

Surface mount type

# TPU Series

RoHS compliance

Small size · Low profile

Face down terminal type

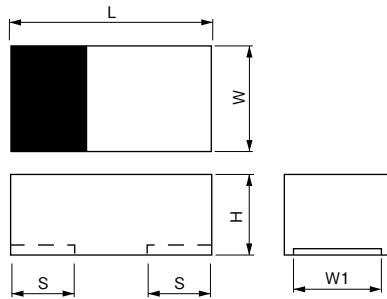
TPU series has a real advantage in size-sensitive applications using a face down terminal structure.



## 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 <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		

## 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