

# NTS Series / NTF Series



Temperature cycle : 1000 cycles

## ◆FEATURES

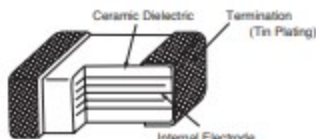
1. Large capacitance by small size.
2. Excellent noise absorption.
3. High permissible ripple current capability.
4. NTF: Temperature cycle : 1000 cycles.



## ◆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 <sub>dc</sub>           |
| 3. Rated Capacitance Range     | 0.010 to 47 $\mu$ F                       |
| 4. Rated Capacitance Tolerance | M ( $\pm$ 20%) : Standard, K ( $\pm$ 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.<br>(Only 250V <sub>dc</sub> product : 475V)  |           |                                  |                             |             |                             |                               |           |                |                |         |                             |   |
| 2           | Insulation Resistance            | 100/C <sub>n</sub> (M $\Omega$ ) or 4000(M $\Omega$ )<br>whichever is less.   | Rated voltage shall be applied for 60 $\pm$ 5 seconds at<br>temperature 25 $\pm$ 2°C.  |           |                                  |                             |             |                             |                               |           |                |                |         |                             |   |
| 3           | Rated Capacitance                | Within specified tolerance.   | <table border="1"> <thead> <tr> <th></th> <th>C<sub>n</sub> <math>\leq</math> 10<math>\mu</math>F</th> <th>C<sub>n</sub> &gt; 10<math>\mu</math>F</th> </tr> </thead> <tbody> <tr> <td>Temperature</td> <td colspan="2">25<math>\pm</math>2°C</td> </tr> <tr> <td>Frequency</td> <td>1<math>\pm</math>0.1kHz</td> <td>120<math>\pm</math>12Hz</td> </tr> <tr> <td>Voltage</td> <td>1<math>\pm</math>0.2V<sub>rms</sub></td> <td>0.5<math>\pm</math>0.2V<sub>rms</sub></td> </tr> </tbody> </table> |           | C <sub>n</sub> $\leq$ 10 $\mu$ F | C <sub>n</sub> > 10 $\mu$ F | Temperature | 25 $\pm$ 2°C                |                               | Frequency | 1 $\pm$ 0.1kHz | 120 $\pm$ 12Hz | Voltage | 1 $\pm$ 0.2V <sub>rms</sub> | 0.5 $\pm$ 0.2V <sub>rms</sub>   |
|             | C <sub>n</sub> $\leq$ 10 $\mu$ F | C <sub>n</sub> > 10 $\mu$ F   |  |           |                                  |                             |             |                             |                               |           |                |                |         |                             |   |
| Temperature | 25 $\pm$ 2°C                     |   |  |           |                                  |                             |             |                             |                               |           |                |                |         |                             |   |
| Frequency   | 1 $\pm$ 0.1kHz                   | 120 $\pm$ 12Hz  |  |           |                                  |                             |             |                             |                               |           |                |                |         |                             |   |
| Voltage     | 1 $\pm$ 0.2V <sub>rms</sub>      | 0.5 $\pm$ 0.2V <sub>rms</sub>   |  |           |                                  |                             |             |                             |                               |           |                |                |         |                             |   |
| 4           | Dissipation Factor               | 5.0% maximum.   | <table border="1"> <tbody> <tr> <td>Frequency</td> <td>1<math>\pm</math>0.1kHz</td> <td>120<math>\pm</math>12Hz</td> </tr> <tr> <td>Voltage</td> <td>1<math>\pm</math>0.2V<sub>rms</sub></td> <td>0.5<math>\pm</math>0.2V<sub>rms</sub></td> </tr> </tbody> </table>   | Frequency | 1 $\pm$ 0.1kHz                   | 120 $\pm$ 12Hz              | Voltage     | 1 $\pm$ 0.2V <sub>rms</sub> | 0.5 $\pm$ 0.2V <sub>rms</sub> |           |                |                |         |                             |   |
| Frequency   | 1 $\pm$ 0.1kHz                   | 120 $\pm$ 12Hz  |  |           |                                  |                             |             |                             |                               |           |                |                |         |                             |   |
| Voltage     | 1 $\pm$ 0.2V <sub>rms</sub>      | 0.5 $\pm$ 0.2V <sub>rms</sub>   |  |           |                                  |                             |             |                             |                               |           |                |                |         |                             |   |
| 5           | Rated Ripple Current             | <table border="1"> <thead> <tr> <th>Size code</th> <th>31</th> <th>32</th> <th>43</th> <th>55</th> <th>76</th> </tr> </thead> <tbody> <tr> <td>Arms</td> <td>0.3</td> <td>0.5</td> <td>1.0</td> <td>2.0</td> <td>3.0</td> </tr> </tbody> </table> | Size code  | 31        | 32                               | 43                          | 55          | 76                          | Arms                          | 0.3       | 0.5            | 1.0            | 2.0     | 3.0                         | 10kHz~1MHz (sine curve)<br>Ripple voltage V <sub>p</sub> shall be less than<br>the rated voltage. |
| Size code   | 31                               | 32  | 43   | 55        | 76                               |                             |             |                             |                               |           |                |                |         |                             |   |
| Arms        | 0.3                              | 0.5   | 1.0  | 2.0       | 3.0                              |                             |             |                             |                               |           |                |                |         |                             |   |

