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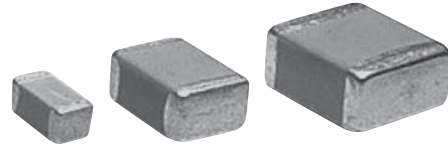
NTS Series / NTF Series



Temperature cycle : 1000 cycles

◆FEATURES

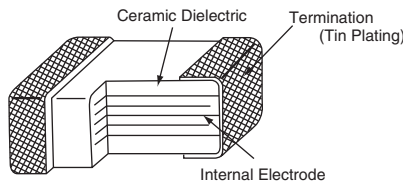
1. Large capacitance by small size.
2. Excellent noise absorption.
3. High permissible ripple current capability.
4. NTF: Temperature cycle : 1000 cycles.



◆APPLICATIONS

1. Smoothing circuit of DC-DC converters.
2. On-board power supplies.
3. Voltage regulators for computers.
3. Noise suppressor for various kinds of equipments.
4. High reliability equipments.

◆CONSTRUCTION



◆RATINGS

1. Category Temperature Range	-55 to +125°C
2. Rated Voltage Range	25, 50, 100, 250V _{dc}
3. Rated Capacitance Range	0.033 to 33μF
4. Rated Capacitance Tolerance	M (±20%) : Standard, K (±10%)
5. Temperature Characteristics	X7R
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. (Only 250V _{dc} product : 475V)												
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.	<table border="1"> <tr> <td></td> <td>C_R≤10μF</td> <td>C_R>10μF</td> </tr> <tr> <td>Temperature</td> <td colspan="2">25±2°C</td> </tr> <tr> <td>Frequency</td> <td>1±0.1kHz</td> <td>120±12Hz</td> </tr> <tr> <td>Voltage</td> <td>1±0.2V_{rms}</td> <td>0.5±0.2V_{rms}</td> </tr> </table>		C _R ≤10μF	C _R >10μF	Temperature	25±2°C		Frequency	1±0.1kHz	120±12Hz	Voltage	1±0.2V _{rms}	0.5±0.2V _{rms}
	C _R ≤10μF	C _R >10μF													
Temperature	25±2°C														
Frequency	1±0.1kHz	120±12Hz													
Voltage	1±0.2V _{rms}	0.5±0.2V _{rms}													
4	Dissipation Factor	5.0% maximum.	<table border="1"> <tr> <td>Frequency</td> <td>1±0.1kHz</td> <td>120±12Hz</td> </tr> <tr> <td>Voltage</td> <td>1±0.2V_{rms}</td> <td>0.5±0.2V_{rms}</td> </tr> </table>	Frequency	1±0.1kHz	120±12Hz	Voltage	1±0.2V _{rms}	0.5±0.2V _{rms}						
Frequency	1±0.1kHz	120±12Hz													
Voltage	1±0.2V _{rms}	0.5±0.2V _{rms}													
5	Rated Ripple Current	<table border="1"> <tr> <td>Size code</td> <td>31</td> <td>32</td> <td>43</td> <td>55</td> </tr> <tr> <td>Arms</td> <td>0.3</td> <td>0.5</td> <td>1.0</td> <td>2.0</td> </tr> </table>	Size code	31	32	43	55	Arms	0.3	0.5	1.0	2.0	10kHz~1MHz (sine curve) Ripple voltage V _p shall be less than the rated voltage.		
Size code	31	32	43	55											
Arms	0.3	0.5	1.0	2.0											

