

# Specification

**Part No.: DLC70G**

## DLC70G (.750" x .750")

### ◆ Product Features

High Q value, high power, low ESR/ESL, low noise,  
high self-resonant frequency, high reliability.

### ◆ Product Application

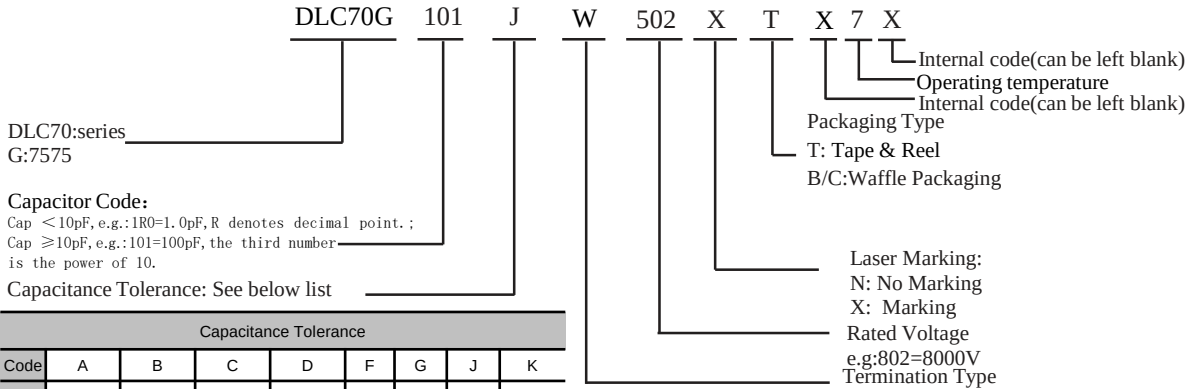
Typical applications: semiconductor RF power, MRI, repeater, high speed railway signal responsor, wireless broadcasting and TV device.

### ◆ DLC70G Capacitance Table

| Cap. | Code | Tol.  | Rated                                        | Cap. | Code | Tol.  | Rated                                        | Cap.  | Code | Tol. | Rated                                        |
|------|------|-------|----------------------------------------------|------|------|-------|----------------------------------------------|-------|------|------|----------------------------------------------|
| pF   |      |       | WVDC                                         | pF   |      |       | WVDC                                         | pF    |      |      | WVDC                                         |
| 1.0  | 1R0  | B,C,D | 5000V<br>Code 502<br>or<br>8000V<br>Code 103 | 39   | 390  | F,G,J | 5000V<br>Code 502<br>or<br>8000V<br>Code 103 | 1200  | 122  | G,J  | 3000V<br>Code 302<br>or<br>5000V<br>Code 502 |
| 1.2  | 1R2  |       |                                              | 47   | 470  |       |                                              | 1500  | 152  |      |                                              |
| 1.5  | 1R5  |       |                                              | 56   | 560  |       |                                              | 1800  | 182  |      |                                              |
| 2.2  | 2R2  |       |                                              | 68   | 680  |       |                                              | 2200  | 222  |      |                                              |
| 2.7  | 2R7  |       |                                              | 82   | 820  |       |                                              | 2700  | 272  |      |                                              |
| 3.3  | 3R3  |       |                                              | 100  | 101  |       |                                              | 3300  | 332  |      |                                              |
| 3.9  | 3R9  |       |                                              | 120  | 121  |       |                                              | 4700  | 472  |      |                                              |
| 4.7  | 4R7  |       |                                              | 150  | 151  |       |                                              | 5100  | 512  |      |                                              |
| 5.6  | 5R6  |       |                                              | 180  | 181  |       |                                              | 5100  | 512  |      |                                              |
| 6.8  | 6R8  |       |                                              | 220  | 221  |       |                                              | 5600  | 562  |      |                                              |
| 8.2  | 8R2  | F,G,J |                                              | 270  | 271  |       | 3000V<br>Code 302<br>or<br>5000V<br>Code 502 | 6800  | 682  |      | 1000V<br>Code 102<br>or<br>3000V<br>Code 302 |
| 10   | 100  |       |                                              | 300  | 301  |       |                                              | 7500  | 752  |      |                                              |
| 12   | 120  |       |                                              | 390  | 391  |       |                                              | 8200  | 822  |      |                                              |
| 15   | 150  |       |                                              | 470  | 471  |       |                                              | 10000 | 103  |      |                                              |
| 18   | 180  |       |                                              | 560  | 561  |       |                                              | 12000 | 123  |      |                                              |
| 22   | 220  |       |                                              | 680  | 681  |       |                                              | 15000 | 153  |      |                                              |
| 27   | 270  |       |                                              | 820  | 821  |       |                                              | 18000 | 183  |      |                                              |
| 33   | 330  |       |                                              | 1000 | 102  |       |                                              | 20000 | 203  |      | 2000V<br>Code 202                            |

