MULTILAYER CERAMIC CHIP CAPACITORS

Upgrade! Upgrade!

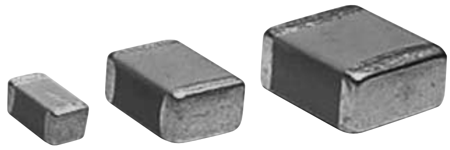
NTS Series / NTF Series

RoHS Compliant

Temperature cycle : 1000 cycles

◆FEATURES

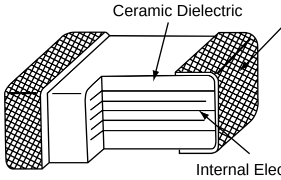
1. Large capacitance by small size.
2. Excellent noise absorption.
3. High permissible ripple current capability.
4. NTF: Temperature cycle : 1,000 cycles.



◆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℃
2. Rated Voltage Range	25, 50, 100, 250Vdc
3. Rated Capacitance Range	0.033 to 33μF
4. Rated Capacitance Tolerance	K (±10%) , M (±20%)
5. Temperature Characteristics	X7R
6. Rated Ripple Current	See No.5 on the following table

◆SPECIFICATIONS

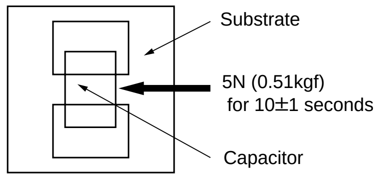
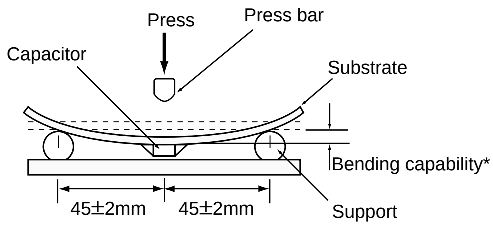
<table>
<tr><th>No.</th><th>Items</th><th>Specification</th><th>Test Condition</th></tr>
<tr><td>1</td><td>Withstand Voltage</td><td>No abnormality.</td><td>250% of rated voltage shall be applied for 5 seconds.
(Only 250Vdc product : 475V)</td></tr>
<tr><td>2</td><td>Insulation Resistance</td><td>100/CR(MΩ) or 4000(MΩ)
whichever is less.</td><td>Rated voltage shall be applied for 60±5 seconds at temperature 25±2℃.</td></tr>
<tr><td>3</td><td>Rated Capacitance</td><td>Within specified tolerance.</td><td rowspan="2"><table>
<tr><td></td><td>CR≦10μF</td><td>CR>10μF</td></tr>
<tr><td>Temperature</td><td colspan="2">25±2℃</td></tr>
<tr><td>Frequency</td><td>1±0.1kHz</td><td>120±12Hz</td></tr>
<tr><td>Voltage</td><td>1±0.2Vrms</td><td>0.5±0.2Vrms</td></tr>
</table></td></tr>
<tr><td>4</td><td>Dissipation Factor</td><td>5.0% maximum.</td></tr>
<tr><td>5</td><td>Rated Ripple Current</td><td><table>
<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></td><td>10kHz～1MHz (sine curve)
Ripple voltage Vp shall be less than
the rated voltage.</td></tr>
</table>

CAT. No. E1002M

Upgrade! Upgrade!

NTS Series / NTF Series

◆SPECIFICATIONS

<table>
<tr><th>No.</th><th>Items</th><th>Specification</th><th>Test Condition</th></tr>
<tr><td>6</td><td>Adhesion</td><td>No visible damage.</td><td>
</td></tr>
<tr><td>7</td><td>Bend strength of the face plating</td><td>Appearance : No visible damage.
ΔC/C : ±15%</td><td>The substrate shall be bend at a rate of 1mm/s for 5 seconds.


