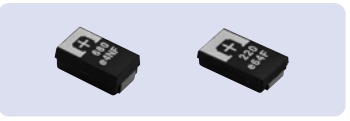
SANYO

Conductive polymer type / Surface mount type — RoHS compliance

TPF Series



Low ESR
High capacitance

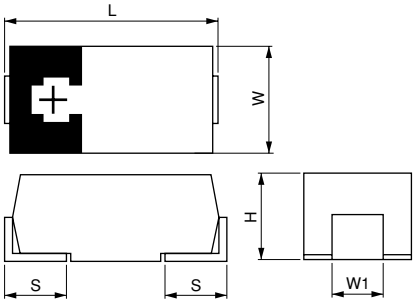
TPF series has low ESR and high capacitance at standard form.

TPE → TPF (Low ESR, High capacitance)

■ Specifications

Items	Condition		Specifications				
Rated voltage (V)	–		2.0	2.5	4.0	6.3	10
Surge voltage (V)	–		2.6	3.2	5.0	8.0	13
Category temperature range (℃)	–		−55 to +105				
Capacitance tolerance (%)	120Hz/20℃		M : ±20				
Rated capacitance range (μF)	120Hz/20℃		150 to 680				
Dissipation Factor (DF)	120Hz/20℃		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℃		Please see the attached characteristics list				
Characteristics of impedance ratio at high temp. and low temp.	100kHz/+20℃	−55℃ Z/Z20℃	0.6 to 2.0				
		+105℃ Z/Z20℃	0.6 to 2.0				
Endurance	105℃, 2,000h, rated voltage applied	△C/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℃, 90 to 95%RH, 500h, No-applied voltage	△C/C	Within+50%,−20% of the initial value(D2E size)				
			Within+40%, −20% of the initial value (Except for the above model)				
		DF	≤ 1.5 times of the initial limit				
		LC	≤ 3 times of the initial limit				
Surge	105℃, 1,000 cycles, 1kΩ discharge resistance, surge voltage applied	△C/C	Within±5% of the initial value				
		DF	≤ The initial limit				
		LC	≤ 3 times of the initial limit				

■ Dimensions



(unit: mm)

Size code	L ±0.3	W ±0.2	H ±0.2※1	S ±0.2	W1 ±0.1
D3L	7.3	4.3	2.8	1.3	2.4
D2E	7.3	4.3	1.8	1.3	2.4

※1 ±0.1:D2E

■ Size list

RV : Rated voltage

μF \ RV	2.0	2.5	4.0	6.3	10.0
150					D3L
220	D2E			D3L	
330	D2E	D3L	D3L	D3L	
470		D3L	D3L		
680		D3L			

■TPF series characteristics list

Size code	Part number	Rated voltage (V)	Rated temperature (℃)	Rated capacitance (μF)	Category voltage (V)	Category temperature (℃)	DF (% max)	LC (μA) max/5min.	ESR (mΩmax) 100kHz/20℃	Maximum allowable ripple current (mArms) 100kHz※1	MSL Reflow temp. ≤ 260℃	MSL Reflow temp. ≤ 250℃
D3L	10TPF150ML	10	105	150	10	105	10.0	150.0	15	3600	—	2a
	6TPF330M9L	6.3	105	330	6.3	105	10.0	207.9	9	3900	3	2a
	6TPF220ML	6.3	105	220	6.3	105	10.0	138.6	12	4000	3	2a
	4TPF470ML	4.0	105	470	4.0	105	10.0	188.0	10	4400	3	2a
	4TPF330ML	4.0	105	330	4.0	105	10.0	132.0	12	4000	3	2a
	2R5TPF680ML	2.5	105	680	2.5	105	10.0	170.0	10	4400	3	2a
	2R5TPF680M7L	2.5	105	680	2.5	105	10.0	170.0	7	4400	3	2a
	2R5TPF680M6L	2.5	105	680	2.5	105	10.0	170.0	6	4400	3	2a
	2R5TPF470ML	2.5	105	470	2.5	105	10.0	117.5	10	4400	3	2a
	2R5TPF470M7L	2.5	105	470	2.5	105	10.0	117.5	7	4400	3	2a
	2R5TPF470M6L	2.5	105	470	2.5	105	10.0	117.5	6	4400	3	2a
	2R5TPF330M7L	2.5	105	330	2.5	105	10.0	82.5	7	4400	3	2a
D2E	2TPF330M6	2.0	105	330	2.0	105	10.0	132.0	6	4400	—	2a
	2TPF220M6	2.0	105	220	2.0	105	10.0	88.0	6	4400	—	2a

Please refer to page 71 for the compensation coefficient of maximum allowable ripple current.

※1 100k to 500kHz,45℃