Remark: special capacitance, tolerance and WVDC are available, consult with DALICAP.

## ◆ Part Numbering

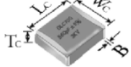
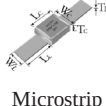
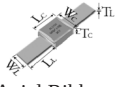
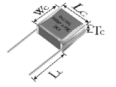
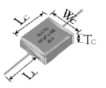


※ Operating temperature: left blank : -55°C~125°C; 5: -55°C~150°C; 7: -55°C~175°C.

Note: For welded products of types B/C/E/F/G with pin dimensions, the packaging types of B and C are barrier packaging.

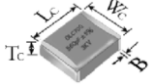
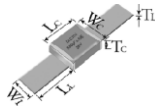
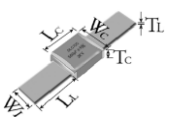
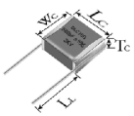
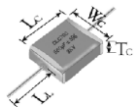
## ◆ DLC70G Termination Type and Dimensions

unit: inch (millimeter)

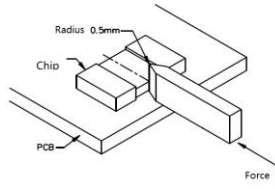
| Series | Term. Code | Type/<br>Outlines                                                                   | Capacitor Dimensions |             |                     |                          | Lead Dimensions |             |                 | Termina<br>Material                               |
|--------|------------|-------------------------------------------------------------------------------------|----------------------|-------------|---------------------|--------------------------|-----------------|-------------|-----------------|---------------------------------------------------|
|        |            |                                                                                     | Length<br>Lc         | Width<br>Wc | Thicknes<br>s<br>Tc | Overlap<br>B             | Length<br>LL    | Width<br>WL | Thickness<br>TL |                                                   |
| 70G    | W          |  |                      |             |                     | .024~.079<br>(0.60~2.00) | —               | —           | —               | 100%Sn over<br>Nickel Plating ,<br>RoHS Compliant |
|        | L          | Chip                                                                                |                      |             |                     |                          |                 |             |                 | 90%Sn 10%Pb<br>over Nickel<br>Plating ,           |
| 70G    | MS         |  |                      |             |                     | —                        |                 |             |                 | Silver- plated<br>Copper                          |
| 70G    | AR         |  |                      |             |                     |                          |                 |             |                 |                                                   |
|        | RW         |  |                      |             |                     |                          |                 |             |                 |                                                   |
| 70G    | AW         |  |                      |             |                     |                          |                 |             |                 |                                                   |

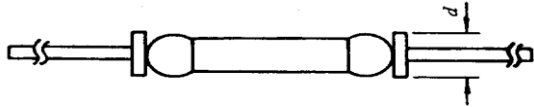
◆ **DLC70G Termination Type and Dimensions**

unit: inch (millimeter)

