

THC Series / TMC Series

(Down sized)

(High Reliability)

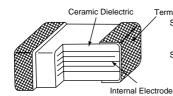
◆FEATURES

- 1. Small in size and wide capacitance range.
- 2. Temperature characteristic is Y5U in EIA code.
- 3. Superior humidity characteristic and long life.
- 4. Excellent high frequency characteristic due to low ESR.
- 5. High rated ripple current.

◆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



Termination
Solder or Tin Plating

(21, 31, 32, 43size : For flow or reflow soldering) (55, 76size : For reflow soldering only) Silver plating (THC Series only)

(All sizes : For reflow soldering only)

◆RATINGS

Category Temperature Range	-55 to +125℃
2. Rated Voltage Range	16, 25, 50, 100, 200Vdc
3. Rated Capacitance Range	0.047 to 100μF
4. Rated Capacitance Tolerance	M (±20%) , Z (± 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/CR(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°C Frequency : 1±0.1kHz Voltage : 1±0.2Vrms
4	Dissipation Factor	5.0% maximum.	Temperature : 20±2°C 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.





THC_{Series} / TMC_{Series}

♦SPECIFICATIONS

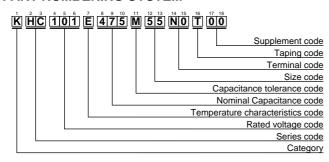
No.	PECIFICATIONS Items	Specification	Test Condition				
6	Adhesion	No visible damage.	Substrate Substrate 5N (0.51kgf) for 10±1 seconds Capacitor				
7	Bend strength of the face plating	Appearance : No visible damage. ΔC/C : ±15%	The substrate shall be bend by 1mm at a rate of 1mm/s for 5 seconds. Press Press ber Capacitor Substrate 1.0mm Support				
8	Solderability	Min. 75% of surface of the termination shall be covered with new solder	Solder Temperature : 235±5°C Dipping Time : 2±0.5 sec. Solder : Eutectic solder containning Ag2.5 to 3wt%				
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. Withstand voltage: No abnormality.	Solder Temperature : 260±5°C Dipping Time : 2±0.5 seconds Solder : Eutectic solder containning Ag2.5 to 3wt%				
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. Withstand voltage : No abnormality.	Step Temperature (°C) (min.) 1 Min. Category temperature ±3 30±3 2 Room temperature 3 max. 3 Max. Category temperature ±2 30±3 4 Room temperature 3 max. <cycle> THC series : 5 cycles TMC series : 100 cycles</cycle>				
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. Withstand voltage : No abnormality.	Temperature: 40±2°C Humidity: 90 to 95%RH Voltage: Rated voltage Time: 500±24 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. Withstand voltage : No abnormality.	Temperature: 85±2°C Voltage: 200% of rated voltage. Time: 1000±48/nours Temperature: 125±3°C Voltage: Rated voltage Time: 1000±48/nours				

*CR : Rated Capacitance(µF)





