

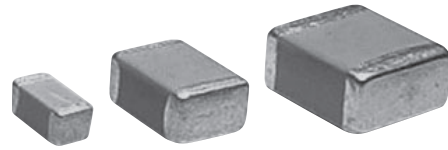
## NTS Series / NTF Series



Temperature cycle : 1000 cycles

### ◆FEATURES

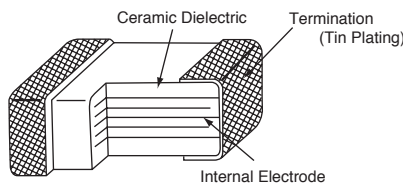
1. Large capacitance by small size.
2. Excellent noise absorption.
3. High permissible ripple current capability.
4. NTF: Temperature cycle : 1000 cycles.



### ◆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, 250, 500V <sub>dc</sub>
3. Rated Capacitance Range	0.010 to 47μF
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.	Rated voltage	Withstand voltage	
			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 <sub>R</sub> (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 <sub>R</sub> ≤10μF	C <sub>R</sub> >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
			10kHz~1MHz (sine curve) Ripple voltage V <sub>p</sub> shall be less than the rated voltage.		
5	Rated Ripple Current	See STANDARD RATINGS			

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

## NTS Series / NTF Series

### ◆SPECIFICATIONS

No.	Items	Specification	Test Condition															
6	Adhesion	No visible damage.	<p>Substrate</p> <p>5N (0.51kgf) for 10±1 seconds</p> <p>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</p> <p>Press bar</p> <p>Capacitor</p> <p>Substrate</p> <p>Bending capability*</p> <p>Support</p> <p>45±2mm 45±2mm</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> </tr> </thead> <tbody> <tr> <td>Solder Temperature</td> <td>245±5°C</td> </tr> <tr> <td>Dipping Time</td> <td>2±0.5sec.</td> </tr> </tbody> </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 visible damage. $\Delta C/C : \pm 15\%$ D.F. : To meet the initial specification. I.R. : To meet the initial specification.	<p>Preheating Condition :</p> <table border="1"> <thead> <tr> <th>Step</th> <th>Temperature</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>100±10°C</td> <td>2min.</td> </tr> <tr> <td>2</td> <td>200±10°C</td> <td>2min.</td> </tr> </tbody> </table> <p>Solder Temperature : 260±5°C Dipping Time : 2±0.5 seconds</p>	Step	Temperature	Time	1	100±10°C	2min.	2	200±10°C	2min.						
Step	Temperature	Time																
1	100±10°C	2min.																
2	200±10°C	2min.																
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 <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. $\Delta C/C : \pm 15\%$ D.F. : 10% maximum I.R. : 50/C <sub>R</sub> (MΩ) or 1000(MΩ) whichever is less.	<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)



# MULTILAYER CERAMIC CHIP CAPACITORS

**NTS** Series

## ◆STANDARD RATINGS

Rated voltage (Vdc)	Rated Capacitance (μF)	Dimensions(mm)				Maximum ripple current (Arms)	Part Number	Taping Quantity per reel (pcs. / reel)
		L	W	Tmax.	a			
25	1.0	3.2±0.2	1.6±0.2	1.8	0.5±0.3	0.3	KTS250B105M31N0T00	3,000
	1.5						KTS250B155M31N0T00	3,000
	2.2						KTS250B225M31N0T00	3,000
	3.3	3.2±0.4	2.5±0.3	2.6	0.6±0.3	0.5	KTS250B335M32N0T00	1,600
	4.7						KTS250B475M32N0T00	1,600
	6.8						KTS250B685M32N0T00	1,600
	10	4.5±0.4	3.2±0.4	2.8	0.6±0.3	1.0	KTS250B106M43N0T00	800
	15						KTS250B156M43N0T00	800
	22						5.7±0.4	5.0±0.4
	33	3.0	KTS250B336M55N0T00	800				
47	4.0	1.0±0.5	3.0	KTS250B476M76N0T00	300			
50	0.33	3.2±0.2	1.6±0.2	1.8	0.5±0.3	0.3	KTS500B334M31N0T00	3,000
	0.47						KTS500B474M31N0T00	3,000
	0.68						KTS500B684M31N0T00	3,000
	1.0	3.2±0.4	2.5±0.3	2.6	0.6±0.3	0.5	KTS500B105M31N0T00	3,000
	1.5						KTS500B155M32N0T00	1,600
	2.2						KTS500B225M32N0T00	1,600
	3.3	4.5±0.4	3.2±0.4	2.8	0.6±0.3	1.0	KTS500B335M32N0T00	1,600
	4.7						KTS500B475M43N0T00	800
	6.8						KTS500B685M43N0T00	800
	10	5.7±0.4	5.0±0.4	2.8	0.8±0.5	2.0	KTS500B106M55N0T00	800
	15						KTS500B156M55N0T00	800
	22						7.5±0.5	6.3±0.5
100	0.1	3.2±0.2	1.6±0.2	1.8	0.5±0.3	0.3	KTS101B104M31N0T00	3,000
	0.15						KTS101B154M31N0T00	3,000
	0.22						KTS101B224M31N0T00	3,000
	0.33						KTS101B334M31N0T00	3,000
	0.47						KTS101B474M31N0T00	3,000
	0.68						KTS101B684M31N0T00	3,000
	1.0	3.2±0.4	2.5±0.3	2.6	0.6±0.3	0.5	KTS101B105M32N0T00	1,600
	1.5						KTS101B155M32N0T00	1,600
	2.2						KTS101B225M32N0T00	1,600
	1.5	4.5±0.4	3.2±0.4	2.8	0.6±0.3	1.0	KTS101B155M43N0T00	800
	2.2						KTS101B225M43N0T00	800
	3.3						3.2±0.5	3.2
	4.7	KTS101B475M43E0T00	800					
	3.3	KTS101B335M55N0T00	800					
	4.7	5.7±0.4	5.0±0.4	2.8	0.8±0.5	2.0	KTS101B475M55N0T00	800
	6.8						KTS101B685M55F0T00	800
	6.8						7.5±0.5	6.3±0.5