*Bending capability
NTS : 1mm
NTF : 3mm</td></tr>
<tr><td>8</td><td>Solderability</td><td>Min. 75% of surface of the termination shall be covered with new solder</td><td>Solder Temperature : 235±5℃
Dipping Time : 2±0.5 sec.
Solder : Eutectic solder containning Ag2.5 to 3wt%</td></tr>
<tr><td>9</td><td>Resistance to Soldering Heat</td><td>Appearance : No visible damage.
ΔC/C : ±15%
D.F. : To meet the initial specification.
I.R. : To meet the initial specification.</td><td>Solder Temperature : 260±5℃
Dipping Time : 2±0.5 seconds
Solder : Eutectic solder containning Ag2.5 to 3wt%</td></tr>
<tr><td>10</td><td>Temperature Cycle</td><td>Appearance : No visible damage.
ΔC/C : ±15%
D.F. : To meet the initial specification.
I.R. : To meet the initial specification.</td><td><table><tr><th>Step</th><th>Temperature (℃)</th><th>(min.)</th></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 above temperature cycle.
NTS : For 5 cycles
NTF : For 1000 cycles</td></tr>
<tr><td>11</td><td>Humidity Load Life</td><td>Appearance : No abnormality.
ΔC/C : ±15%
D.F. : 10% maximum
I.R. : 25/CR(MΩ) or 1000(MΩ) whichever is less.</td><td>Temperature : 40±2℃
Humidity : 90 to 95%RH
Voltage : Rated voltage
Time : $500\pm^{24}_{0}$hours</td></tr>
<tr><td>12</td><td>Endurance</td><td>Appearance : No abnormality.
ΔC/C : ±15%
D.F. : 10% maximum
I.R. : 50/CR(MΩ) or 1000(MΩ) whichever is less.</td><td>Temperature : 85±2℃
Voltage : 200% of rated voltage.
Time : $1000\pm^{48}_{0}$hours

Temperature : 125±3℃
Voltage : Rated voltage
Time : $1000\pm^{48}_{0}$hours</td></tr>
</table>

*CR : Rated Capacitance(μF)

NIPPON CHEMI-CON

MULTILAYER CERAMIC CHIP CAPACITORS

Upgrade!

NTS Series

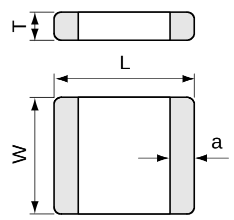
◆PART NUMBERING SYSTEM

K TS 101 B 225 M 32 N0 T 00

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

- Supplement code
- Taping code
- Terminal code
- Size code
- Capacitance tolerance code
- Nominal Capacitance code
- Temperature characteristics code
- Rated voltage code
- Series code
- Category