| Series | Term. Code | Type/<br>Outlines                                                                                             | Capacitor Dimensions                                  |                                                       |                       |                          | Lead Dimensions        |                                     |                                   | Termina<br>Material                                                              |
|--------|------------|---------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|-----------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------|----------------------------------------------------------------------------------|
|        |            |                                                                                                               | Length<br>Lc                                          | Width<br>Wc                                           | Thickness<br>Tc       | Overlap<br>B             | Length<br>LL           | Width<br>WL                         | Thickness<br>TL                   |                                                                                  |
| 70G    | P          | <br>Chip(Non-Mag)            | .760<br>+.025~-<br>.010<br>(19.30<br>+.064~-<br>0.25) | .760<br>+.025~-<br>.010<br>(19.30<br>+.064~-<br>0.25) | .201<br>(5.10)<br>max | .024~.079<br>(0.60~2.00) | -                      | -                                   | -                                 | 100%Sn<br>over Copper<br>Plating ,<br>RoHS<br>Compliant<br><br>RoHS<br>Compliant |
| 70G    | MN         | <br>Microstrip(Non-Mag)     |                                                       |                                                       |                       | -                        | .748<br>(19.00)<br>min | .591<br>± .010<br>(15.00 ±<br>0.25) | .008<br>±.001<br>(0.20<br>±0.025) | Silver-<br>plated<br>Copper                                                      |
| 70G    | AN         | <br>Axial Ribbon (Non-Mag) |                                                       |                                                       |                       |                          |                        |                                     |                                   |                                                                                  |
| 70G    | RN         | <br>Radial Wire(Non-Mag)   |                                                       |                                                       |                       |                          | .748<br>(19.00)<br>min | .031±.006<br>(0.80±0.15)            |                                   | Silver wire                                                                      |
| 70G    | BN         | <br>Axial Wire (Non-Mag)   |                                                       |                                                       |                       |                          |                        |                                     |                                   |                                                                                  |