NTS Series / NTF Series

◆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 at a rate of 1mm/s for 5 seconds.</p> <p>Press Press bar Capacitor Substrate Support Bending capability*</p> <p>*Bending capability NTS : 1mm NTF : 1mm or 2mm</p>															
8	Solderability	Min. 75% of surface of the termination shall be covered with new solder	<table border="1"> <thead> <tr> <th>Solder</th> <th>Pb Free</th> <th>Eutectic</th> </tr> </thead> <tbody> <tr> <td>Solder Temperature</td> <td>245±5°C</td> <td>235±5°C</td> </tr> <tr> <td>Dipping Time</td> <td colspan="2">2±0.5sec.</td> </tr> </tbody> </table>	Solder	Pb Free	Eutectic	Solder Temperature	245±5°C	235±5°C	Dipping Time	2±0.5sec.							
Solder	Pb Free	Eutectic																
Solder Temperature	245±5°C	235±5°C																
Dipping Time	2±0.5sec.																	
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</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>For above temperature cycle. NTS : For 5 cycles NTF : For 1000 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. $\Delta C/C : \pm 15\%$ D.F. : 10% maximum I.R. : 25/C _R (MΩ) or 1000(MΩ) whichever is less.	<p>Temperature : 40±2°C Humidity : 90 to 95%RH Voltage : Rated voltage Time : 500±²⁴₀hours</p>															
12	Endurance	Appearance : No abnormality. $\Delta C/C : \pm 15\%$ D.F. : 10% maximum I.R. : 50/C _R (MΩ) or 1000(MΩ) whichever is less.	<p>Temperature : 125±3°C Voltage : Rated voltage Time : 1000±⁴⁸₀hours</p>															

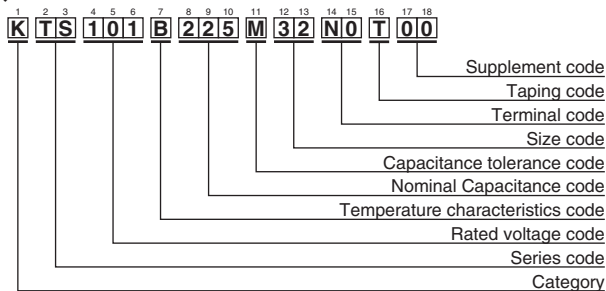
*C_R : Rated Capacitance(μF)