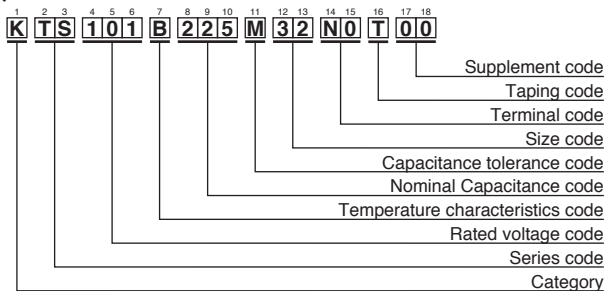
※Please consult with us when you consider the rating other than a standard table.

### ◆STANDARD RATINGS

Rated voltage (Vdc)	Rated Capacitance (μF)	Dimensions(mm)				Maximum ripple current (Arms)	Part Number	Taping Quantity per reel (pcs. / reel)
		L	W	Tmax.	a			
250	0.01	3.2±0.2	1.6±0.2	1.8	0.5±0.3	0.3	KTS251B103M31N0T00	3,000
	0.022						KTS251B223M31N0T00	3,000
	0.033						KTS251B333M31N0T00	3,000
	0.047						KTS251B473M31N0T00	3,000
	0.068						KTS251B683M31N0T00	3,000
	0.1	KTS251B104M31N0T00	3,000					
	0.15	3.2±0.4	2.5±0.3	2.6	0.6±0.3	0.5	KTS251B154M32N0T00	1,600
	0.22						KTS251B224M32N0T00	1,600
	0.33						KTS251B334M32N0T00	1,600
	0.47	4.5±0.4	3.2±0.4	2.8	0.6±0.3	1.0	KTS251B474M43N0T00	800
	0.68						KTS251B684M43N0T00	800
	1.0	5.7±0.4	5.0±0.4	2.8	0.8±0.5	2.0	KTS251B105M55N0T00	800
	1.5						KTS251B155M55N0T00	800
	1.5	7.5±0.5	6.3±0.5	3.5	1.0±0.5	3.0	KTS251B155M76N0T00	300
	2.2			5.0			KTS251B225M76N0T00	300
500	0.47	5.7±0.4	5.0±0.4	2.7	0.8±0.5	1.5	KTS501B474M55N0T00	800
	0.56			3.0			KTS501B564M55N0T00	800
	0.68	7.5±0.5	6.3±0.5	2.5	1.0±0.5	2.0	KTS501B684M76N0T00	500
	1.0			3.2			KTS501B105M76N0T00	300
				3.5				
	1.2						KTS501B125M76N0T00	300

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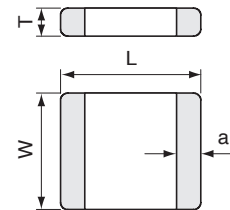
### ◆PART NUMBERING SYSTEM



### ◆DIMENSIONS

Size Code

Size Code	Code	
	JIS	EIA
31	3216	1206
32	3225	1210
43	4532	1812
55	5750	2220
76	7563	3025



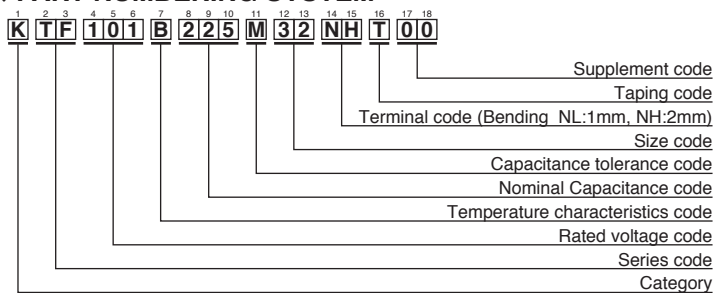
Please refer to "Part Numbering System" of the beginning of a catalog for the details.

