Surface mount type

TPL·TPLF Series Up Grade

RoHS compliance

Low ESR・Low ESL

Face down terminal type

TPL series has a low ESL and low ESR advantage using an unique face down terminal structure.

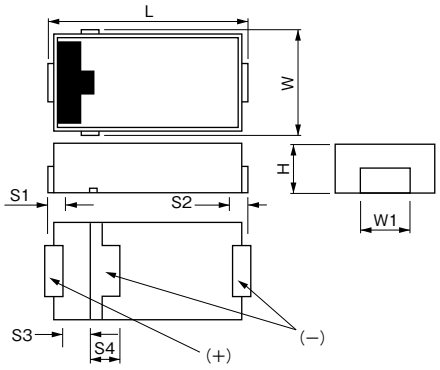
(back)

TPB (Standard) → TPL/TPLF Low ESL Low ESR

■ Specifications

Items	Condition		Specifications			
Rated voltage (V)	–		2.0	2.5	4.0	6.3
Surge voltage (V)	–		2.3	2.9	4.6	7.2
Category temperature range (℃)	–		−55 to +105			
Capacitance tolerance (%)	120Hz/20℃		M : ±20			
Rated capacitance range (μF)	120Hz/20℃		100 to 560			
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 (* 2R5TPL330M9U:1,000h)	△C/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℃, 90 to 95%RH, 500h, No-applied voltage	△C/C	Within+50%,−20% of the initial value			
		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	Within the initial limit			
		LC	≤ 3 times of the initial limit			

■ Dimensions



■ Size list

RV : Rated voltage

μF \ RV	2.0	2.5	4.0	6.3
100				D12T
150			D12T	D15T
220	D12T,D2T	D15T	D15T	D15T
330	D2T	D15T,D2T		
470	D2T	D2T		
560	D2T			

(unit: mm)

Size code	L ±0.3	W ±0.2	H ±0.1	S1/S2 ±0.2	S3 ±0.1	S4 ±0.2	W1 ±0.1
D12T	7.3	4.3	1.1	1.1	1.1	2.3	2.8
D15T	7.3	4.3	1.4	1.1	1.1	2.3	2.8
D2T	7.3	4.3	1.8	1.1	1.1	2.3	2.8

■ TPL 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℃	ESL (nHmax) *Tipical value	Maximum allowable ripple current (mArms) 100kHz※1	MSL Reflow temp. ≤ 260℃	MSL Reflow temp. ≤ 250℃
D12T	6TPL100MD※2	6.3	105	100	6.3	105	10.0	126.0	25	1.0	2100	3	2a
	4TPL150MD	4.0	105	150	4.0	105	10.0	120.0	25	1.0	2100	3	2a
	2TPL220MD※2	2.0	105	220	2.0	105	10.0	88.0	25	1.0	2100	3	2a
D15T	6TPL220MAU	6.3	85	220	5.0	105	10.0	277.2	25	0.9	2100	3	2a
	6TPL150MU	6.3	105	150	6.3	105	10.0	189.0	25	0.9	2100	3	2a
	4TPL220MKU	4.0	105	220	4.0	105	10.0	176.0	20	0.9	2400	3	2a
	2R5TPL330MFU	2.5	105	330	2.5	105	10.0	165.0	15	0.9	2800	3	2a
	2R5TPL330M9U	2.5	105	330	2.5	105	10.0	165.0	9	0.9	3600	3	2a
	2R5TPL220MIU	2.5	105	220	2.5	105	10.0	110.0	18	0.9	2500	3	2a
D2T	2R5TPL470MC	2.5	105	470	2.5	105	10.0	117.5	12	0.8	3400	3	2a
	2R5TPL470M9	2.5	105	470	2.5	105	10.0	117.5	9	0.8	3900	3	2a
	2R5TPL470M8	2.5	105	470	2.5	105	10.0	235.0	8	0.8	4100	3	2a
	2R5TPL470M7※2	2.5	105	470	2.5	105	10.0	235.0	7	0.8	4400	3	2a
	2R5TPL330MC	2.5	105	330	2.5	105	10.0	82.5	12	0.8	3400	3	2a
	2R5TPL330M9	2.5	105	330	2.5	105	10.0	82.5	9	0.8	3900	3	2a
	2R5TPL330M8	2.5	105	330	2.5	105	10.0	165.0	8	0.8	4100	3	2a
	2R5TPL330M7※2	2.5	105	330	2.5	105	10.0	165.0	7	0.8	4400	3	2a

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

■ TPLF 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℃	ESL (nHmax) *Tipical value	Maximum allowable ripple current (mArms) 100kHz※1	MSL Reflow temp. ≤ 260℃	MSL Reflow temp. ≤ 250℃
D2T	2TPLF560M6※2	2.0	105	560	2.0	105	10.0	224.0	6	0.5	4700	3	2a
	2TPLF560M5※2	2.0	105	560	2.0	105	10.0	224.0	5	0.5	5200	3	2a
	2TPLF470M6	2.0	105	470	2.0	105	10.0	188.0	6	0.5	4700	3	2a
	2TPLF470M5	2.0	105	470	2.0	105	10.0	188.0	5	0.5	5200	3	2a
	2TPLF470M4E	2.0	105	470	2.0	105	10.0	188.0	4/500kHz	0.5	5200	3	2a
	2TPLF330M7	2.0	105	330	2.0	105	10.0	132.0	7	0.5	4400	3	2a
	2TPLF330M6	2.0	105	330	2.0	105	10.0	132.0	6	0.5	4700	3	2a
	2TPLF330M5	2.0	105	330	2.0	105	10.0	132.0	5	0.5	5200	3	2a
	2TPLF220M7	2.0	105	220	2.0	105	10.0	88.0	7	0.5	4400	3	2a
	2TPLF220M6	2.0	105	220	2.0	105	10.0	88.0	6	0.5	4700	3	2a

Please refer to page 65 for the compensation coefficient of maximum allowable ripple current.

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