◆STANDARD RATINGS

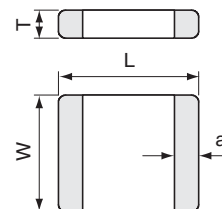
Rated voltage (Vdc)	Rated Capacitance (μF)	Dimensions(mm)				Maximum ripple current (Arms)	Part Number	Previous Part Number (Just for your reference)	
		L	W	Tmax.	a				
25	1.0	3.2±0.2	1.6±0.2	1.8	0.5±0.3	0.3	KTS250B105M31N0T00	NTS30X7R1E105MT	
	1.5						KTS250B155M31N0T00	NTS30X7R1E155MT	
	2.2						KTS250B225M31N0T00	NTS30X7R1E225MT	
	3.3	3.2±0.4	2.5±0.3	2.6	0.6±0.3	0.5	KTS250B335M32N0T00	NTS40X7R1E335MT	
	4.7						KTS250B475M32N0T00	NTS40X7R1E475MT	
	6.8						KTS250B685M32N0T00	NTS40X7R1E685MT	
	10						KTS250B106M43N0T00	NTS50X7R1E106MT	
	15	4.5±0.4	3.2±0.4	2.8	0.6±0.3	1.0	KTS250B156M43N0T00	NTS50X7R1E156MT	
	22						KTS250B226M55N0T00	NTS60X7R1E226MT	
	33						KTS250B336M55N0T00	NTS60X7R1E336MT	
50	0.33	3.2±0.2	1.6±0.2	1.8	0.5±0.3	0.3	KTS500B334M31N0T00	NTS30X7R1H334MT	
	0.47						KTS500B474M31N0T00	NTS30X7R1H474MT	
	0.68						KTS500B684M31N0T00	NTS30X7R1H684MT	
	1.0						KTS500B105M31N0T00	NTS30X7R1H105MT	
	1.5						KTS500B155M32N0T00	NTS40X7R1H155MT	
	2.2	3.2±0.4	2.5±0.3	2.6	0.6±0.3	0.5	KTS500B225M32N0T00	NTS40X7R1H225MT	
	3.3						KTS500B335M32N0T00	NTS40X7R1H335MT	
	4.7						KTS500B475M43N0T00	NTS50X7R1H475MT	
	6.8	4.5±0.4	3.2±0.4	2.8	0.6±0.3	1.0	KTS500B685M43N0T00	NTS50X7R1H685MT	
	10						KTS500B106M55N0T00	NTS60X7R1H106MT	
	15						KTS500B156M55N0T00	NTS60X7R1H156MT	
	100	0.1	3.2±0.2	1.6±0.2	1.8	0.5±0.3	0.3	KTS101B104M31N0T00	NTS30X7R2A104MT
		0.15						KTS101B154M31N0T00	NTS30X7R2A154MT
		0.22						KTS101B224M31N0T00	NTS30X7R2A224MT
		0.33						KTS101B334M31N0T00	NTS30X7R2A334MT
0.47		KTS101B474M31N0T00						NTS30X7R2A474MT	
0.68		KTS101B684M31N0T00						NTS30X7R2A684MT	
1.0		KTS101B105M32N0T00						NTS40X7R2A105MT	
1.5		3.2±0.4	2.5±0.3	2.6	0.6±0.3	0.5	KTS101B155M32N0T00	NTS40X7R2A155MT	
2.2							KTS101B225M32N0T00	NTS40X7R2A225MT	
3.3							KTS101B335M32N0T00	NTS40X7R2A335MT	
4.7		4.5±0.4	3.2±0.4	2.8	0.6±0.3	1.0	KTS101B475M43N0T00	NTS50X7R2A475MT	
6.8							KTS101B685M43N0T00	NTS50X7R2A685MT	
10			3.2±0.5	3.2	0.8±0.5		2.0	KTS101B156M55N0T00	NTS60X7R1H156MT
15								KTS101B226M55N0T00	NTS60X7R1H226MT
250		0.033	3.2±0.2	1.6±0.2	1.8	0.5±0.3	0.3	KTS251B333M31N0T00	NTS30X7R2E333MT
		0.047						KTS251B473M31N0T00	NTS30X7R2E473MT
		0.068						KTS251B683M31N0T00	NTS30X7R2E683MT
		0.1	3.2±0.4	2.5±0.3	2.6	0.6±0.3	0.5	KTS251B104M31N0T00	NTS30X7R2E104MT
		0.15						KTS251B154M32N0T00	NTS40X7R2E154MT
		0.22						KTS251B224M32N0T00	NTS40X7R2E224MT
	0.33	KTS251B334M32N0T00						NTS40X7R2E334MT	
	0.47	4.5±0.4	3.2±0.4	2.8	0.6±0.3	1.0	KTS251B474M43N0T00	NTS50X7R2E474MT	
	0.68						KTS251B684M43N0T00	NTS50X7R2E684MT	
	1.0						KTS251B105M55N0T00	NTS60X7R2E105MT	
1.5	5.7±0.4	5.0±0.4	2.8	0.8±0.5	2.0	KTS251B155M55N0T00	NTS60X7R2E155MT		

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

◆PART NUMBERING SYSTEM



◆DIMENSIONS



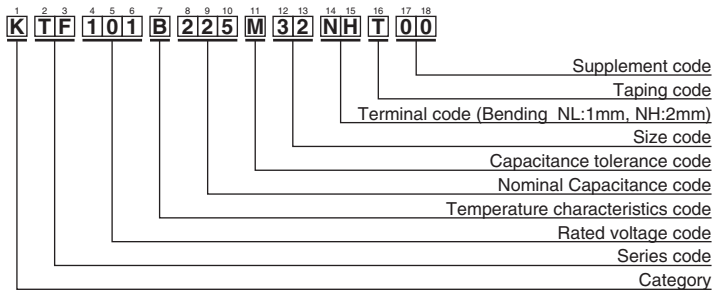
Please refer to "Part Numbering System" of the beginning of a catalog for the details.