**NTS Series / NTF Series**
**◆SPECIFICATIONS**

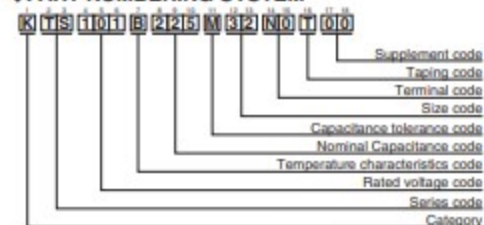
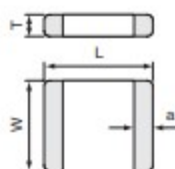
| No.                | Items                             | Specification  | Test Condition  |        |                  |                    |         |                              |           |   |                  |        |   |                              |      |   |                  |        |
|--------------------|-----------------------------------|--|---|--------|------------------|--------------------|---------|------------------------------|-----------|---|------------------|--------|---|------------------------------|------|---|------------------|--------|
| 6                  | Adhesion                          | No visible damage.   | <p>Substrate<br/>Capacitor<br/>5N (0.51kgf)<br/>for 10±1 seconds</p>  |        |                  |                    |         |                              |           |   |                  |        |   |                              |      |   |                  |        |
| 7                  | Bend strength of the face plating | Appearance : No visible damage.<br>ΔC/C : ±15%   | <p>The substrate shall be bend at a rate of 1mm/s for 5 seconds.</p> <p>Press<br/>Press bar<br/>Capacitor<br/>Substrate<br/>Support<br/>Bending capability*</p> <p>*Bending capability<br/>NTS : 1mm<br/>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.<br>ΔC/C : ±15%<br>D.F. : To meet the initial specification.<br>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<br/>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.<br>ΔC/C : ±15%<br>D.F. : To meet the initial specification.<br>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.<br/>NTS : For 5 cycles<br/>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.<br>ΔC/C : ±15%<br>D.F. : 10% maximum<br>I.R. : 25/C <sub>R</sub> (MΩ) or 1000(MΩ)<br>whichever is less.     | <p>Temperature : 40±2°C<br/>Humidity : 90 to 95%RH<br/>Voltage : Rated voltage<br/>Time : 500±<sup>2</sup><sub>0</sub>hours</p>   |        |                  |                    |         |                              |           |   |                  |        |   |                              |      |   |                  |        |
| 12                 | Endurance                         | Appearance : No abnormality.<br>ΔC/C : ±15%<br>D.F. : 10% maximum<br>I.R. : 50/C <sub>R</sub> (MΩ) or 1000(MΩ)<br>whichever is less.     | <p>Temperature : 125±3°C<br/>Voltage : Rated voltage<br/>Time : 1000±<sup>2</sup><sub>0</sub>hours</p>  |        |                  |                    |         |                              |           |   |                  |        |   |                              |      |   |                  |        |