◆DIMENSIONS



◆NTS SERIES STANDARD RATINGS

Part Number	Rated voltage (Vdc)	Rated Capacitance (μF)	Dimensions(mm) L	W	Tmax.	a	Maximum ripple current (Arms)	Previous Part Number (Just for your reference)
KTS250B105M31N0T00	25	1.0	3.2±0.2	1.6±0.2	1.8	0.5±0.3	0.3	NTS30X7R1E105MT
KTS250B155M31N0T00		1.5						NTS30X7R1E155MT
KTS250B225M31N0T00		2.2						NTS30X7R1E225MT
KTS250B335M32N0T00		3.3	3.2±0.4	2.5±0.3	2.6	0.6±0.3	0.5	NTS40X7R1E335MT
KTS250B475M32N0T00		4.7						NTS40X7R1E475MT
KTS250B685M32N0T00		6.8						NTS40X7R1E685MT
KTS250B106M43N0T00		10	4.5±0.4	3.2±0.4	2.8	0.6±0.3	1.0	NTS50X7R1E106MT
KTS250B156M43N0T00		15						NTS50X7R1E156MT
KTS250B226M55N0T00		22	5.7±0.4	5.0±0.4	2.8	0.8±0.5	2.0	NTS60X7R1E226MT
KTS250B336M55N0T00		33			3.0			NTS60X7R1E336MT
KTS500B334M31N0T00	50	0.33	3.2±0.2	1.6±0.2	1.8	0.5±0.3	0.3	NTS30X7R1H334MT
KTS500B474M31N0T00		0.47						NTS30X7R1H474MT
KTS500B684M31N0T00		0.68						NTS30X7R1H684MT
KTS500B105M31N0T00		1.0						NTS40X7R1H105MT
KTS500B155M32N0T00		1.5	3.2±0.4	2.5±0.3	2.6	0.6±0.3	0.5	NTS40X7R1H155MT
KTS500B225M32N0T00		2.2						NTS40X7R1H225MT
KTS500B335M32N0T00		3.3						NTS40X7R1H335MT
KTS500B475M43N0T00		4.7	4.5±0.4	3.2±0.4	2.8	0.6±0.3	1.0	NTS50X7R1H475MT
KTS500B685M43N0T00		6.8						NTS50X7R1H685MT
KTS500B106M55N0T00		10	5.7±0.4	5.0±0.4	2.8	0.8±0.5	2.0	NTS60X7R1H106MT
KTS500B156M55N0T00		15						NTS60X7R1H156MT
KTS101B104M31N0T00	100	0.1	3.2±0.2	1.6±0.2	1.8	0.5±0.3	0.3	NTS30X7R2A104MT
KTS101B154M31N0T00		0.15						NTS30X7R2A154MT
KTS101B224M31N0T00		0.22						NTS30X7R2A224MT
KTS101B334M31N0T00		0.33						NTS30X7R2A334MT
KTS101B474M31N0T00		0.47						NTS30X7R2A474MT
KTS101B684M32N0T00		0.68						NTS30X7R2A684MT
KTS101B105M32N0T00		1.0	3.2±0.4	2.5±0.3	2.6	0.6±0.3	0.5	NTS40X7R2A105MT
KTS101B155M32N0T00		1.5						NTS40X7R2A155MT
KTS101B225M32N0T00		2.2						NTS40X7R2A225MT
KTS101B155M43N0T00		1.5	4.5±0.4	3.2±0.4	2.8	0.6±0.3	1.0	NTS50X7R2A155MT
KTS101B225M43N0T00		2.2						NTS50X7R2A225MT
KTS101B335M43N0T00		3.3						—
KTS101B475M43N0T00		4.7						—
KTS101B685M55N0T00		6.8	5.7±0.4	5.0±0.4	2.8	0.8±0.5	2.0	—
KTS251B333M31N0T00	250	0.033	3.2±0.2	1.6±0.2	1.8	0.5±0.3	0.3	NTS30X7R2E333MT
KTS251B473M31N0T00		0.047						NTS30X7R2E473MT
KTS251B683M31N0T00		0.068						NTS30X7R2E683MT
KTS251B104M31N0T00		0.1						NTS30X7R2E104MT
KTS251B154M32N0T00		0.15	3.2±0.4	2.5±0.3	2.6	0.6±0.3	0.5	NTS40X7R2E154MT
KTS251B224M32N0T00		0.22						NTS40X7R2E224MT
KTS251B334M32N0T00		0.33						NTS40X7R2E334MT
KTS251B474M43N0T00		0.47	4.5±0.4	3.2±0.4	2.8	0.6±0.3	1.0	NTS50X7R2E474MT
KTS251B684M43N0T00		0.68						NTS50X7R2E684MT
KTS251B105M55N0T00		1.0	5.7±0.4	5.0±0.4	2.8	0.8±0.5	2.0	NTS60X7R2E105MT
KTS251B155M55N0T00		1.5						NTS60X7R2E155MT

NIPPON CHEMI-CON

MULTILAYER CERAMIC CHIP CAPACITORS

Upgrade!

