

TPE Series Low ESR Products (D2E, D3L, D4 Size)

Feature

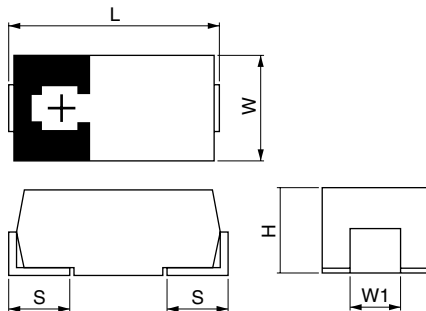
TPE series has low ESR and can aid in the miniaturization of many products.



Specifications

Items	Condition	Characteristics		
Operating Temperature range	—	-55 to +105 (°C)		
Rated capacitance range	120Hz/20°C	68 to 1000 (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	≤ 0.1CV (μA)		
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), 2R5TPE330M (I.F.C.9), 2R5TPE220M (I.F.C.9), 2R5TPE1000M (I.F.)) 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: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

(Rated Temperature 105°C products)

Size code	SANYO Part number	Rated Voltage (V)	Rated Temperature (°C)	Rated Capacitance (μF)	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	68.0	25	2400	3	2a
	6TPE220M	6.3	105	220	10.0	138.6	25	2400		
	6TPE220MI						18	2800		
	6TPE150M	6.3	105	150	10.0	94.5	25	2400		
	6TPE150MI						18	2800		
	6TPE100M	6.3	105	100	10.0	63.0	25	2400		
	6TPE100MI						18	2800		
	4TPE330M	4.0	105	330	10.0	132.0	25	2400		
	4TPE330MI						18	2800		
	4TPE220M	4.0	105	220	10.0	88.0	25	2400		
	4TPE220MI						18	2800		
	4TPE220MF						15	3100		
	4TPE150M						25	2400		
	4TPE150MI	4.0	105	150	10.0	60.0	18	2800		
	2R5TPE470M						25	2400		
	2R5TPE470MI	2.5	105	470	10.0	117.5	18	2800		
	2R5TPE470MF						15	3100		
	2R5TPE470MC						12	3500		
	2R5TPE470M9						9	3900		
	2R5TPE330M	2.5	105	330	10.0	82.5	25	2400		
	2R5TPE330MI						18	2800		
	2R5TPE330MF						15	3100		
	2R5TPE330MC						12	3500		
	2R5TPE330M9						9	3900		
	2R5TPE220M						25	2400		
	2R5TPE220MI	2.5	105	220	10.0	55.0	18	2800		
	2R5TPE220MF						15	3100		
	2R5TPE220MC						12	3500		
2R5TPE220M9	9						3900			
D3L	10TPE220ML	10.0	105	220	10.0	220.0	25	2400	3	2a
	6TPE330ML	6.3	105	330	10.0	207.9	25	2400		
	6TPE330MIL						18	2800		
	4TPE470ML	4.0	105	470	10.0	188.0	25	2400		
	4TPE470MIL						18	2800		
	4TPE470MFL						15	3100		
	4TPE470MCL						12	3500		
	2R5TPE680ML	2.5	105	680	10.0	170.0	25	2400		
	2R5TPE680MIL						18	2800		
	2R5TPE680MFL						15	3100		
2R5TPE680MCL	12						3500			
D4	10TPE330M	10.0	105	330	10.0	330.0	25	3000	3	2a
	6TPE680M	6.3	105	680	15.0	428.4	25	3000		
	6TPE680MI						18	3500		
	6TPE470M	6.3	105	470	15.0	296.1	25	3000		
	6TPE470MI						18	3500		
	4TPE680M	4.0	105	680	15.0	272.0	25	3000		
	4TPE680MI						18	3500		
	4TPE680MF						15	3900		
	2R5TPE1000M	2.5	105	1000	15.0	250.0	25	3000		
	2R5TPE1000MI						18	3500		
2R5TPE1000MF	15						3900			
2R5TPE1000M9	9						3900			

*1 100k to 500kHz, 45°C

(Rated Temperature 85°C products)

Size code	SANYO Part number	Rated Voltage (V)	Rated Temperature (°C)	Category Voltage (V)	Category Temperature (°C)	Rated Capacitance (μF)	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	6TPE330MAP	6.3	85	5.0	105	330	10.0	207.9	25	2400	3	2a
	6TPE220MAP	6.3	85	5.0	105	220	10.0	138.6	25	2400		

*1 100k to 500kHz, 45°C

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