is less.	<p>Temperature : 40±2°C Humidity : 90 to 95%RH Voltage : Rated voltage Time : 500±<sup>24</sup><sub>0</sub>hours</p>															
12	Endurance	Appearance : No abnormality. $\Delta C/C : \pm 20\%$ D.F. : 7% maximum I.R. : 100/C <sub>R</sub> (MΩ) or 1000(MΩ) whichever is less.	<p>Temperature : 85±2°C Voltage : 200% of rated voltage. Time : 1000±<sup>48</sup><sub>0</sub>hours</p> <p>Temperature : 125±3°C Voltage : Rated voltage Time : 1000±<sup>48</sup><sub>0</sub>hours</p>															

\*C<sub>R</sub> : Rated Capacitance(μF)

### ◆PART NUMBERING SYSTEM



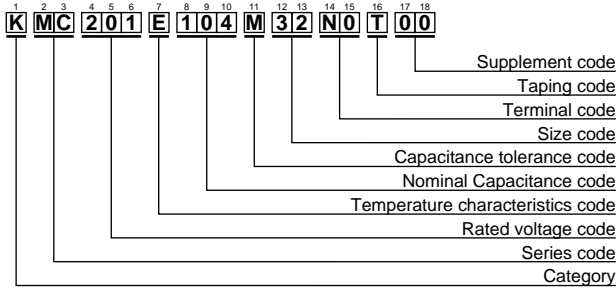
### ◆DIMENSIONS



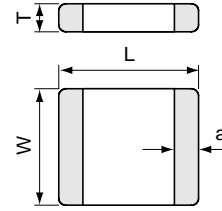
### ◆THC SERIES STANDARD RATINGS

Part Number	Rated voltage (Vdc)	Rated Capacitance (μF)	Dimensions(mm)				Maximum ripple current (Arms)	Previous Part Number (Just for your reference)					
			L	W	Tmax.	a							
KHC160E335M31N0T00	16	3.3	3.2±0.2	1.6±0.2	1.6	0.5±0.3	0.3	THCS30E1C335MTF					
KHC160E475M31N0T00		4.7						THCS30E1C475MTF					
KHC160E685M32N0T00		6.8						THCS40E1C685MTF					
KHC160E106M32N0T00		10	3.2±0.2	2.5±0.2	2.0	0.6±0.3	0.5	THCS40E1C106MTF					
KHC160E156M43N0T00		15	4.5±0.3	3.2±0.2	2.2	0.6±0.3	1.0	THCS50E1C156MTF					
KHC160E226M43N0T00		22						THCS50E1C226MTF					
KHC160E336M55N0T00		33	5.7±0.4	5.0±0.4	2.2	0.8±0.5	2.0	THCS60E1C336MTF					
KHC160E476M55N0T00		47						THCS60E1C476MTF					
KHC160E686M76N0T00		68						7.5±0.5	6.3±0.5	2.5	0.8±0.5	3.0	THCS70E1C686MTF
KHC160E107M76N0T00		100								3.0			THCS70E1C107MTF
KHC250E334M21N0T00	25	0.33	2.0±0.2	1.25±0.2	1.25	0.3±0.2	0.2	THCS20E1E334MTF					
KHC250E474M21N0T00		0.47						THCS20E1E474MTF					
KHC250E684M21N0T00		0.68						THCS20E1E684MTF					
KHC250E105M31N0T00		1.0	3.2±0.2	1.6±0.2	1.6	0.5±0.3	0.3	THCS30E1E105MTF					
KHC250E155M31N0T00		1.5						THCS30E1E155MTF					
KHC250E225M31N0T00		2.2	3.2±0.2	2.5±0.2	2.0	0.6±0.3	0.5	THCS30E1E225MTF					
KHC250E335M32N0T00		3.3						THCS40E1E335MTF					
KHC250E475M32N0T00		4.7						THCS40E1E475MTF					
KHC250E685M43N0T00		6.8						THCS50E1E685MTF					
KHC250E106M43N0T00		10	4.5±0.3	3.2±0.2	2.2	0.6±0.3	1.0	THCS50E1E106MTF					
KHC250E156M43N0T00	15	THCS50E1E156MTF											
KHC250E226M55N0T00	22	5.7±0.4	5.0±0.4	2.2	0.8±0.5	2.0	THCS60E1E226MTF						
KHC250E336M55N0T00	33			3.0			THCS60E1E336MTF						
KHC250E476M76N0T00	47			7.5±0.5			6.3±0.5	3.0	0.8±0.5	3.0	THCS70E1E476MTF		
KHC500E104M21N0T00	0.1							2.0±0.2			1.25±0.2	1.25	0.3±0.2