NTF Series

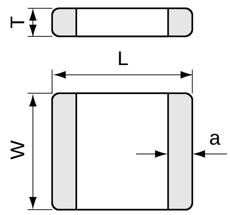
◆PART NUMBERING SYSTEM

K TF 101 B 225 M 32 N1 T 00

(1: K; 2–3: TF; 4–6: 101; 7: B; 8–10: 225; 11: M; 12–13: 32; 14–15: N1; 16: T; 17–18: 00)

- 17–18 (00): Supplement code
- 16 (T): Taping code
- 14–15 (N1): Terminal code
- 12–13 (32): Size code
- 11 (M): Capacitance tolerance code
- 8–10 (225): Nominal Capacitance code
- 7 (B): Temperature characteristics code
- 4–6 (101): Rated voltage code
- 2–3 (TF): Series code
- 1 (K): Category

◆DIMENSIONS



◆NTF SERIES STANDARD RATINGS

Part Number	Rated voltage (Vdc)	Rated Capacitance (μF)	Dimensions(mm) L	W	Tmax.	a	Maximum ripple current (Arms)
KTF250B105M31N1T00	25	1.0	3.2±0.2	1.6±0.2	1.8	0.5±0.3	0.3
KTF250B155M31N1T00		1.5					
KTF250B225M31N1T00		2.2					
KTF250B335M32N1T00		3.3	3.2±0.4	2.5±0.3	2.6	0.6±0.3	0.5
KTF250B475M32N1T00		4.7					
KTF250B685M32N1T00		6.8					
KTF250B106M43N1T00		10	4.5±0.4	3.2±0.4	2.8	0.6±0.3	1.0
KTF250B156M43N1T00		15					
KTF250B226M55N1T00		22	5.7±0.4	5.0±0.4	2.8	0.8±0.5	2.0
KTF250B336M55N1T00		33			3.0		
KTF500B334M31N1T00	50	0.33	3.2±0.2	1.6±0.2	1.8	0.5±0.3	0.3
KTF500B474M31N1T00		0.47					
KTF500B684M31N1T00		0.68					
KTF500B105M31N1T00		1.0					
KTF500B155M32N1T00		1.5	3.2±0.4	2.5±0.3	2.6	0.6±0.3	0.5
KTF500B225M32N1T00		2.2					
KTF500B335M32N1T00		3.3					
KTF500B475M43N1T00		4.7	4.5±0.4	3.2±0.4	2.8	0.6±0.3	1.0
KTF500B685M43N1T00		6.8					
KTF500B106M55N1T00		10	5.7±0.4	5.0±0.4	2.8	0.8±0.5	2.0
KTF500B156M55N1T00		15					
KTF101B104M31N1T00	100	0.1	3.2±0.2	1.6±0.2	1.8	0.5±0.3	0.3
KTF101B154M31N1T00		0.15					
KTF101B224M31N1T00		0.22					
KTF101B334M31N1T00		0.33					
KTF101B474M31N1T00		0.47					
KTF101B684M31N1T00		0.68					
KTF101B105M32N1T00		1.0	3.2±0.4	2.5±0.3	2.6	0.6±0.3	0.5
KTF101B155M32N1T00		1.5					
KTF101B225M32N1T00		2.2					
KTF101B155M43N1T00		1.5	4.5±0.4	3.2±0.4	2.8	0.6±0.3	1.0
KTF101B225M43N1T00		2.2					
KTF101B335M43N1T00		3.3					
KTF101B475M43N1T00		4.7					
KTF101B685M55N1T00		6.8	5.7±0.4	5.0±0.4	2.8	0.8±0.5	2.0
KTF251B333M31N1T00	250	0.033	3.2±0.2	1.6±0.2	1.8	0.5±0.3	0.3
KTF251B473M31N1T00		0.047					
KTF251B683M31N1T00		0.068					
KTF251B104M31N1T00		0.1					
KTF251B154M32N1T00		0.15	3.2±0.4	2.5±0.3	2.6	0.6±0.3	0.5
KTF251B224M32N1T00		0.22					
KTF251B334M32N1T00		0.33					
KTF251B474M43N1T00		0.47	4.5±0.4	3.2±0.4	2.8	0.6±0.3	1.0
KTF251B684M43N1T00		0.68					
KTF251B105M55N1T00		1.0	5.7±0.4	5.0±0.4	2.8	0.8±0.5	2.0
KTF251B155M55N1T00		1.5					