### ◆STANDARD RATINGS

Rated voltage (Vdc)	Rated Capacitance (μF)	Dimensions(mm)				Maximum ripple current (Arms)	Part Number	Taping Quantity per reel (pcs. / reel)					
		L	W	Tmax.	a								
25	1.0	3.2±0.3	1.6±0.2	1.8	0.7±0.2	0.3	KTF250B105M31NLT00	3,000					
	1.5						KTF250B155M31NLT00	3,000					
	2.2						KTF250B225M31NLT00	3,000					
	3.3						KTF250B335M32NHT00	1,600					
	4.7	3.2±0.4	2.5±0.3	2.6	0.7±0.2	0.5	KTF250B475M32NHT00	1,600					
	6.8						KTF250B685M32NHT00	1,600					
	10						KTF250B106M43NHT00	800					
	15	4.5±0.4	3.2±0.4	2.8	0.7±0.2	1.0	KTF250B156M43NHT00	800					
	22						KTF250B226M55NHT00	800					
	33						5.7±0.4	5.0±0.4	2.8	1.0±0.4	2.0	KTF250B336M55NHT00	800
3.0													
50	0.33	3.2±0.3	1.6±0.2	1.8	0.7±0.2	0.3	KTF500B334M31NLT00	3,000					
	0.47						KTF500B474M31NLT00	3,000					
	0.68						KTF500B684M31NLT00	3,000					
	1.0						KTF500B105M31NLT00	3,000					
	1.5						KTF500B155M32NHT00	1,600					
	2.2	3.2±0.4	2.5±0.3	2.6	0.7±0.2	0.5	KTF500B225M32NHT00	1,600					
	3.3						KTF500B335M32NHT00	1,600					
	4.7						KTF500B475M43NHT00	800					
	6.8	4.5±0.4	3.2±0.4	2.8	0.7±0.2	1.0	KTF500B685M43NHT00	800					
	10						KTF500B106M55NHT00	800					
	15						5.7±0.4	5.0±0.4	2.8	1.0±0.4	2.0	KTF500B156M55NHT00	800
									3.2				
	100	0.1	3.2±0.3	1.6±0.2	1.8	0.7±0.2	0.3	KTF101B104M31NLT00	3,000				
0.15		KTF101B154M31NLT00						3,000					
0.22		KTF101B224M31NLT00						3,000					
0.33		KTF101B334M31NLT00						3,000					
0.47		KTF101B474M31NLT00						3,000					
0.68		KTF101B684M31NLT00						3,000					
1.0		3.2±0.4	2.5±0.3	2.6	0.7±0.2	0.5	KTF101B105M32NHT00	1,600					
1.5							KTF101B155M32NHT00	1,600					
2.2							KTF101B225M32NHT00	1,600					
1.5							KTF101B155M43NHT00	800					
2.2		4.5±0.4	3.2±0.4	2.8	0.7±0.2	1.0	KTF101B225M43NHT00	800					
3.3							KTF101B335M43JHT00	800					
4.7							KTF101B475M43EHT00	800					
4.7		5.7±0.4	5.0±0.4	2.8	1.0±0.4	2.0	KTF101B475M55NHT00	800					
6.8				3.2			KTF101B685M55FHT00	800					
250				0.033			3.2±0.3	1.6±0.2	1.8	0.7±0.2	0.3	KTF251B333M31NLT00	3,000
	0.047			KTF251B473M31NLT00								3,000	
	0.068	KTF251B683M31NLT00	3,000										
	0.1	KTF251B104M31NLT00	3,000										
	0.15	3.2±0.4	2.5±0.3	2.6	0.7±0.2	0.5	KTF251B154M32NLT00	1,600					
	0.22						KTF251B224M32NLT00	1,600					
	0.33						KTF251B334M32NLT00	1,600					
	0.47	4.5±0.4	3.2±0.4	2.8	0.7±0.2	1.0	KTF251B474M43NLT00	800					
	0.68						KTF251B684M43NLT00	800					
	1.0						KTF251B105M55NLT00	800					
1.5	KTF251B155M55NLT00						800						
500	0.47	5.7±0.4	5.0±0.4	2.7	1.0±0.4	1.5	KTF501B474M55NLT00	800					
	0.56			3.0			KTF501B564M55NLT00	800					

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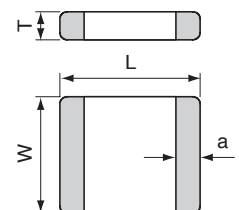
### ◆PART NUMBERING SYSTEM



Size Code

Size Code	Code	
	JIS	EIA
31	3216	1206
32	3225	1210
43	4532	1812
55	5750	2220
76	7563	3025

### ◆DIMENSIONS



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