

TPU series is designed with size-sensitive applications in mind by using a face down terminal structure.

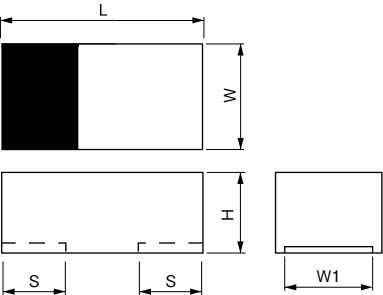


### Specifications

| Items                                                          | Condition                                                           |                           | Specifications                               |     |     |    |
|----------------------------------------------------------------|---------------------------------------------------------------------|---------------------------|----------------------------------------------|-----|-----|----|
| Rated voltage (V)                                              | —                                                                   |                           | 2.5                                          | 4.0 | 6.3 | 10 |
| Surge voltage (V)                                              | —                                                                   |                           | 2.9                                          | 4.6 | 7.2 | 12 |
| Category temperature range (°C)                                | —                                                                   |                           | −55 to +85                                   |     |     |    |
| Capacitance tolerance (%)                                      | 120Hz/20°C                                                          |                           | M : ±20                                      |     |     |    |
| Rated capacitance range (μF)                                   | 120Hz/20°C                                                          |                           | 4.7 to 150                                   |     |     |    |
| Dissipation Factor (DF)                                        | 120Hz/20°C                                                          |                           | Please see the attached characteristics list |     |     |    |
| Leakage current                                                | Rated voltage applied, after 5 minutes                              |                           | Please see the attached characteristics list |     |     |    |
| Equivalent series resistance (ESR)                             | 100kHz/20°C                                                         |                           | Please see the attached characteristics list |     |     |    |
| Characteristics of impedance ratio at high temp. and low temp. | 100kHz/+20°C                                                        | −55°C Z/Z <sub>20°C</sub> | 0.6 to 2.0                                   |     |     |    |
|                                                                |                                                                     | +85°C Z/Z <sub>20°C</sub> | 0.6 to 2.0                                   |     |     |    |
| Endurance                                                      | 85°C, 1,000h, rated voltage applied                                 | ΔC/C                      | Within±20% of the initial value              |     |     |    |
|                                                                |                                                                     | DF                        | ≤ 1.5 times of the initial limit             |     |     |    |
|                                                                |                                                                     | LC                        | Within the initial limit                     |     |     |    |
| Damp heat (Steady State)                                       | 60°C, 90 to 95%RH, 500h, No-applied voltage                         | ΔC/C                      | Within+40%,−20% of the initial value         |     |     |    |
|                                                                |                                                                     | DF                        | ≤ 1.5 times of the initial limit             |     |     |    |
|                                                                |                                                                     | LC                        | ≤ 3 times of the initial limit               |     |     |    |
| Surge                                                          | 85°C, 1,000 cycles, 1kΩ discharge resistance, surge voltage applied | ΔC/C                      | Within±5% of the initial value               |     |     |    |
|                                                                |                                                                     | DF                        | Within the initial limit                     |     |     |    |
|                                                                |                                                                     | LC                        | ≤ 3 times of the initial limit               |     |     |    |

(unit: mm)

### Dimensions



| Size code | L ±0.1※1 | W ±0.1※1 | H ±0.1 | S ±0.1※1 | W1 ±0.1 |
|-----------|----------|----------|--------|----------|---------|
| S09       | 2.0      | 1.25     | 0.9    | 0.5      | 0.9     |
| S11       | 2.0      | 1.25     | 1.1    | 0.5      | 0.9     |
| B09       | 3.5      | 2.8      | 0.9    | 0.8      | 2.2     |

※1 ±0.2:B09

### Size list

RV : Rated voltage

| μF \ RV | 2.5 | 4.0 | 6.3 | 10  |
|---------|-----|-----|-----|-----|
| 4.7     |     |     |     | S09 |
| 10      |     |     | S09 |     |
| 22      |     |     | S09 |     |
| 33      |     |     | S11 |     |
| 47      | S09 | S11 | S09 |     |
| 68      | S11 | S09 |     |     |
| 100     | S09 |     |     |     |
| 150     |     |     | B09 |     |

### TPU series characteristics list

| Size code | Part number | Rated voltage (V) | Rated temperature (°C) | Rated capacitance (μF) | Category voltage (V) | Category temperature (°C) | DF (% max) | LC (μA) max/5min. | ESR (mΩmax) 100kHz/20°C | Maximum allowable ripple current (mA <sub>rms</sub> ) 100kHz※1 | MSL |   |
|-----------|-------------|-------------------|------------------------|------------------------|----------------------|---------------------------|------------|-------------------|-------------------------|----------------------------------------------------------------|-----|---|
| S09       | 10TPU4R7MSI | 10                | 85                     | 4.7                    | 10                   | 85                        | 10.0       | 4.7               | 300                     | 360                                                            | 3   | 3 |
|           | 6TPU47MSI   | 6.3               | 85                     | 47                     | 6.3                  | 85                        | 10.0       | 59.2              | 150                     | 510                                                            | —   | 3 |
|           | 6TPU22MSI   | 6.3               | 85                     | 22                     | 6.3                  | 85                        | 10.0       | 27.7              | 150                     | 510                                                            | —   | 3 |
|           | 6TPU10MSI   | 6.3               | 85                     | 10                     | 6.3                  | 85                        | 10.0       | 6.3               | 250                     | 400                                                            | —   | 3 |
|           | 4TPU68MSI   | 4.0               | 85                     | 68                     | 4.0                  | 85                        | 10.0       | 54.4              | 150                     | 510                                                            | —   | 3 |
|           | ETPU100MSI  | 2.5               | 85                     | 100                    | 2.5                  | 85                        | 10.0       | 50.0              | 150                     | 510                                                            | —   | 3 |
| S11       | 2R5TPU47MSI | 2.5               | 85                     | 47                     | 2.5                  | 85                        | 10.0       | 23.5              | 150                     | 510                                                            | —   | 3 |
|           | 6TPU33MSK   | 6.3               | 85                     | 33                     | 6.3                  | 85                        | 10.0       | 41.6              | 150                     | 510                                                            | —   | 3 |
|           | 4TPU47MSK   | 4.0               | 85                     | 47                     | 4.0                  | 85                        | 10.0       | 37.6              | 150                     | 510                                                            | —   | 3 |
|           | 2R5TPU68MSK | 2.5               | 85                     | 68                     | 2.5                  | 85                        | 10.0       | 34.0              | 150                     | 510                                                            | —   | 3 |
| B09       | 6TPU150MBI  | 6.3               | 85                     | 150                    | 6.3                  | 85                        | 10.0       | 94.5              | 100                     | 670                                                            | 3   | 3 |

※1 100k to 500kHz,45°C