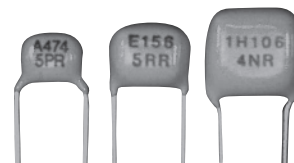


NTD Series



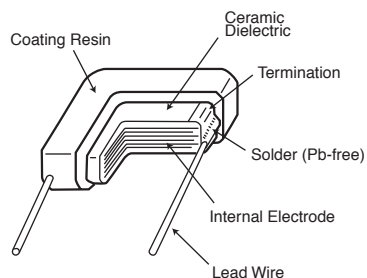
◆FEATURES

1. Small in size and wide capacitance range.
Max. 470μF is available.
2. Temperature characteristic is X7R in EIA code.
3. Superior humidity characteristic and long life.
4. Excellent high frequency characteristic due to low ESR.
5. High rated ripple current.
6. 250V_{dc} items are available.
7. Resin(UL94 V-0) used for coating.
8. Pb-free design(also ceramic dielectric)

◆APPLICATIONS

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

◆CONSTRUCTION



◆RATINGS

1. Category Temperature Range	-55 to +125°C
2. Rated Voltage Range	25, 35, 50, 100, 250, 500V _{dc}
3. Rated Capacitance Range	0.1 to 470μF
4. Rated Capacitance Tolerance	M(±20%)
5. Temperature Characteristics	X7R
6. Rated Ripple Current	See No.5 on the following table

◆SPECIFICATIONS

No.	Items		Specification	Test Condition		
1	Withstand Voltage	Between Terminals	No abnormality.	Rated voltage		Withstand voltage
		Terminals to Coating Resin		Less than 250V		250% of rated voltage
				More than 250V Less than 500V		100V + 150% of rated voltage
				More than 500V		130% of rated voltage
	Shall be applied for 5 seconds.					
2	Insulation Resistance		100/C _R (MΩ) or 4000(MΩ) whichever is less.	Rated voltage shall be applied for 60±5 seconds at temperature 25±2°C.		
3	Rated Capacitance		Within specified tolerance.		C _R ≤10μF	C _R >10μF
				Temperature	25±2°C	
4	Dissipation Factor		5.0% maximum.	Frequency	1±0.1kHz	120±12Hz
				Voltage	1±0.2Vrms	0.5±0.2Vrms

As customer requirement, Chemi-Con has submits the test results according to AEC-Q200 for Multilayer ceramic capacitors. Please contact us for more information.

◆SPECIFICATIONS

No.	Items		Specification	Test Condition															
5	Rated Ripple Current		See STANDARD RATINGS	10kHz to 1MHz (sine curve) Ripple voltage Vp shall be less than the rated voltage.															
6	Robustness of Terminations	Tension	No visible damage.	The force applied shall be :															
				<table><tr><td>Lead ϕ (mm)</td><td>Tensile(N)</td><td>(sec.)</td></tr><tr><td>0.5 max.</td><td>5</td><td>10± 1</td></tr><tr><td>0.6 min.</td><td>10</td><td>10± 1</td></tr></table>	Lead ϕ (mm)	Tensile(N)	(sec.)	0.5 max.	5	10± 1	0.6 min.	10	10± 1						
		Lead ϕ (mm)		Tensile(N)	(sec.)														
		0.5 max.		5	10± 1														
0.6 min.	10	10± 1																	
Bending	<table><tr><td>Lead ϕ (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 min.</td><td>5</td><td>0.51</td></tr></table>	Lead ϕ (mm)	Bending(N)	(kg)	0.5 max.	2.5	0.25	0.6 min.	5	0.51									
	Lead ϕ (mm)	Bending(N)	(kg)																
0.5 max.	2.5	0.25																	
0.6 min.	5	0.51																	
Time : 2times.																			
7	Vibration		Appearance : No abnormality. Capacitance : To meet the initial specification. D.F. : To meet the initial specification.	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><tr><td>Solder</td><td>Pb Free</td></tr><tr><td>Solder Temperature</td><td>245±5°C</td></tr><tr><td>Dipping Time</td><td>2±0.5sec.</td></tr></table>	Solder	Pb Free	Solder Temperature	245±5°C	Dipping Time	2±0.5sec.									
Solder	Pb Free																		
Solder Temperature	245±5°C																		
Dipping Time	2±0.5sec.																		
9	Resistance to Soldering Heat		Appearance : No abnormality. ΔC/C : ± 15% D.F. : To meet the initial specification. I.R. : To meet the initial specification.	Solder Temperature : 350±10°C Dipping Time : 3±0.5 sec. Depth : 1.5 to 2mm															
10	Temperature Cycle		Appearance : No abnormality. ΔC/C : ± 15% D.F. : To meet the initial specification. I.R. : To meet the initial specification.	<table><tr><td>Step</td><td>Temperature (°C)</td><td>(min.)</td></tr><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></table> For 5 cycles for above temperature cycle.	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. ΔC/C : ± 20% D.F. : 10% maximum I.R. : 25/CR(MΩ) or 1000(MΩ) whichever is less.	Temperature : 40±2°C Humidity : 90 to 95%RH Voltage : Rated voltage Time : 500± ²⁴ ₀ hours															
12	Endurance		Appearance : No abnormality. ΔC/C : ± 20% D.F. : 10% maximum I.R. : 50/CR(MΩ) or 1000(MΩ) whichever is less.	Temperature : 125±3°C Voltage : Rated voltage Time : 1000± ⁴⁸ ₀ hours															