\*C<sub>R</sub> : 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                    |                    |                 |         |         |                               | KTS250B335M32N0T00 | NTS40X7R1E335MT                                |         |     |         |     |                    |                 |
|                     | 4.7                    |                    |                 |         |         |                               | KTS250B475M32N0T00 | NTS40X7R1E475MT                                |         |     |         |     |                    |                 |
|                     | 6.8                    | 3.2±0.4            | 2.5±0.3         | 2.6     | 0.6±0.3 | 0.5                           | KTS250B685M32N0T00 | NTS40X7R1E685MT                                |         |     |         |     |                    |                 |
|                     | 10                     |                    |                 |         |         |                               | KTS250B106M43N0T00 | NTS50X7R1E106MT                                |         |     |         |     |                    |                 |
|                     | 15                     |                    |                 |         |         |                               | KTS250B156M43N0T00 | NTS50X7R1E156MT                                |         |     |         |     |                    |                 |
|                     | 22                     |                    |                 |         |         |                               | KTS250B226M55N0T00 | NTS60X7R1E226MT                                |         |     |         |     |                    |                 |
|                     | 33                     |                    |                 |         |         |                               | KTS250B336M55N0T00 | NTS60X7R1E336MT                                |         |     |         |     |                    |                 |
| 47                  | 7.5±0.5                | 6.3±0.5            | 4.0             | 1.0±0.5 | 3.0     | KTS250B476M76N0T00            | —                  |  |         |     |         |     |                    |                 |
| 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 | NTS40X7R1H105MT                                |         |     |         |     |                    |                 |
|                     | 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                    |                    |                 |         |         |                               | KTS500B685M43N0T00 | NTS50X7R1H685MT                                |         |     |         |     |                    |                 |
|                     | 10                     |                    |                 |         |         |                               | KTS500B106M55N0T00 | NTS60X7R1H106MT                                |         |     |         |     |                    |                 |
|                     | 15                     | 5.7±0.4            | 5.0±0.4         | 2.8     | 0.8±0.5 | 2.0                           | KTS500B156M55N0T00 | NTS60X7R1H156MT                                |         |     |         |     |                    |                 |
|                     | 22                     |                    |                 |         |         |                               | KTS500B226M76N0T00 | —  |         |     |         |     |                    |                 |
|                     | 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                |                        | 3.2±0.4            | 2.5±0.3         | 2.6     | 0.6±0.3 | 0.5                           | KTS101B684M32N0T00 | NTS30X7R2A684MT                                |         |     |         |     |                    |                 |
| 1.0                 |                        |                    |                 |         |         |                               | KTS101B105M32N0T00 | NTS40X7R2A105MT                                |         |     |         |     |                    |                 |
| 1.5                 |                        |                    |                 |         |         |                               | KTS101B155M32N0T00 | NTS40X7R2A155MT                                |         |     |         |     |                    |                 |
| 2.2                 |                        |                    |                 |         |         |                               | KTS101B225M32N0T00 | NTS40X7R2A225MT                                |         |     |         |     |                    |                 |
| 3.3                 |                        |                    |                 |         |         |                               | KTS101B335M43N0T00 | NTS50X7R2A335MT                                |         |     |         |     |                    |                 |
| 4.7                 | 4.5±0.4                | 3.2±0.5            | 2.8             | 0.6±0.3 | 1.0     | KTS101B475M43N0T00            | NTS50X7R2A475MT    |  |         |     |         |     |                    |                 |
| 6.8                 |                        |                    |                 |         |         | KTS101B685M43N0T00            | —                  |  |         |     |         |     |                    |                 |
| 10                  |                        |                    |                 |         |         | KTS101B106M55N0T00            | —                  |  |         |     |         |     |                    |                 |
| 15                  |                        |                    |                 |         |         | KTS101B156M55N0T00            | —                  |  |         |     |         |     |                    |                 |
| 22                  |                        |                    |                 |         |         | KTS101B226M76N0T00            | —                  |  |         |     |         |     |                    |                 |
| 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                    |                    |                 |         |         |                               | KTS251B104M31N0T00 | NTS30X7R2E104MT                                |         |     |         |     |                    |                 |
|                     | 0.15                   |                    |                 |         |         |                               | KTS251B154M32N0T00 | NTS40X7R2E154MT                                |         |     |         |     |                    |                 |
