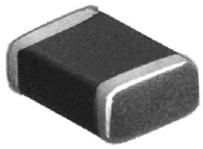
NIPPON CHEMI-CON

MULTILAYER CERAMIC CHIP CAPACITORS

THC Series / TMC Series

RoHS Compliant

(High Reliability)



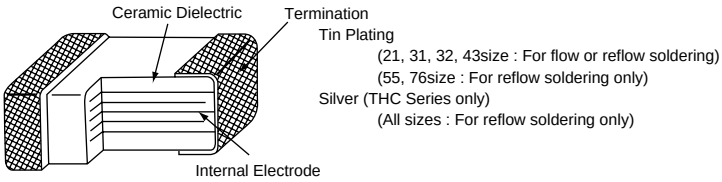
◆FEATURES

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℃
2. Rated Voltage Range	25, 50, 100, 200Vdc
3. Rated Capacitance Range	0.047 to 47μF
4. Rated Capacitance Tolerance	M (±20%) , Z ($\pm^{80}_{20}$%)
5. Temperature Characteristics	E (JIS) ≒ Y5U (EIA)
6. Rated Ripple Current	See No.5 on the following table

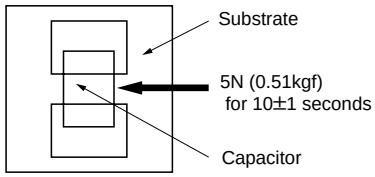
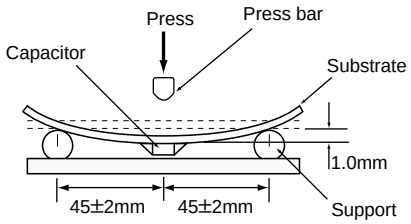
◆SPECIFICATIONS

No.	Items	Specification	Test Condition
1	Withstand Voltage	No abnormality.	250% of rated voltage shall be applied for 5 seconds.
2	Insulation Resistance	1000/C_R(MΩ) or 10000(MΩ) whichever is less.	Rated voltage shall be applied for 60±5 seconds at temperature 20±2℃.
3	Rated Capacitance	Within specified tolerance.	Temperature : 20±2℃ Frequency : 1±0.1kHz Voltage : 1±0.2Vrms
4	Dissipation Factor	5.0% maximum.	Temperature : 20±2℃ Frequency : 1±0.1kHz Voltage : 1±0.2Vrms
5	Rated Ripple Current	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 Vp shall be less than the rated voltage.

CAT. No. E1002P

THC Series / TMC Series

◆SPECIFICATIONS

No.	Items	Specification	Test Condition
6	Adhesion	No visible damage.	
7	Bend strength of the face plating	Appearance : No visible damage. ΔC/C : ±15%	The substrate shall be bend by 1mm at a rate of 1mm/s for 5 seconds. 
8	Solderability	Min. 75% of surface of the termination shall be covered with new solder	Solder: Pb Free / Eutectic Solder Temperature: 245±5℃ / 235±5℃ Dipping Time: 2±0.5sec.
9	Resistance to Soldering Heat	Appearance : No visible damage. ΔC/C : ±15% D.F. : To meet the initial specification. I.R. : To meet the initial specification.	Solder Temperature : 260±5℃ Dipping Time : 2±0.5 seconds
10	Temperature Cycle	Appearance : No visible damage. ΔC/C : ±15% D.F. : To meet the initial specification. I.R. : To meet the initial specification.	Step / Temperature (℃) / (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. <Cycle> THC series : 5 cycles TMC series : 100 cycles
11	Humidity Load Life	Appearance : No abnormality. ΔC/C : ±20% D.F. : 7% maximum I.R. : 50/C_R(MΩ) or 1000(MΩ) whichever is less.	Temperature : 40±2℃ Humidity : 90 to 95%RH Voltage : Rated voltage Time : 500^{+24}_{0}hours
12	Endurance	Appearance : No abnormality. ΔC/C : ±20% D.F. : 7% maximum I.R. : 100/C_R(MΩ) or 1000(MΩ) whichever is less.	Temperature : 85±2℃ Voltage : 200% of rated voltage. Time : 1000^{+48}_{0}hours Temperature : 125±3℃ Voltage : Rated voltage Time : 1000^{+48}_{0}hours