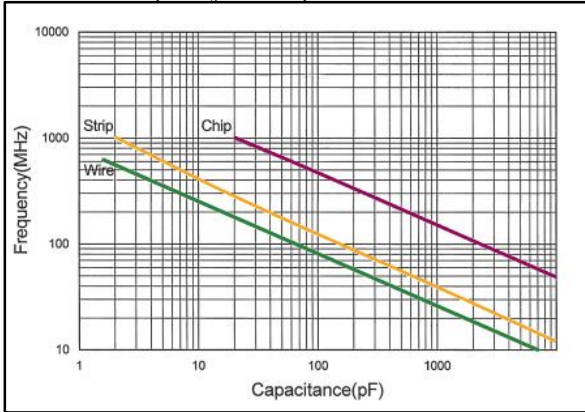
◆ **Reliability Test Conditions.**

| No.  | Item                                  | Specification                                                                 | Test method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      |                 |   |      |   |       |   |      |   |        |   |      |
|------|---------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----------------|---|------|---|-------|---|------|---|--------|---|------|
| 1    | Operating temperature                 | -55℃~125℃<br>-55℃~175℃                                                        | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |                 |   |      |   |       |   |      |   |        |   |      |
| 2    | Appearance                            | No defects or abnormality                                                     | Visual inspection: ×10 microscope.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |                 |   |      |   |       |   |      |   |        |   |      |
| 3    | Dimensions                            | See the previous page                                                         | Caliper inspection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |                 |   |      |   |       |   |      |   |        |   |      |
| 4    | Capacitance                           | Shall be within the applicable tolerance specified.                           | Test frequency:<br>C≤1000pF: 1MHz±10%<br>C>1000pF: 1KHz±10%<br>Test voltage: 1.0±0.2Vrms                                                                                                                                                                                                                                                                                                                                                                                                                            |      |                 |   |      |   |       |   |      |   |        |   |      |
| 5    | D.F                                   | D.F≤0.05%                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |                 |   |      |   |       |   |      |   |        |   |      |
| 6    | Insulation resistance                 | 10 <sup>5</sup> Megohms min. @ +25 ℃<br>10 <sup>4</sup> Megohms min. @ +125 ℃ | Voltage: DC Rated Voltage (500V max)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |                 |   |      |   |       |   |      |   |        |   |      |
| 7    | Dielectric withstanding voltage (DWV) | Shall be no evidence of breakdown or visible evidence of arcing or damage.    | Test Voltage:<br>Rated voltage≤500V: 250% of the rated voltage<br>500V<Rated voltage≤1250V: 150% of the rated voltage<br>Rated voltage>1250V: 120% of the rated voltage<br>Applied Time: 5 s<br>Charge/discharge current: 50mA max.                                                                                                                                                                                                                                                                                 |      |                 |   |      |   |       |   |      |   |        |   |      |
| 8    | Temperature coefficient               | (0±30)ppm/℃(-55℃~125℃)<br>(0±60)ppm/℃(+125℃~175℃)                             | The capacitance change should be measured after 5 min. at each specified temp. stage. Capacitance value as a reference is the value in step 3. <div><table><tr><th>step</th><th>temperature (℃)</th></tr><tr><td>1</td><td>25±2</td></tr><tr><td>2</td><td>-55±3</td></tr><tr><td>3</td><td>25±2</td></tr><tr><td>4</td><td>Tmax±3</td></tr><tr><td>5</td><td>25±2</td></tr></table><div><math display="block">TC = \frac{C_r - C_3}{C_3 \times \Delta T} \times 10^6 \text{ ppm/}^\circ\text{C}</math></div></div> | step | temperature (℃) | 1 | 25±2 | 2 | -55±3 | 3 | 25±2 | 4 | Tmax±3 | 5 | 25±2 |
| step | temperature (℃)                       |                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |                 |   |      |   |       |   |      |   |        |   |      |
| 1    | 25±2                                  |                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |                 |   |      |   |       |   |      |   |        |   |      |
| 2    | -55±3                                 |                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |                 |   |      |   |       |   |      |   |        |   |      |
| 3    | 25±2                                  |                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |                 |   |      |   |       |   |      |   |        |   |      |
| 4    | Tmax±3                                |                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |                 |   |      |   |       |   |      |   |        |   |      |
| 5    | 25±2                                  |                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |                 |   |      |   |       |   |      |   |        |   |      |
| 9    | Capacitance Drift                     | ±0. 2% or ±0.05pF, whichever is larger.                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |                 |   |      |   |       |   |      |   |        |   |      |
| 10   | Adhesive Strength of Termination      | No removal of the terminations or other defect should occur.                  | Pressurizing force: 50.0 <sup>+1.0</sup> <sub>-0</sub> N<br>Test time: 10±1 sec. <div></div>                                                                                                                                                                                                                                                                                                                                   |      |                 |   |      |   |       |   |      |   |        |   |      |