KHC500E154M21N0T00	0.15	THCS20E1H154MTF											
KHC500E224M21N0T00	0.22	THCS20E1H224MTF											
KHC500E334M31N0T00	0.33	3.2±0.2	1.6±0.2	1.6	0.5±0.3	0.3	THCS30E1H334MTF						
KHC500E474M31N0T00	0.47						THCS30E1H474MTF						
KHC500E684M31N0T00	0.68	3.2±0.2	2.5±0.2	2.0	0.6±0.3	0.5	THCS30E1H684MTF						
KHC500E105M32N0T00	1.0						THCS40E1H105MTF						
KHC500E155M32N0T00	1.5						THCS40E1H155MTF						
KHC500E225M32N0T00	2.2						THCS40E1H225MTF						
KHC500E335M43N0T00	3.3	4.5±0.3	3.2±0.2	2.2	0.6±0.3	1.0	THCS50E1H335MTF						
KHC500E475M43N0T00	4.7						THCS50E1H475MTF						
KHC500E685M55N0T00	6.8	5.7±0.4	5.0±0.4	2.2	0.8±0.5	2.0	THCS60E1H685MTF						
KHC500E106M55N0T00	10						THCS60E1H106MTF						
KHC500E156M55N0T00	15			7.5±0.5			6.3±0.5	3.0	0.8±0.5	3.0	THCS60E1H156MTF		
KHC500E226M76N0T00	22							2.5			THCS70E1H226MTF		
KHC101E473M21N0T00	100	0.047	2.0±0.2	1.25±0.2	1.25	0.3±0.2	0.2	THCS20E2A473MTF					
KHC101E683M21N0T00		0.068						THCS20E2A683MTF					
KHC101E104M31N0T00		0.1						THCS30E2A104MTF					
KHC101E154M31N0T00		0.15	3.2±0.2	1.6±0.2	1.6	0.5±0.3	0.3	THCS30E2A154MTF					
KHC101E224M31N0T00		0.22						THCS30E2A224MTF					
KHC101E334M32N0T00		0.33	3.2±0.2	2.5±0.2	2.0	0.6±0.3	0.5	THCS40E2A334MTF					
KHC101E474M32N0T00		0.47						THCS40E2A474MTF					
KHC101E684M32N0T00		0.68						2.5	THCS40E2A684MTF				
KHC101E105M43N0T00		1.0						2.2	THCS50E2A105MTF				
KHC101E155M43N0T00		1.5	4.5±0.3	3.2±0.2	2.2	0.6±0.3	1.0	THCS50E2A155MTF					
KHC101E225M43N0T00	2.2	3.0						THCS50E2A225MTF					
KHC101E335M55N0T00	3.3	5.7±0.4	5.0±0.4	2.2	0.8±0.5	2.0	THCS60E2A335MTF						
KHC101E475M55N0T00	4.7						3.0	THCS60E2A475MTF					
KHC101E685M76N0T00	6.8			7.5±0.5			6.3±0.5	3.0	0.8±0.5	3.0	THCS70E2A685MTF		
KHC201E473M31N0T00	0.047							3.2±0.2			1.6±0.2	1.6	0.5±0.3
KHC201E683M31N0T00	0.068	THCS30E2D683MTF											
KHC201E104M32N0T00	0.1	THCS40E2D104MTF											
KHC201E154M32N0T00	0.15	3.2±0.2	2.5±0.2	2.0	0.6±0.3	0.5	THCS40E2D154MTF						
KHC201E224M32N0T00	0.22						2.5	THCS40E2D224MTF					
KHC201E334M43N0T00	0.33	4.5±0.3	3.2±0.2	2.2	0.6±0.3	1.0	THCS50E2D334MTF						
KHC201E474M43N0T00	0.47						3.0	THCS50E2D474MTF					
KHC201E684M55N0T00	0.68			5.7±0.4			5.0±0.4	2.2	0.8±0.5	2.0	THCS60E2D684MTF		
KHC201E105M55N0T00	1.0										3.0	THCS60E2D105MTF	
KHC201E155M76N0T00	1.5	7.5±0.5	6.3±0.5	2.5	0.8±0.5	3.0	THCS70E2D155MTF						
KHC201E225M76N0T00	2.2			3.0			THCS70E2D225MTF						

