

TPE Series

Low ESR Products (D2E, D3L, D4 Size)

Feature

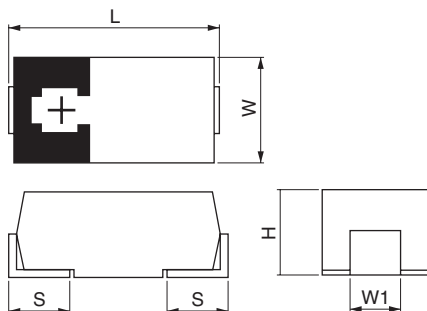
TPE series has low ESR and can aid in the miniaturization of many products.



Specifications

Items	Condition	Characteristics		
Operating Temperature range	—	-55 to +105 (°C)		
Rated capacitance range	120Hz/20°C	68 to 1500 (μF)		
Capacitance tolerance	120Hz/20°C	M:±20%		
Rated voltage	—	2.5 to 10 (V.DC)		
Dissipation Factor (D.F.)	120Hz/20°C	≤ 10.0 (%) ★D4size:≤ 15.0 (%)		
Leakage current	Rated voltage applied, after 5 minutes	Please see the attached characteristics list		
Equivalent series resistance (E.S.R. mΩmax.)	100kHz/20°C	Please see the attached characteristics list		
Temperature characteristics of Impedance ratio	100kHz/+20°C	-55°C	Z/Z _{20°C}	1.0 to 2.0
		+105°C	Z/Z _{20°C}	0.6 to 1.0
Endurance	105°C, 2000h, rated voltage applied ★Rated temp. 85°C products: 85°C, 1000h, rated voltage applied	ΔC/C	Within±20% of the initial value	
		D.F.	≤ 1.5 times the initial limit	
		L.C.	≤ The initial limit	
Damp heat (Steady state)	60°C, 90 to 95%RH, 500h, No voltage applied	ΔC/C	Within+50%, -20% of the initial value (2R5TPE470M (I.F.C.9.7), 2R5TPE330M (I.F.C.9.7), 2R5TPE220M (I.F.C.9.7), 2R5TPE1000M (I.F.), 2R5TPE1500M (F.C)) Within+40%, -20% of the initial value (Except for the above model)	
		D.F.	≤ 1.5 times the initial limit	
		L.C.	≤ 3 times the initial limit	
Surge	105°C, 1000 cycles, 1kΩ discharge resistance, surge voltage applied ★6TPE330MAP, 16TPE220MAP: 85°C	ΔC/C	Within±5% of the initial value	
		D.F.	≤ The initial limit	
		L.C.	≤ 3 times the initial limit	

Dimensions



(unit: mm)

Size code	L (±0.3)	W (±0.2)	H*1 (±0.2)	S (±0.2)	W1 (±0.1)
D2E	7.3	4.3	1.8	1.3	2.4
D3L	7.3	4.3	2.8	1.3	2.4
D4	7.3	4.3	3.8	1.3	2.4

★1 ±0.1:D2E

Size List

μF \ RV (SV)	2.5 (3.2)	4.0 (5.0)	6.3 (8.0)	10.0 (13.0)
68				D2E
100			D2E	
150		D2E	D2E	
220	D2E	D2E	D2E	D3L
330	D2E	D2E	D2E, D3L	D4
470	D2E	D3L	D4	
680	D3L	D4	D4	
1000	D4			