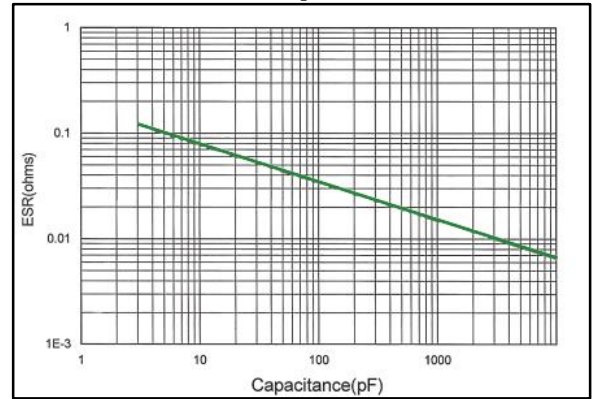
| No.  | Item                         | Specification                                                                                                                                                                                                                                   | Test method                                                                                                                                                                                                                                                                                                                                                                                                    |      |                 |           |   |           |     |   |       |    |   |           |     |   |       |    |
|------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----------------|-----------|---|-----------|-----|---|-------|----|---|-----------|-----|---|-------|----|
| 11   | Terminal strength            | Visual examination for loosening, rupturing, and permanent damage to the terminals.                                                                                                                                                             | <p>Solder the capacitor on test jig as below . Then apply a horizontal force.<br/>Holding time: 5~10 s<br/>Force: 10 N minimum.<br/>d= (1.02±0.15) mm;</p>                                                                                                                                                                   |      |                 |           |   |           |     |   |       |    |   |           |     |   |       |    |
| 12   | Solderability of termination | Shall be at least 95 percent covered with a smooth solder coating.                                                                                                                                                                              | Immerse the capacitor in a eutectic solution requirement temperature 245±2 °C for 2±0.5 seconds. Capacitor shall be immersed to a depth of 10mm.                                                                                                                                                                                                                                                               |      |                 |           |   |           |     |   |       |    |   |           |     |   |       |    |
| 13   | Resistance to soldering Heat | Appearance:<br>No evidence of mechanical damage or delamination or exposed.<br>Cap change:<br>within -1.0%~+2.0% or ±0.5pF whichever is larger.<br>Q: No less than initial requirement.<br>IR(25°C): No less than initial requirement.          | Preheat for 1 minute at 150°C to 180°C before immerse the capacitor in a eutectic solution at 260±5°C for 10±1 seconds. Capacitor shall be immersed to a depth of 10mm.<br>And following a 24±2 hours cooling period.                                                                                                                                                                                          |      |                 |           |   |           |     |   |       |    |   |           |     |   |       |    |
| 14   | Temperature Cycle            | Appearance:<br>No evidence of mechanical damage .<br>Cap change:<br>within ±0.5% or ±0.5pF whichever is larger.<br>Q: No less than initial requirement.<br>IR(25°C): No less than 30% initial requirement.<br>DWV: To meet initial requirement. | Perform the 5 cycles according to the four heat treatments listed in the following table. Set it for 24±2 hours at room temperature. <table><tr><td>step</td><td>Temperature(°C)</td><td>Time(min)</td></tr><tr><td>1</td><td>-55(-3~0)</td><td>≥30</td></tr><tr><td>2</td><td>25+10</td><td>≤5</td></tr><tr><td>3</td><td>125(0~+3)</td><td>≥30</td></tr><tr><td>4</td><td>25+10</td><td>≤5</td></tr></table> | step | Temperature(°C) | Time(min) | 1 | -55(-3~0) | ≥30 | 2 | 25+10 | ≤5 | 3 | 125(0~+3) | ≥30 | 4 | 25+10 | ≤5 |
| step | Temperature(°C)              | Time(min)                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                |      |                 |           |   |           |     |   |       |    |   |           |     |   |       |    |
| 1    | -55(-3~0)                    | ≥30                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                |      |                 |           |   |           |     |   |       |    |   |           |     |   |       |    |
| 2    | 25+10                        | ≤5                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                |      |                 |           |   |           |     |   |       |    |   |           |     |   |       |    |
| 3    | 125(0~+3)                    | ≥30                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                |      |                 |           |   |           |     |   |       |    |   |           |     |   |       |    |
| 4    | 25+10                        | ≤5                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                |      |                 |           |   |           |     |   |       |    |   |           |     |   |       |    |
| 15   | Humidity, steady state       | Appearance:<br>No evidence of mechanical damage .<br>Cap change:<br>within ±0.3% or ±0.3pF whichever is larger.<br>IR(25°C): No less than initial requirement.                                                                                  | With 1.5 Volts D.C. applied while subjected to an environment of 85°C with 85% relative humidity for 240 hours minimum.<br>Removed and sit 3.5±0.5 hours at room temperature.                                                                                                                                                                                                                                  |      |                 |           |   |           |     |   |       |    |   |           |     |   |       |    |
| 16   | High Temperature Load (Life) | Appearance:<br>No evidence of mechanical damage .<br>Cap change:<br>within ±2% or ±0.5pF whichever is larger.<br>Q: No less than 50% initial requirement.<br>IR(25°C): No less than 30% initial requirement.                                    | Test Voltage:<br>Rated voltage≤500V: 200% of the rated voltage<br>500V<Rated voltage≤1250V: 120% of the rated voltage<br>Rated voltage>1250V: 100% of the rated voltage<br>The charge/discharge current is less than 50mA.<br>Temperature: Tmax°C;<br>Time: 2000h.<br>Measurement:<br>Set it for 48 hours at room temperature, then measure.                                                                   |      |                 |           |   |           |     |   |       |    |   |           |     |   |       |    |