◆PART NUMBERING SYSTEM



◆DIMENSIONS



◆TMC SERIES STANDARD RATINGS

Part Number	Rated voltage (Vdc)	Rated Capacitance (μF)	Dimensions(mm)				Maximum ripple current (Arms)	Previous Part Number (Just for your reference)	
			L	W	Tmax.	a			
KMC250E684M31N0T00	25	0.68	3.2±0.2	1.6±0.2	1.6	0.4±0.2	0.3	TMCS30E1E684MTF	
KMC250E105M31N0T00		1						TMCS30E1E105MTF	
KMC250E155M31N0T00		1.5						TMCS30E1E155MTF	
KMC250E225M32N0T00		4.5±0.3	2.2	3.2±0.2	2.5±0.2	2.2	0.5±0.2	0.5	TMCS40E1E225MTF
KMC250E335M32N0T00			3.3						TMCS40E1E335MTF
KMC250E475M43N0T00			4.7	3.2±0.2	2.5	0.5±0.3	1.0	TMCS50E1E475MTF	
KMC250E685M43N0T00			6.8					TMCS50E1E685MTF	
KMC250E106M43N0T00			10					TMCS50E1E106MTF	
			3.0						
KMC500E334M31N0T00	50	0.33	3.2±0.2	1.6±0.2	1.6	0.4±0.2	0.3	TMCS30E1H334MTF	
KMC500E474M31N0T00		0.47						TMCS30E1H474MTF	
KMC500E684M32N0T00		0.68						TMCS40E1H684MTF	
KMC500E105M32N0T00		1.0	3.2±0.2	2.5±0.2	2.2	0.5±0.2	0.5	TMCS40E1H105MTF	
KMC500E155M32N0T00		1.5						TMCS40E1H155MTF	
KMC500E225M43N0T00		2.2	4.5±0.3	3.2±0.2	2.5	0.5±0.3	1.0	TMCS50E1H225MTF	
KMC500E335M43N0T00		3.3						TMCS50E1H335MTF	
KMC500E475M43N0T00		4.7						TMCS50E1H475MTF	
		3.0							
KMC101E104M31N0T00	100	0.1	3.2±0.2	1.6±0.2	1.6	0.4±0.2	0.3	TMCS30E2A104MTF	
KMC101E154M31N0T00		0.15						TMCS30E2A154MTF	
KMC101E224M32N0T00		0.22						TMCS40E2A224MTF	
KMC101E334M32N0T00		0.33	3.2±0.2	2.5±0.2	2.2	0.5±0.2	0.5	TMCS40E2A334MTF	
KMC101E474M32N0T00		0.47						TMCS40E2A474MTF	
KMC101E684M43N0T00		0.68	4.5±0.3	3.2±0.2	2.5	0.5±0.3	1.0	TMCS50E2A684MTF	
KMC101E105M43N0T00		1.0						TMCS50E2A105MTF	
KMC101E155M43N0T00		1.5						TMCS50E2A155MTF	
		3.0							
KMC201E333M31N0T00	200	0.033	3.2±0.2	1.6±0.2	1.6	0.4±0.2	0.3	TMCS30E2D333MTF	
KMC201E473M31N0T00		0.047						TMCS30E2D473MTF	
KMC201E683M32N0T00		0.068						TMCS40E2D683MTF	
KMC201E104M32N0T00		0.1	3.2±0.2	2.5±0.2	2.2	0.5±0.2	0.5	TMCS40E2D104MTF	
KMC201E154M32N0T00		0.15						TMCS40E2D154MTF	
KMC201E224M43N0T00		0.22	4.5±0.3	3.2±0.2	2.5	0.5±0.3	1.0	TMCS50E2D224MTF	
KMC201E334M43N0T00		0.33						TMCS50E2D334MTF	
KMC201E474M43N0T00		0.47						TMCS50E2D474MTF	
		3.0							