Characteristics List

Size code	SANYO Part number	Rated Voltage (V)	Rated Temperature (°C)	Rated Capacitance (μF)	Category Voltage (V)	Category Temperature (°C)	D.F. (%max.)	L.C. (μA) max./5min.	E.S.R. (mΩmax.) 100kHz/20°C	Maximum allowable ripple current (mA _{rms}) 100kHz*1	MSL	
											Reflow Temp. ≤ 260°C	Reflow Temp. ≤ 250°C
D2E	10TPE68M	10.0	105	68	10.0	105	10.0	68.0	25	2400	3	2a
	6TPE330MAP	6.3	85	330	5.0	105	10.0	207.9	25	2400		
	6TPE220MAP	6.3	85	220	5.0	105	10.0	138.6	25	2400		
	6TPE220M	6.3	105	220	6.3	105	10.0	138.6	25	2400		
	6TPE220MI								18	2800		
	6TPE150M	6.3	105	150	6.3	105	10.0	94.5	25	2400		
	6TPE150MI								18	2800		
	6TPE100M	6.3	105	100	6.3	105	10.0	63.0	25	2400		
	6TPE100MI								18	2800		
	4TPE330M	4.0	105	330	4.0	105	10.0	132.0	25	2400		
	4TPE330MI								18	2800		
	4TPE220M	4.0	105	220	4.0	105	10.0	88.0	25	2400		
	4TPE220MI								18	2800		
	4TPE220MF	4.0	105	150	4.0	105	10.0	60.0	15	3100		
	4TPE150M								25	2400		
	4TPE150MI								18	2800		
	2R5TPE470M								25	2400		
	2R5TPE470MI	2.5	105	470	2.5	105	10.0	117.5	18	2800		
	2R5TPE470MF								15	3100		
	2R5TPE470MC								12	3500		
	2R5TPE470M9								9	3900		
	2R5TPE470M7	2.5	105	470	2.5	105	10.0	235.0	7	4400	(*2)	
	2R5TPE330M	2.5	105	330	2.5	105	10.0	82.5	25	2400	3	
	2R5TPE330MI								18	2800		
	2R5TPE330MF								15	3100		
	2R5TPE330MC								12	3500		
	2R5TPE330M9	9	3900									
	2R5TPE330M7	2.5	105	330	2.5	105	10.0	165.0	7	4400	(*2)	
	2R5TPE220M	2.5	105	220	2.5	105	10.0	55.0	25	2400	3	
	2R5TPE220MI								18	2800		
	2R5TPE220MF								15	3100		
	2R5TPE220MC								12	3500		
	2R5TPE220M9	9	3900									
	2R5TPE220M7	2.5	105	220	2.5	105	10.0	110.0	7	4400	(*2)	
D3L	10TPE220ML	10.0	105	220	10.0	105	10.0	220.0	25	2400	3	
	6TPE330ML	6.3	105	330	6.3	105	10.0	207.9	25	2400		
	6TPE330MIL								18	2800		
	4TPE470ML	4.0	105	470	4.0	105	10.0	188.0	25	2400		
	4TPE470MIL								18	2800		
	4TPE470MFL								15	3100		
	4TPE470MCL								12	3500		
	2R5TPE680ML	2.5	105	680	2.5	105	10.0	170.0	25	2400		
	2R5TPE680MIL								18	2800		
	2R5TPE680MFL								15	3100		
	2R5TPE680MCL								12	3500		
D4	10TPE330M	10.0	105	330	10.0	105	10.0	330.0	25	3000	3	
	6TPE680M	6.3	105	680	6.3	105	15.0	428.4	25	3000		
	6TPE680MI								18	3500		
	6TPE470M	6.3	105	470	6.3	105	15.0	296.1	25	3000		
	6TPE470MI								18	3500		
	4TPE680M	4.0	105	680	4.0	105	15.0	272.0	25	3000		
	4TPE680MI								18	3500		
	4TPE680MF	2.5	105	1000	2.5	105	15.0	250.0	15	3900		
	2R5TPE1000M								25	3000		
	2R5TPE1000MI								18	3500		
	2R5TPE1000MF								15	3900		
	2R5TPE1500MF	2.5	105	1500	2.5	105	15.0	375.0	15	3900	(*2)	
	2R5TPE1500MC								12	4400		

★1 100k to 500kHz, 45°C ★2 Under evaluation