◆ **DLC70G Performance Curve**

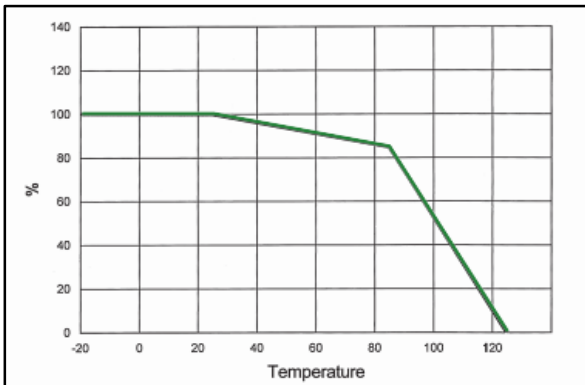
Frequency VS Capacitance



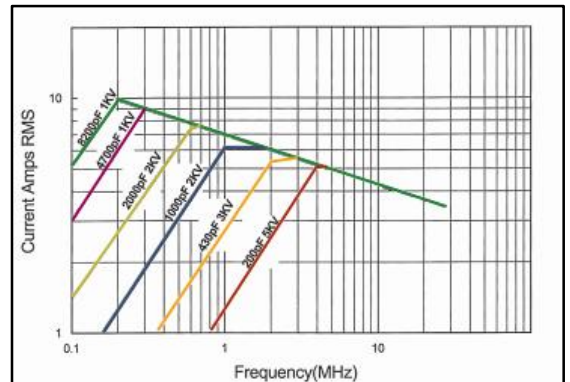
ESR VS Capacitance



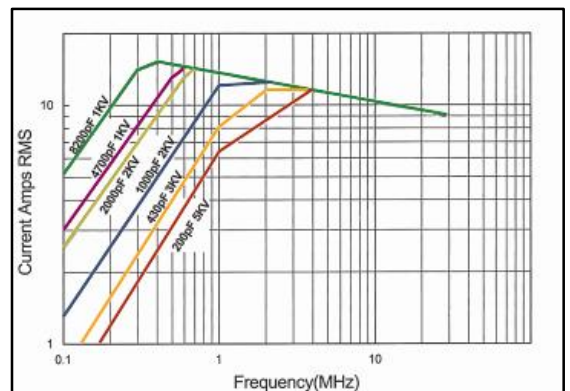
Current (max) VS Temperature



Wire Lead Current Amps RMS VS Frequency

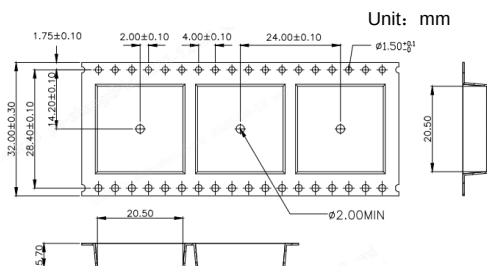


Ribbon Lead Current Amps RMS VS Frequency

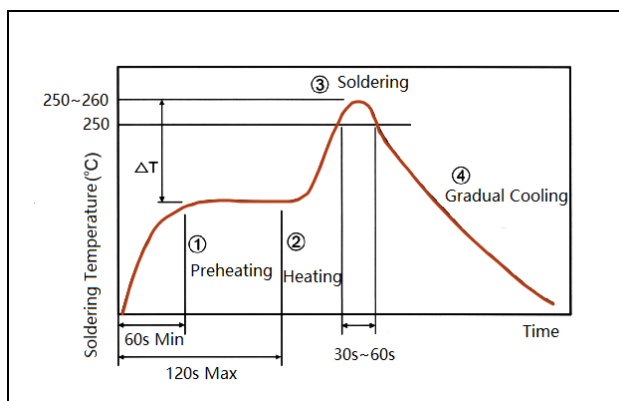


### ◆ Tape & Reel Specifications

| Orientation | EIA  | A0   | B0   | K0  | W  | Qty/reel | Tape Material |
|-------------|------|------|------|-----|----|----------|---------------|
| Horizontal  | 7575 | 20.5 | 20.5 | 5.7 | 32 | 200      | Plastic       |



### ◆ Recommended soldering conditions



$\Delta T \leq 150^{\circ}\text{C}$  ;

Maximum temperature:  $255^{\circ}\text{C} \pm 5^{\circ}\text{C}$  ;

Heating rate:  $\leq 4^{\circ}\text{C/s}$ .

### ◆ Recommended Land Dimensions

#### Horizontal Mounting

| Orientation | EIA  | A(mm) | B(mm) | C(mm) |
|-------------|------|-------|-------|-------|
| Horizontal  | 7575 | 17.00 | 3.3   | 22.60 |

