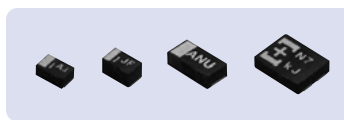


TPU Series



Small size • Low profile
Face down terminal type

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

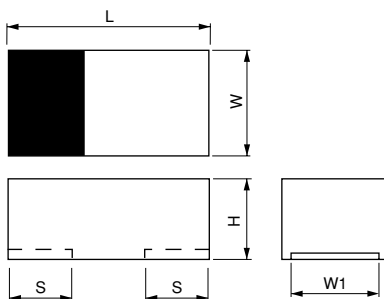


Specifications

Items	Condition			Specifications			
Rated voltage (V)	—			2.5	4.0	6.3	10
Surge voltage (V)	—			3.2	5.0	8.0	13
Category temperature range (°C)	—			-55 to +85			
Capacitance tolerance (%)	120Hz/20°C			M : ±20			
Rated capacitance range (μF)	120Hz/20°C			10 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		≤ 1.5 times of 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		≤ 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
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
S09	10TPU4R7MSI	10	85	4.7	10	85	10.0	4.7	500	280	— 3
	6TPU10MSI	6.3	85	10	6.3	85	10.0	6.3	250	400	— 3
	4TPU15MSI	4.0	85	15	4.0	85	10.0	6.0	250	400	— 3
	2R5TPU22MSI	2.5	85	22	2.5	85	10.0	5.5	250	400	— 3
	6TPU22MSI	6.3	85	22	6.3	85	10.0	27.7	150	510	— 3
	4TPU33MSI	4.0	85	33	4.0	85	10.0	26.4	150	510	— 3
	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
S11	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
	10TPU33MAI	10	85	33	10	85	10.0	33.0	150	510	3 3
A09	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 71 for the compensation coefficient of maximum allowable ripple current.

※1 100k to 500kHz, 45°C
※2 Under development