*C_R : Rated Capacitance(μF)

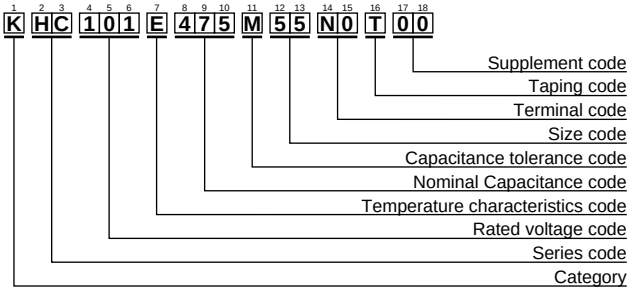
MULTILAYER CERAMIC CHIP CAPACITORS

THC Series

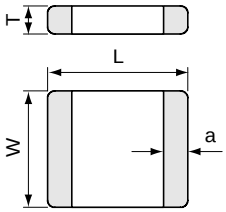
◆STANDARD RATINGS

Rated voltage (Vdc)	Rated Capacitance (μF)	Dimensions(mm)				Maximum ripple current (Arms)	Part Number	Previous Part Number (Just for your reference)
		L	W	Tmax.	a			
25	0.33	2.0±0.2	1.25±0.2	1.25	0.3±0.2	0.2	KHC250E334M21N0T00	THCS20E1E334MTF
	0.47						KHC250E474M21N0T00	THCS20E1E474MTF
	0.68						KHC250E684M21N0T00	THCS20E1E684MTF
	1.0	3.2±0.2	1.6±0.2	1.6	0.5±0.3	0.3	KHC250E105M31N0T00	THCS30E1E105MTF
	1.5						KHC250E155M31N0T00	THCS30E1E155MTF
	2.2						KHC250E225M31N0T00	THCS30E1E225MTF
	3.3	3.2±0.2	2.5±0.2	2.0	0.6±0.3	0.5	KHC250E335M32N0T00	THCS40E1E335MTF
	4.7						KHC250E475M32N0T00	THCS40E1E475MTF
	6.8	4.5±0.3	3.2±0.2	2.2	0.6±0.3	1.0	KHC250E685M43N0T00	THCS50E1E685MTF
	10						KHC250E106M43N0T00	THCS50E1E106MTF
	15			3.0			KHC250E156M43N0T00	THCS50E1E156MTF
	22	5.7±0.4	5.0±0.4	2.2	0.8±0.5	2.0	KHC250E226M55N0T00	THCS60E1E226MTF
	33			3.0			KHC250E336M55N0T00	THCS60E1E336MTF
	47	7.5±0.5	6.3±0.5	3.0	0.8±0.5	3.0	KHC250E476M76N0T00	THCS70E1E476MTF
50	0.1	2.0±0.2	1.25±0.2	1.25	0.3±0.2	0.2	KHC500E104M21N0T00	THCS20E1H104MTF
	0.15						KHC500E154M21N0T00	THCS20E1H154MTF
	0.22						KHC500E224M21N0T00	THCS20E1H224MTF
	0.33	3.2±0.2	1.6±0.2	1.6	0.5±0.3	0.3	KHC500E334M31N0T00	THCS30E1H334MTF
	0.47						KHC500E474M31N0T00	THCS30E1H474MTF
	0.68						KHC500E684M31N0T00	THCS30E1H684MTF
	1.0	3.2±0.2	2.5±0.2	2.0	0.6±0.3	0.5	KHC500E105M32N0T00	THCS40E1H105MTF
	1.5						KHC500E155M32N0T00	THCS40E1H155MTF
	2.2			2.5			KHC500E225M32N0T00	THCS40E1H225MTF
	3.3	4.5±0.3	3.2±0.2	2.2	0.6±0.3	1.0	KHC500E335M43N0T00	THCS50E1H335MTF
	4.7			3.0			KHC500E475M43N0T00	THCS50E1H475MTF
	6.8	5.7±0.4	5.0±0.4	2.2	0.8±0.5	2.0	KHC500E685M55N0T00	THCS60E1H685MTF
	10						KHC500E106M55N0T00	THCS60E1H106MTF