|                     | 0.22                   | 3.2±0.4            | 2.5±0.3         | 2.6     | 0.6±0.3 | 0.5                           | KTS251B224M32N0T00 | NTS40X7R2E224MT                                |         |     |         |     |                    |                 |
|                     | 0.33                   |                    |                 |         |         |                               | KTS251B334M32N0T00 | NTS40X7R2E334MT                                |         |     |         |     |                    |                 |
|                     | 0.47                   |                    |                 |         |         |                               | 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                           | KTS251B156M55N0T00 | NTS60X7R2E156MT                                |         |     |         |     |                    |                 |
|                     | 2.2                    |                    |                 |         |         |                               | KTS251B226M76N0T00 | —  |         |     |         |     |                    |                 |
|                     | 3.3                    |                    |                 |         |         |                               | KTS251B336M76N0T00 | —  |         |     |         |     |                    |                 |
|                     | 4.7                    |                    |                 |         |         |                               | KTS251B476M76N0T00 | —  |         |     |         |     |                    |                 |
| 6.8                 | KTS251B686M76N0T00     |                    |                 |         |         |                               | —                  |  |         |     |         |     |                    |                 |
| 250                 | 0.033                  | 7.5±0.5            | 6.3±0.5         | 3.5     | 1.0±0.5 | 3.0                           | KTS101B685M76N0T00 | —  |         |     |         |     |                    |                 |
|                     | 0.047                  |                    |                 |         |         |                               | —                  |  |         |     |         |     |                    |                 |
|                     | 0.068                  |                    |                 |         |         |                               | —                  |  |         |     |         |     |                    |                 |
|                     | 0.1                    |                    |                 |         |         |                               | —                  |  |         |     |         |     |                    |                 |
|                     | 0.15                   |                    |                 |         |         |                               | —                  |  |         |     |         |     |                    |                 |
|                     | 0.22                   | 3.2±0.4            | 2.5±0.3         | 2.6     | 0.6±0.3 | 0.5                           | KTS251B225M76N0T00 | —  |         |     |         |     |                    |                 |
|                     | 0.33                   |                    |                 |         |         |                               | —                  |  |         |     |         |     |                    |                 |
|                     | 0.47                   |                    |                 |         |         |                               | —                  |  |         |     |         |     |                    |                 |
|                     | 0.68                   |                    |                 |         |         |                               | —                  |  |         |     |         |     |                    |                 |
|                     | 1.0                    |                    |                 |         |         |                               | —                  |  |         |     |         |     |                    |                 |
| 1.5                 | 5.7±0.4                | 5.0±0.4            | 2.8             | 0.8±0.5 | 2.0     | KTS251B155M76N0T00            | —                  |  |         |     |         |     |                    |                 |
| 2.2                 |                        |                    |                 |         |         | —                             |                    |  |         |     |         |     |                    |                 |
| 3.3                 |                        |                    |                 |         |         | —                             |                    |  |         |     |         |     |                    |                 |
| 4.7                 |                        |                    |                 |         |         | —                             |                    |  |         |     |         |     |                    |                 |
| 6.8                 |                        |                    |                 |         |         | —                             |                    |  |         |     |         |     |                    |                 |
| 10                  | 7.5±0.5                | 6.3±0.5            | 4.0             | 1.0±0.5 | 3.0     | KTS251B225M76N0T00            | —                  |  |         |     |         |     |                    |                 |
| 15                  |                        |                    |                 |         |         | —                             |                    |  |         |     |         |     |                    |                 |
| 22                  |                        |                    |                 |         |         | —                             |                    |  |         |     |         |     |                    |                 |
| 33                  |                        |                    |                 |         |         | —                             |                    |  |         |     |         |     |                    |                 |
| 47                  |                        |                    |                 |         |         | —                             |                    |  |         |     |         |     |                    |                 |

