

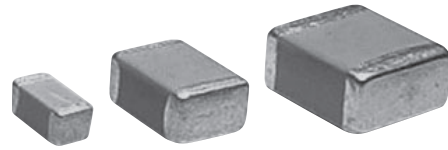
## NTS Series / NTF Series



Temperature cycle : 1000 cycles

### ◆FEATURES

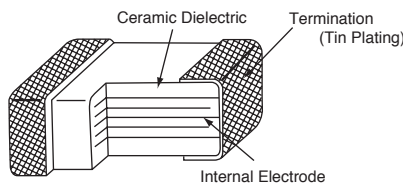
1. Large capacitance by small size.
2. Excellent noise absorption.
3. High permissible ripple current capability.
4. NTF: Temperature cycle : 1000 cycles.



### ◆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
5	Rated Ripple Current	See STANDARD RATINGS	10kHz~1MHz (sine curve) Ripple voltage V <sub>p</sub> shall be less than the rated voltage.		

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						KTS250B106M43N0T00	800
	15	4.5±0.4	3.2±0.4	2.8	0.6±0.3	1.0	KTS250B156M43N0T00	800
	22						KTS250B226M55N0T00	800
	33						KTS250B336M55N0T00	800
47	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						KTS500B335M32N0T00	1,600
	4.7	4.5±0.4	3.2±0.4	2.8	0.6±0.3	1.0	KTS500B475M43N0T00	800
	6.8						KTS500B685M43N0T00	800
	10						KTS500B106M55N0T00	800
	15						KTS500B156M55N0T00	800
	22	7.5±0.5	6.3±0.5	4.0	1.0±0.5	3.0	KTS500B226M76N0T00	300
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						KTS101B155M43N0T00	800
	2.2	4.5±0.4	3.2±0.4	2.8	0.6±0.3	1.0	KTS101B225M43N0T00	800
	3.3						KTS101B225M43N0T00	800
	4.7		3.2±0.5	3.2			KTS101B335M43J0T00	800
	3.3						KTS101B475M43E0T00	800
	4.7	5.7±0.4	5.0±0.4	2.8	0.8±0.5	2.0	KTS101B335M55N0T00	800
	6.8						KTS101B475M55N0T00	800
	6.8						KTS101B685M55F0T00	800
	6.8						KTS101B685M76N0T00	300
6.8	7.5±0.5	6.3±0.5	3.5	1.0±0.5	3.0			

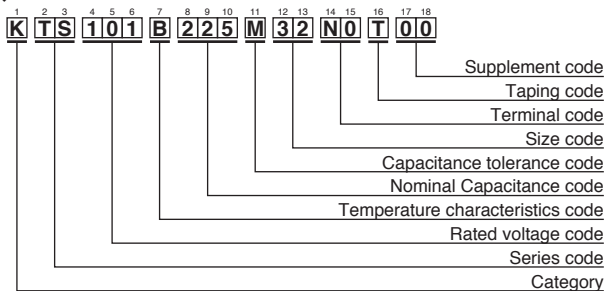
※Please consult with us when you consider the rating other than a standard table.

### ◆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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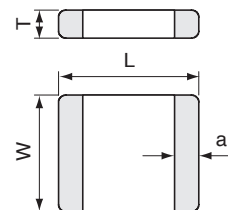
### ◆PART NUMBERING SYSTEM



Size Code

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

### ◆DIMENSIONS



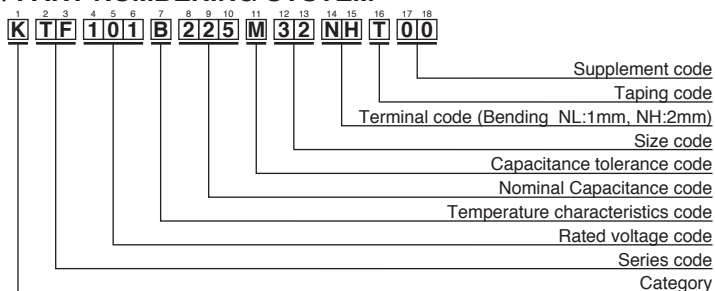
Please refer to "Part Numbering System" of the beginning of a catalog for the details.

### ◆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		KTF101B105M32NHT00						1,600					
1.5		3.2±0.4	2.5±0.3	2.6	0.7±0.2	0.5	KTF101B155M32NHT00	1,600					
2.2							KTF101B225M32NHT00	1,600					
3.3							KTF101B335M32NHT00	800					
4.7		4.5±0.4	3.2±0.4	2.8	0.7±0.2	1.0	KTF101B475M43NHT00	800					
6.8							KTF101B685M43NHT00	800					
10							KTF101B106M55NHT00	800					
15							KTF101B156M55NHT00	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	KTF251B154M32NLT00						1,600					
	0.22	3.2±0.4	2.5±0.3	2.6	0.7±0.2	0.5	KTF251B224M32NLT00	1,600					
	0.33						KTF251B334M32NLT00	1,600					
	0.47						KTF251B474M43NLT00	800					
	0.68	4.5±0.4	3.2±0.4	2.8	0.7±0.2	1.0	KTF251B684M43NLT00	800					
	1.0						KTF251B105M55NLT00	800					
	1.5						KTF251B155M55NLT00	800					
	2.2						KTF251B225M55NLT00	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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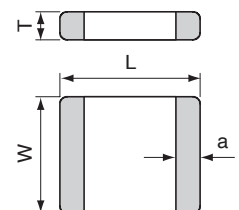
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31	3216	1206
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