* C_R : Rated Capacitance(μ F)



DIPPED RADIAL LEAD MULTILAYER CERAMIC CAPACITORS

NTDSeries

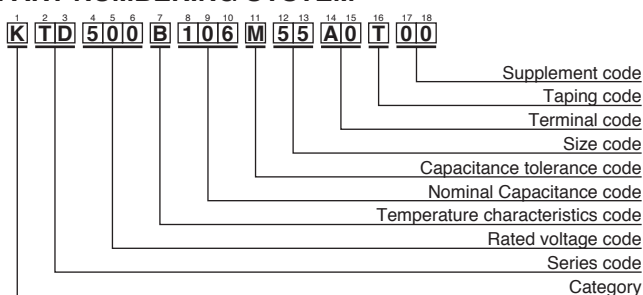
◆STANDARD RATINGS

Rated voltage (Vdc)	Rated Capacitance (μF)	Dimensions (mm)					Maximum ripple current (Arms)	Part Number	Taping Quantity per reel (pcs. / box)						
		Lmax.	Wmax.	Tmax.	F±0.8	φd±0.05									
25	3.3	5.0	6.0	3.5	5.0	0.5	0.3	KTD250B335M32A0T00	2,000						
	4.7							KTD250B475M32A0T00	2,000						
	6.8							KTD250B685M43A0T00	2,000						
	10	6.5	6.5	4.0	5.0	0.5	0.8	KTD250B106M43A0T00	2,000						
	15							KTD250B156M43A0T00	2,000						
	15							KTD250B156M55A0T00	2,000						
	22	7.5	9.0	4.5	5.0	0.5	1.0	KTD250B226M55A0T00	2,000						
	33							KTD250B336M55A0T00	2,000						
	47							10.0	11.5	5.5	5.0	0.5	1.5	KTD250B476M76A0T00	1,000
	68	13.5	15.0	6.0	10.0	0.6	2.0	KTD250B686M80A0B00	—						
	100			8.0				KTD250B107M80A0B00	—						
	150			6.0				KTD250B157M90A0B00	—						
	220	22.5	20.0	8.0	20.0	0.8	3.0	KTD250B227M90A0B00	—						
	330			8.0				KTD250B337M99A0B00	—						
	470			11.5				KTD250B477M99A0B00	—						
35	3.3	5.0	6.0	3.5	5.0	0.5	0.3	KTD350B335M32A0T00	2,000						
	4.7							KTD350B475M32A0T00	2,000						
	6.8							KTD350B685M43A0T00	2,000						
	10	6.5	6.5	4.0	5.0	0.5	0.8	KTD350B106M43A0T00	2,000						
	15							KTD350B156M55A0T00	2,000						
	22							KTD350B226M55A0T00	2,000						
	33	10.0	11.5	5.0	5.0	0.5	1.5	KTD350B336M76A0T00	1,000						
	47			5.5				KTD350B476M76A0T00	1,000						
50	1.0			5.0				6.0	3.5	5.0	0.5	0.3	KTD500B105M32A0T00	2,000	
	1.5	KTD500B155M32A0T00	2,000												
	2.2	KTD500B225M32A0T00	2,000												
	3.3	KTD500B335M32A0T00	2,000												
	4.7	6.5	6.5	4.0	5.0	0.5	0.8	KTD500B475M43A0T00	2,000						
	6.8							KTD500B685M43A0T00	2,000						
	10							KTD500B106M55A0T00	2,000						
	15	7.5	9.0	4.5	5.0	0.5	1.0	KTD500B156M55A0T00	2,000						
	22							10.0	11.5	5.0	5.0	0.5	1.5	KTD500B226M76A0T00	1,000
	33							13.5	15.0	5.5	10.0	0.6	2.0	KTD500B336M80A0B00	—
	47	22.5	20.0	6.0	20.0	0.8	3.0	KTD500B476M90A0B00	—						
	68			KTD500B686M90A0B00				—							
	100			7.0				KTD500B107M90A0B00	—						
	150			7.5				KTD500B157M99A0B00	—						
	220	28.5	20.0	10.0	25.0	0.8	4.0	KTD500B227M99A0B00	—						
100	0.33			5.0				6.0	3.5	5.0	0.5	0.3	KTD101B334M32A0T00	2,000	
	0.47	KTD101B474M32A0T00	2,000												
	0.68	KTD101B684M32A0T00	2,000												
	1.0	KTD101B105M32A0T00	2,000												
	1.5	KTD101B155M32A0T00	2,000												
	2.2	KTD101B225M32A0T00	2,000												
	1.5	6.5	6.5	4.0	5.0	0.5	0.8	KTD101B155M43A0T00	2,000						
	2.2							KTD101B225M43A0T00	2,000						
	3.3							KTD101B335M43A0T00	2,000						
	4.7							KTD101B475M43A0T00	2,000						
	3.3							7.5	9.0	4.5	5.0	0.5	1.0	KTD101B335M55A0T00	2,000
	4.7									KTD101B475M55A0T00				2,000	
	6.8	4.7	KTD101B685M55A0T00	2,000											
	6.8	10.0	11.5	5.0	5.0	0.5	1.5			KTD101B685M76A0T00				1,000	
	10	13.5	15.0	5.0	10.0	0.6	2.0	KTD101B106M80A0B00	—						
15	6.0			KTD101B156M80A0B00				—							
22	22.5			20.0				6.0	20.0	0.8	3.0	KTD101B226M90A0B00	—		
33		KTD101B336M90A0B00	—												
47		7.5	KTD101B476M99A0B00		—										
68		28.5	20.0		9.0	25.0	0.8	4.0				KTD101B686M99A0B00	—		
100	9.0			KTD101B107M99A0B00	—										