◆STANDARD RATINGS

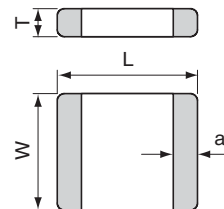
Rated voltage (Vdc)	Rated Capacitance (μF)	Dimensions(mm)				Maximum ripple current (Arms)	Part Number					
		L	W	Tmax.	a							
25	1.0	3.2±0.3	1.6±0.2	1.8	0.7±0.2	0.3	KTF250B105M31NLT00					
	1.5						KTF250B155M31NLT00					
	2.2						KTF250B225M31NLT00					
	3.3	3.2±0.4	2.5±0.3	2.6	0.7±0.2	0.5	KTF250B335M32NHT00					
	4.7						KTF250B475M32NHT00					
	6.8						KTF250B685M32NHT00					
	10						KTF250B106M43NHT00					
	15	4.5±0.4	3.2±0.4	2.8	0.7±0.2	1.0	KTF250B156M43NHT00					
	22						KTF250B226M55NHT00					
	33						KTF250B336M55NHT00					
50	0.33	3.2±0.3	1.6±0.2	1.8	0.7±0.2	0.3	KTF500B334M31NLT00					
	0.47						KTF500B474M31NLT00					
	0.68						KTF500B684M31NLT00					
	1.0						KTF500B105M31NLT00					
	1.5						KTF500B155M32NHT00					
	2.2	3.2±0.4	2.5±0.3	2.6	0.7±0.2	0.5	KTF500B225M32NHT00					
	3.3						KTF500B335M32NHT00					
	4.7						KTF500B475M43NHT00					
	6.8	4.5±0.4	3.2±0.4	2.8	0.7±0.2	1.0	KTF500B685M43NHT00					
	10						KTF500B106M55NHT00					
	15	5.7±0.4	5.0±0.4	2.8	1.0±0.4	2.0	KTF500B156M55NHT00					
	0.1						3.2±0.3	1.6±0.2	1.8	0.7±0.2	0.3	KTF101B104M31NLT00
	0.15											KTF101B154M31NLT00
	0.22	KTF101B224M31NLT00										
	0.33	KTF101B334M31NLT00										
0.47	KTF101B474M31NLT00											
0.68	KTF101B684M31NLT00											
1.0	3.2±0.4	2.5±0.3	2.6	0.7±0.2	0.5	KTF101B105M32NHT00						
1.5						KTF101B155M32NHT00						
2.2						KTF101B225M32NHT00						
3.3	4.5±0.4	3.2±0.4	2.8	0.7±0.2	1.0	KTF101B155M43NHT00						
4.7						KTF101B225M43NHT00						
6.8						KTF101B335M43JHT00						
0.1	4.5±0.4	3.2±0.5	3.2	0.7±0.2	1.0	KTF101B475M43EHT00						
0.15						KTF101B684M31NLT00						
0.22						KTF101B105M32NHT00						
0.33	5.7±0.4	5.0±0.4	2.8	1.0±0.4	2.0	KTF101B475M55NHT00						
0.47						KTF101B685M55FHT00						
0.68						KTF101B106M55NHT00						
1.0	3.2±0.3	1.6±0.2	1.8	0.7±0.2	0.3	KTF251B333M31NLT00						
1.5						KTF251B473M31NLT00						
0.033						KTF251B683M31NLT00						
0.047						KTF251B104M31NLT00						
0.068						KTF251B154M32NLT00						
0.1						KTF251B224M32NLT00						
0.15						KTF251B334M32NLT00						
0.22						KTF251B474M43NLT00						
0.33						KTF251B684M43NLT00						
0.47						KTF251B105M55NLT00						
0.68						KTF251B155M55NLT00						
1.0						KTF251B334M32NLT00						
1.5						KTF251B474M43NLT00						
0.033						KTF251B683M31NLT00						
0.047						KTF251B104M31NLT00						
0.068	KTF251B154M32NLT00											
0.1	KTF251B224M32NLT00											
0.15	KTF251B334M32NLT00											
0.22	KTF251B474M43NLT00											
0.33	KTF251B684M43NLT00											
0.47	KTF251B105M55NLT00											
0.68	KTF251B155M55NLT00											
1.0	KTF251B334M32NLT00											
1.5	KTF251B474M43NLT00											

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