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

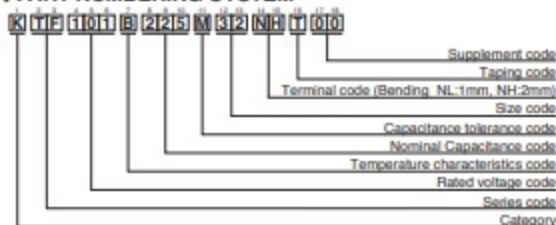
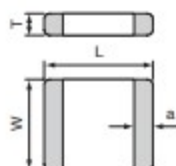
**◆PART NUMBERING SYSTEM**

**◆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                           | KTF250B105M31NL700 |
|                     | 1.5                    |                |         |         |         |                               | KTF250B155M31NL700 |
|                     | 2.2                    |                |         |         |         |                               | KTF250B225M31NL700 |
|                     | 3.3                    | 3.2±0.4        | 2.5±0.3 | 2.6     | 0.7±0.2 | 0.5                           | KTF250B335M32NH700 |
|                     | 4.7                    |                |         |         |         |                               | KTF250B475M32NH700 |
|                     | 6.8                    |                |         |         |         |                               | KTF250B685M32NH700 |
|                     | 10                     | 4.5±0.4        | 3.2±0.4 | 2.8     | 0.7±0.2 | 1.0                           | KTF250B106M43NH700 |
|                     | 15                     |                |         |         |         |                               | KTF250B156M43NH700 |
|                     | 22                     |                |         |         |         |                               | KTF250B226M55NH700 |
|                     | 33                     | 5.7±0.4        | 5.0±0.4 | 2.8     | 1.0±0.4 | 2.0                           | KTF250B286M55NH700 |
| 3.0                 | KTF250B306M55NH700     |                |         |         |         |                               |                    |
| 0.33                | KTF500B334M31NL700     |                |         |         |         |                               |                    |
| 50                  | 0.47                   | 3.2±0.3        | 1.6±0.2 | 1.8     | 0.7±0.2 | 0.3                           | KTF500B474M31NL700 |
|                     | 0.68                   |                |         |         |         |                               | KTF500B684M31NL700 |
|                     | 1.0                    |                |         |         |         |                               | KTF500B105M31NL700 |
|                     | 1.5                    | 3.2±0.4        | 2.5±0.3 | 2.6     | 0.7±0.2 | 0.5                           | KTF500B155M32NH700 |
|                     | 2.2                    |                |         |         |         |                               | KTF500B225M32NH700 |
|                     | 3.3                    |                |         |         |         |                               | KTF500B335M32NH700 |
|                     | 4.7                    | 4.5±0.4        | 3.2±0.4 | 2.8     | 0.7±0.2 | 1.0                           | KTF500B475M43NH700 |
|                     | 6.8                    |                |         |         |         |                               | KTF500B685M43NH700 |
|                     | 10                     |                |         |         |         |                               | KTF500B106M55NH700 |
|                     | 15                     | 5.7±0.4        | 5.0±0.4 | 2.8     | 1.0±0.4 | 2.0                           | KTF500B156M55NH700 |
| 0.1                 | KTF101B104M31NL700     |                |         |         |         |                               |                    |
| 0.15                | KTF101B154M31NL700     |                |         |         |         |                               |                    |
| 100                 | 0.22                   | 3.2±0.3        | 1.6±0.2 | 1.8     | 0.7±0.2 | 0.3                           | KTF101B224M31NL700 |
|                     | 0.33                   |                |         |         |         |                               | KTF101B334M31NL700 |
|                     | 0.47                   |                |         |         |         |                               | KTF101B474M31NL700 |
|                     | 0.68                   | 3.2±0.4        | 2.5±0.3 | 2.6     | 0.7±0.2 | 0.5                           | KTF101B684M31NL700 |
|                     | 1.0                    |                |         |         |         |                               | KTF101B105M32NH700 |
|                     | 1.5                    |                |         |         |         |                               | KTF101B155M32NH700 |
|                     | 2.2                    | 4.5±0.4        | 3.2±0.4 | 2.8     | 0.7±0.2 | 1.0                           | KTF101B225M32NH700 |
|                     | 1.5                    |                |         |         |         |                               | KTF101B155M43NH700 |
|                     | 2.2                    |                |         |         |         |                               | KTF101B225M43NH700 |
|                     | 3.3                    | 3.2±0.5        | 2.8     | 3.2     | 1.0±0.4 | 2.0                           | KTF101B335M43JH700 |
| 4.7                 | KTF101B475M43EH700     |                |         |         |         |                               |                    |
| 4.7                 | KTF101B475M55NH700     |                |         |         |         |                               |                    |
| 6.8                 | 5.7±0.4                | 5.0±0.4        | 3.2     | 1.0±0.4 | 2.0     | KTF101B685M55FHT00            |                    |
| 0.033               |                        |                |         |         |         | KTF251B333M31NL700            |                    |
| 0.047               |                        |                |         |         |         | KTF251B473M31NL700            |                    |
| 250                 | 0.068                  | 3.2±0.3        | 1.6±0.2 | 1.8     | 0.7±0.2 | 0.3                           | KTF251B683M31NL700 |
|                     | 0.1                    |                |         |         |         |                               | KTF251B104M31NL700 |
|                     | 0.15                   |                |         |         |         |                               | KTF251B154M32NL700 |
|                     | 0.22                   | 3.2±0.4        | 2.5±0.3 | 2.6     | 0.7±0.2 | 0.5                           | KTF251B224M32NL700 |
|                     | 0.33                   |                |         |         |         |                               | KTF251B334M32NL700 |
|                     | 0.47                   |                |         |         |         |                               | KTF251B474M43NL700 |
|                     | 0.68                   | 4.5±0.4        | 3.2±0.4 | 2.8     | 0.7±0.2 | 1.0                           | KTF251B684M43NL700 |
|                     | 1.0                    |                |         |         |         |                               | KTF251B105M55NL700 |
|                     | 1.5                    |                |         |         |         |                               | KTF251B155M55NL700 |

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**◆PART NUMBERING SYSTEM**

**◆DIMENSIONS**


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