◆PART NUMBERING SYSTEM



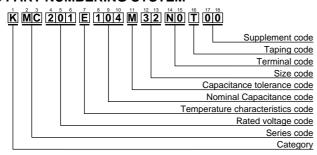
♦THC SERIES STANDARD RATINGS

5 (1)	Rated voltage	Rated Capacitance	Dimensions(mm)				Previous Part Number
Part Number	(Vdc)	(μ F)	L	w	Tmax.	а	(Just for your reference)
KHC160E335M31N0T00		3.3	2.2±0.2	4.6±0.0	4.6	0.5±0.2	THCS30E1C335MTF
KHC160E475M31N0T00		4.7	3.2±0.2	1.6±0.2	1.6	0.5±0.3	THCS30E1C475MTF
KHC160E685M32N0T00		6.8	2 2+0 2	2.5±0.2	2.0	0.6±0.3	THCS40E1C685MTF
KHC160E106M32N0T00		10	3.2±0.2	2.5±0.2	2.0	0.6±0.3	THCS40E1C106MTF
KHC160E156M43N0T00	16	15	4.5±0.3	3.2±0.2	2.2	0.6±0.3	THCS50E1C156MTF
KHC160E226M43N0T00		22	4.5±0.5	3.210.2	2.2	0.010.3	THCS50E1C226MTF
KHC160E336M55N0T00		33	5.7±0.3	5.0±0.4	2.2	0.8±0.3	THCS60E1C336MTF
KHC160E476M55N0T00		47	0.7 = 0.0	0.020.4		0.020.0	THCS60E1C476MTF
KHC160E686M76N0T00		68	7.5±0.5	6.3±0.5	2.5	0.8±0.5	THCS70E1C686MTF
KHC160E107M76N0T00		100	7.020.0	0.0=0.0	3.0	0.0=0.0	THCS70E1C107MTF
KHC250E334M21N0T00	4	0.33		1.25±0.2	1.25	0.3±0.2	THCS20E1E334MTF
KHC250E474M21N0T00	-	0.47	2.0±0.2				THCS20E1E474MTF
KHC250E684M21N0T00	-	0.68					THCS20E1E684MTF
KHC250E105M31N0T00	-	1.0	0.010.0	40100		0.5100	THCS30E1E105MTF
KHC250E155M31N0T00	-	1.5	3.2±0.2	1.6±0.2	1.6	0.5±0.3	THCS30E1E155MTF
KHC250E225M31N0T00	- 05	2.2					THCS30E1E225MTF
KHC250E335M32N0T00	25	3.3	3.2 ± 0.2	2.5±0.2	2.0	0.6±0.3	THCS40E1E335MTF
KHC250E475M32N0T00	1	4.7					THCS40E1E475MTF
KHC250E685M43N0T00		6.8	45100	00100	2.2	0.6±0.3	THCS50E1E685MTF
KHC250E106M43N0T00	-	10	4.5±0.3	3.2±0.2	3.0	0.6±0.3	THCS50E1E106MTF
KHC250E156M43N0T00	1	15					THCS50E1E156MTF
KHC250E226M55N0T00	-	22 33	5.7±0.4	5.0±0.4	3.0	0.8±0.5	THCS60E1E226MTF THCS60E1E336MTF
KHC250E336M55N0T00 KHC250E476M76N0T00	1	47	7.5±0.5	6.3±0.5	3.0	0.8±0.5	THCS00E1E336WTF
KHC500E104M21N0T00		0.1	7.5±0.5	6.3±0.5	3.0	0.610.5	THCS20E1H104MTF
KHC500E154M21N0T00	1	0.15	2.0±0.2	1.25±0.2	1.25	0.3±0.2	THCS20E1H154MTF
KHC500E134M21N0T00	1	0.13	2.010.2	1.23±0.2	1.25	0.5±0.2	THCS20E1H224MTF
KHC500E334M31N0T00		0.33					THCS30E1H334MTF
KHC500E474M31N0T00	1	0.33	3.2±0.2	1.6±0.2	1.6	0.5±0.3	THCS30E1H474MTF
KHC500E684M31N0T00		0.47 3.2±0.2 0.68	3.210.2	1.010.2	1.0	U.5±U.3	THCS30E1H684MTF
KHC500E105M32N0T00	1	1.0					THCS40E1H105MTF
KHC500E155M32N0T00	50		1.5 3.2±0.2 2.2	2.5±0.2	2.0	0.6±0.3	THCS40E1H155MTF
KHC500E135M32N0T00	50				2.5		THCS40E1H225MTF
KHC500E335M43N0T00	1	3.3			2.2		THCS50E1H335MTF
KHC500E475M43N0T00	1	4.7	4.5±0.3	3.2±0.2 5.0±0.4	3.0	0.6±0.3	THCS50E1H475MTF
KHC500E685M55N0T00	1	6.8				0.8±0.5	THCS60E1H685MTF
KHC500E106M55N0T00	1	10	5.7±0.4		2.2		THCS60E1H106MTF
KHC500E156M55N0T00	1	15	00		3.0		THCS60E1H156MTF
KHC500E226M76N0T00	1	22	7.5±0.5	6.3±0.5	2.5	0.8±0.5	THCS70E1H226MTF
KHC101E473M21N0T00		0.047	2.0±0.2	1.25±0.2	1.25	0.3±0.2	THCS20E2A473MTF
KHC101E683M21N0T00	1	0.068					THCS20E2A683MTF
KHC101E104M31N0T00	1	0.1	3.2±0.2		1.6	0.5±0.3	THCS30E2A104MTF
KHC101E154M31N0T00	1	0.15					THCS30E2A154MTF
KHC101E224M31N0T00	1	0.22					THCS30E2A224MTF
KHC101E334M32N0T00	1	0.33					THCS40E2A334MTF
KHC101E474M32N0T00	100	0.47			2.0		THCS40E2A474MTF
KHC101E684M32N0T00		0.68			2.5		THCS40E2A684MTF
KHC101E105M43N0T00]	1.0			2.2		THCS50E2A105MTF
KHC101E155M43N0T00]	1.5	4.5±0.3	3.2±0.2		0.6±0.3	THCS50E2A155MTF
KHC101E225M43N0T00		2.2			3.0		THCS50E2A225MTF
KHC101E335M55N0T00]	3.3	5.7±0.4	5.0±0.4	2.2	0.8±0.5	THCS60E2A335MTF
KHC101E475M55N0T00	1	4.7			3.0		THCS60E2A475MTF
KHC101E685M76N0T00		6.8	7.5±0.5	6.3±0.5	3.0	0.8±0.5	THCS70E2A685MTF
KHC201E473M31N0T00		0.047	3.2±0.2	1.6±0.2	1.6	0.5±0.3	THCS30E2D473MTF
KHC201E683M31N0T00	1	0.068	J.Z±U.Z	1.0±0.2	1.0	0.5±0.5	THCS30E2D683MTF
KHC201E104M32N0T00		0.1		2.5±0.2 3.2±0.2 5.0±0.4	2.0		THCS40E2D104MTF
KHC201E154M32N0T00	//32N0T00	0.15	3.2±0.2			0.6±0.3 2.5 2.2 0.6±0.3	THCS40E2D154MTF
KHC201E224M32N0T00	1	0.22			2.5		THCS40E2D224MTF
KHC201E334M43N0T00	200	0.33	45+03		2.2		THCS50E2D334MTF
KHC201E474M43N0T00		0.47	4.5±0.3		3.0	0.010.3	THCS50E2D474MTF
KHC201E684M55N0T00	1	0.68	5.7±0.4		2.2	0.8±0.5	THCS60E2D684MTF
KHC201E105M55N0T00	1	1.0	J.7±0.4	3.0±0.4	3.0	0.010.0	THCS60E2D105MTF
KHC201E155M76N0T00	1	1.5	7.5±0.5	6.3±0.5	2.5	0.8±0.5	THCS70E2D155MTF
KHC201E225M76N0T00	I	2.2	7.5±0.5	0.540.5	3.0	0.010.0	THCS70E2D225MTF