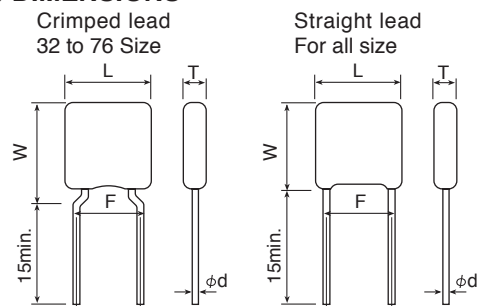
250	0.1	5.0	6.0	3.5	5.0	0.5	0.3	KTD251B104M32A0T00	2,000
	0.15							KTD251B154M32A0T00	2,000
	0.22							KTD251B224M32A0T00	2,000
	0.33							KTD251B334M32A0T00	2,000
	0.47	6.5	6.5	4.0	5.0	0.5	0.8	KTD251B474M43A0T00	2,000
	0.68							KTD251B684M43A0T00	2,000
	1.0							KTD251B105M55A0T00	2,000
	1.5							KTD251B155M55A0T00	2,000
	2.2	10.0	11.5	6.0	5.0	0.5	1.5	KTD251B225M76A0T00	1,000
	2.2	13.5	15.0	5.0	10.0	0.6	2.0	KTD251B225M80A0B00	—
	3.3	22.5	20.0	6.0	20.0	0.8	3.0	KTD251B335M90A0B00	—
	4.7							KTD251B475M90A0B00	—
	6.8							KTD251B685M99A0B00	—
	10							KTD251B106M99A0B00	—
	15	28.5	20.0	7.5	25.0	0.8	4.0	KTD251B156M99A0B00	—
500	0.47	7.5	9.0	3.5	5.0	0.5	0.8	KTD501B474M55A0T00	2,000
	0.56							KTD501B564M55A0T00	2,000
	0.68	10.0	11.5	3.4	5.0	0.5	1.0	KTD501B684M76A0T00	1,500
	1.0			3.8				KTD501B105M76A0T00	1,500
	1.2			4.2				KTD501B125M76A0T00	1,500

※Please consult with us when you consider the rating other than a standard table.

◆PART NUMBERING SYSTEM



◆DIMENSIONS



Please refer to "Part Numbering System" of the beginning of a catalog for the details.