

Surface mount type

TPU Series

RoHS compliance

Small size · Low profile

Face down terminal type

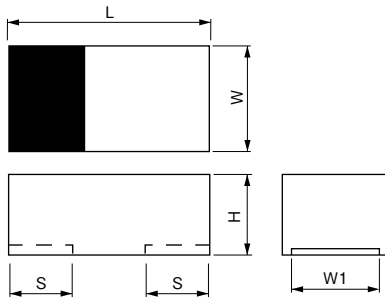
TPU series has a real advantage in size-sensitive applications using a face down terminal structure.



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 _{20°C} | 0.6 to 2.0 | | |
| | | +85°C Z/Z _{20°C} | 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 | | |

Dimensions



(unit: mm)

| 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 |
| A09 | 3.2 | 1.6 | 0.9 | 0.8 | 1.2 |
| B09 | 3.5 | 2.8 | 0.9 | 0.8 | 2.2 |

*1 ±0.2:A09,B09

Size list

RV : Rated voltage

| μF \ RV | 2.5 | 4.0 | 6.3 | 10 |
|---------|-----|-----|-----|-----|
| 4.7 | | | | S09 |
| 10 | | | S09 | |
| 15 | | S09 | | |
| 22 | S09 | | S09 | |
| 33 | | S09 | S11 | A09 |
| 47 | S09 | S11 | A09 | |
| 68 | S11 | A09 | | |
| 100 | A09 | | | |
| 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 rms) 100kHz*1 | MSL | |
|-----------|--------------|-------------------|------------------------|------------------------|----------------------|---------------------------|------------|-------------------|-------------------------|--|---------------------|---------------------|
| | | | | | | | | | | | Reflow temp. ≤260°C | Reflow temp. ≤250°C |
| S09 | 10TPU4R7MSI | 10 | 85 | 4.7 | 10 | 85 | 10.0 | 4.7 | 300 | 360 | — | 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 |
| | 4TPU33MSI | 4.0 | 85 | 33 | 4.0 | 85 | 10.0 | 26.4 | 150 | 510 | — | 3 |
| | 4TPU15MSI | 4.0 | 85 | 15 | 4.0 | 85 | 10.0 | 6.0 | 250 | 400 | — | 3 |
| | 2R5TPU47MSI | 2.5 | 85 | 47 | 2.5 | 85 | 10.0 | 23.5 | 150 | 510 | — | 3 |
| | 2R5TPU22MSI | 2.5 | 85 | 22 | 2.5 | 85 | 10.0 | 5.5 | 250 | 400 | — | 3 |
| S11 | 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 |
| A09 | 10TPU33MAI | 10 | 85 | 33 | 10 | 85 | 10.0 | 33.0 | 150 | 510 | 3 | 3 |
| | 6TPU47MAI | 6.3 | 85 | 47 | 6.3 | 85 | 10.0 | 29.6 | 150 | 510 | 3 | 3 |
| | 4TPU68MAI | 4.0 | 85 | 68 | 4.0 | 85 | 10.0 | 27.2 | 150 | 510 | 3 | 3 |
| | 2R5TPU100MAI | 2.5 | 85 | 100 | 2.5 | 85 | 10.0 | 25.0 | 150 | 510 | 3 | 3 |
| B09 | 6TPU150MBI*2 | 6.3 | 85 | 150 | 6.3 | 85 | 10.0 | 94.5 | 100 | 670 | 3 | 3 |

Please refer to page 65 for the compensation coefficient of maximum allowable ripple current.

*1 100k to 500kHz, 45°C

*2 Under development

TPU

POSCAP

POSCAP Line-up

Guidelines and precautions for use

Series system diagram

Image of case size

Products list

Explanation of part numbers

Packing specifications

Marking

Recommended land pattern dimension

Recommended soldering condition

Fundamental structure

Characteristics

Reliability

Tantalum Solid Capacitors with Conductive Polymer

TPSF

TPU

TPL-TPLF

TPF

TPG

TPE

TPB

TPC

TPD

TA

TH

TQC