◆PART NUMBERING SYSTEM



◆TMC SERIES STANDARD RATINGS

Deat Newsber		Rated Capacitance	Dimensions(mm)				Previous Part Number
Part Number		(μ F)	L	w	Tmax.	a	(Just for your reference)
KMC250E684M31N0T00	25	0.68	3.2±0.2	1.6±0.2		0.4±0.2	TMCS30E1E684MTF
KMC250E105M31N0T00		1			1.6		TMCS30E1E105MTF
KMC250E155M31N0T00		1.5					TMCS30E1E155MTF
KMC250E225M32N0T00		2.2	3.2±0.2	2.5±0.2	2.2	0.5±0.2	TMCS40E1E225MTF
KMC250E335M32N0T00	25	3.3					TMCS40E1E335MTF
KMC250E475M43N0T00		4.7	4.5±0.3		2.5	0.5±0.3	TMCS50E1E475MTF
KMC250E685M43N0T00		6.8		3.2±0.2	2.5		TMCS50E1E685MTF
KMC250E106M43N0T00		10			3.0		TMCS50E1E106MTF
KMC500E334M31N0T00		0.33	3.2±0.2	1.6±0.2	1.6	0.4±0.2	TMCS30E1H334MTF
KMC500E474M31N0T00		0.47	J.Z±U.Z	1.0±0.2	1.0	0.410.2	TMCS30E1H474MTF
KMC500E684M32N0T00		0.68			2.2		TMCS40E1H684MTF
KMC500E105M32N0T00	50	1.0	3.2 ± 0.2	2.5±0.2		0.5±0.2	TMCS40E1H105MTF
KMC500E155M32N0T00	50	1.5			2.5		TMCS40E1H155MTF
KMC500E225M43N0T00		2.2	4.5±0.3	3.2±0.2	2.5 3.0	0.5±0.3	TMCS50E1H225MTF
KMC500E335M43N0T00		3.3					TMCS50E1H335MTF
KMC500E475M43N0T00		4.7					TMCS50E1H475MTF
KMC101E104M31N0T00		0.1	3.2±0.2 1.6±0.2	16403	1.6	0.4±0.2	TMCS30E2A104MTF
KMC101E154M31N0T00		0.15		1.0±0.2			TMCS30E2A154MTF
KMC101E224M32N0T00		0.22	3.2±0.2 2.5:		2.2	0.5±0.2	TMCS40E2A224MTF
KMC101E334M32N0T00	100	0.33		2.5±0.2			TMCS40E2A334MTF
KMC101E474M32N0T00	100	0.47					TMCS40E2A474MTF
KMC101E684M43N0T00		0.68	4.5±0.3 3.2±0.2		3.2±0.2	0.5±0.3	TMCS50E2A684MTF
KMC101E105M43N0T00		1.0		3.2±0.2			TMCS50E2A105MTF
KMC101E155M43N0T00		1.5			3.0		TMCS50E2A155MTF
KMC201E333M31N0T00		0.033	3.2±0.2	1.6±0.2	1.6	0.4±0.2	TMCS30E2D333MTF
KMC201E473M31N0T00	200	0.047	J.Z±U.Z	1.0±0.2			TMCS30E2D473MTF
KMC201E683M32N0T00		0.068		2.5±0.2	2.2		TMCS40E2D683MTF
KMC201E104M32N0T00		0.1	3.2±0.2			0.5±0.2	TMCS40E2D104MTF
KMC201E154M32N0T00		0.15			2.5		TMCS40E2D154MTF
KMC201E224M43N0T00		0.22	4.5±0.3	3.2±0.2	2.5	0.5±0.3	TMCS50E2D224MTF
KMC201E334M43N0T00		0.33					TMCS50E2D334MTF
KMC201E474M43N0T00		0.47			3.0		TMCS50E2D474MTF