	15			3.0			KHC500E156M55N0T00	THCS60E1H156MTF
	22	7.5±0.5	6.3±0.5	2.5	0.8±0.5	3.0	KHC500E226M76N0T00	THCS70E1H226MTF
100	0.047	2.0±0.2	1.25±0.2	1.25	0.3±0.2	0.2	KHC101E473M21N0T00	THCS20E2A473MTF
	0.068						KHC101E683M21N0T00	THCS20E2A683MTF
	0.1	3.2±0.2	1.6±0.2	1.6	0.5±0.3	0.3	KHC101E104M31N0T00	THCS30E2A104MTF
	0.15						KHC101E154M31N0T00	THCS30E2A154MTF
	0.22						KHC101E224M31N0T00	THCS30E2A224MTF
	0.33	3.2±0.2	2.5±0.2	2.0	0.6±0.3	0.5	KHC101E334M32N0T00	THCS40E2A334MTF
	0.47						KHC101E474M32N0T00	THCS40E2A474MTF
	0.68			2.5			KHC101E684M32N0T00	THCS40E2A684MTF
	1.0	4.5±0.3	3.2±0.2	2.2	0.6±0.3	1.0	KHC101E105M43N0T00	THCS50E2A105MTF
	1.5						KHC101E155M43N0T00	THCS50E2A155MTF
	2.2			3.0			KHC101E225M43N0T00	THCS50E2A225MTF
	3.3	5.7±0.4	5.0±0.4	2.2	0.8±0.5	2.0	KHC101E335M55N0T00	THCS60E2A335MTF
	4.7			3.0			KHC101E475M55N0T00	THCS60E2A475MTF
	6.8	7.5±0.5	6.3±0.5	3.0	0.8±0.5	3.0	KHC101E685M76N0T00	THCS70E2A685MTF
200	0.047	3.2±0.2	1.6±0.2	1.6	0.5±0.3	0.3	KHC201E473M31N0T00	THCS30E2D473MTF
	0.068						KHC201E683M31N0T00	THCS30E2D683MTF
	0.1	3.2±0.2	2.5±0.2	2.0	0.6±0.3	0.5	KHC201E104M32N0T00	THCS40E2D104MTF
	0.15						KHC201E154M32N0T00	THCS40E2D154MTF
	0.22			2.5			KHC201E224M32N0T00	THCS40E2D224MTF
	0.33	4.5±0.3	3.2±0.2	2.2	0.6±0.3	1.0	KHC201E334M43N0T00	THCS50E2D334MTF
	0.47			3.0			KHC201E474M43N0T00	THCS50E2D474MTF
	0.68	5.7±0.4	5.0±0.4	2.2	0.8±0.5	2.0	KHC201E684M55N0T00	THCS60E2D684MTF
	1.0			3.0			KHC201E105M55N0T00	THCS60E2D105MTF
	1.5	7.5±0.5	6.3±0.5	2.5	0.8±0.5	3.0	KHC201E155M76N0T00	THCS70E2D155MTF
	2.2			3.0			KHC201E225M76N0T00	THCS70E2D225MTF

◆PART NUMBERING SYSTEM



◆DIMENSIONS



MULTILAYER CERAMIC CHIP CAPACITORS

TMC Series

◆STANDARD RATINGS

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

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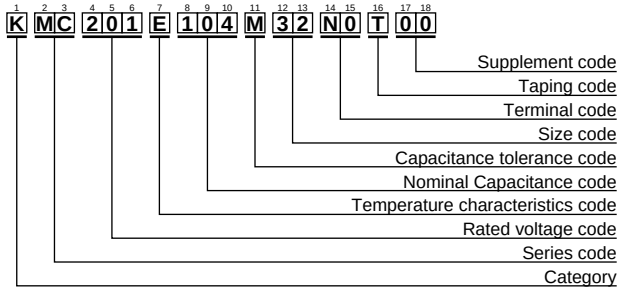

◆DIMENSIONS