

Surface Mount Type

Series: **TPE** Size : **B**



POSCAP

Features

- Small size (L 3.5 × W 2.8 × H 1.9 mm)
- Low ESR (15 mΩ)
- RoHS compliance, Halogen free

Specifications

Size code	B2	
Category temp. range	-55 °C to +105 °C	
Rated volt. range	2.0 V.DC to 10 V.DC	
Category volt. range	1.8 V.DC to 8.0 V.DC	
Rated cap. range	47 μF to 470 μF	
Capacitance tolerance	±20 % (120 Hz / +20 °C)	
Leakage current	Please see the attached characteristics list	
Dissipation factor (tan δ)	Please see the attached characteristics list	
Surge voltage	Rated voltage × 1.15	
Endurance	+105 °C, 1000 h rated voltage applied	
	Rated temp, +85 °C Products : +85 °C, 1000 h, rated voltage applied	
	Capacitance change	Within ±20 % of the initial value
	Dissipation factor (tan δ)	≤ 1.5 times of the initial limit
Damp heat (Steady State)	+60 °C, 90 % to 95 %, 500 h, No-applied voltage	
	Capacitance change	Within +50 %, -20 % of the initial value (2R5TPE220MAZB (MAPB, MAFB), 2R5TPE330MAZB, 2TPE330MAFB (MADGB), 2TPE470MAJGB (MAFB), 2TPE330MFB, ETPE330MAFB (MA9GB))
		Within +40 %, -20 % of the initial value (Except for above model)
	Dissipation factor (tan δ)	≤ 1.5 times of the initial limit
	Leakage current	≤ 3 times of the initial limit

Marking

R.voltage code

d	2.0	j	6.3
e	2.5	k	8.0
g	4.0	A	10.0

R.capacitance code

S7	47	J8	220
A8	100	N8	330
C8	120	S8	470
E8	150		

Dimensions (not to scale)

Size code	L±0.2	W±0.2	H±0.1	S±0.2	W1±0.1
B2	3.5	2.8	1.9	0.8	2.2

Unit : mm

* Externals of figure are the reference.

Characteristics list

Rated voltage e (V.DC)	Rated temp. (°C)	Category voltage (V.DC)	Category temp. (°C)	Rated cap. (μF)	Case size (mm)			Size code	Specifications				Standard		Floor life level		
					L	W	H		Ripple current ^{*1} (mA r.m.s.)	ESR ^{*2} (mΩ max.)	tan δ ^{*3}	LC ^{*4} (μA)	Part number	Min. Packaging Qty (pcs)	Reflow temp ≤260°C	Reflow temp ≤250°C	
2	105	2.0	105	330	3.5	2.8	1.9	B2	2000	15	0.08	132.0	2TPE330MFB	2000	3	3	
	85	1.8	105		3.5	2.8	1.9		2000	15	0.08	132.0	2TPE330MAFB	2000			
	85	1.8	105		3.5	2.8	1.9		2000	13/300kHz	0.10	132.0	2TPE330MADGB	2000			
	85	1.8	105	470	3.5	2.8	1.9		2300	15	0.10	188.0	2TPE470MAFB	2000			
	85	1.8	105		3.5	2.8	1.9		2300	11/300kHz	0.08	188.0	2TPE470MAJGB	2000			
	85	2.0	105		3.5	2.8	1.9		2000	15	0.08	110.0	2R5TPE220MAFB	2000			
2.5	105	2.5	105	220	3.5	2.8	1.9		1800	15/300kHz	0.08	110.0	2R5TPE220MFGB	2000			
	105	2.5	105		3.5	2.8	1.9		1700	21	0.08	55.0	2R5TPE220MLB	2000			
	85	2.0	105		3.5	2.8	1.9		1600	25	0.08	55.0	2R5TPE220MAPB	2000			
	105	2.5	105		3.5	2.8	1.9		1400	35	0.08	55.0	2R5TPE220MZB	2000			
	85	2.0	105		3.5	2.8	1.9		1400	35	0.08	55.0	2R5TPE220MAZB	2000			
	85	2.0	105		330	3.5	2.8		1.9	1400	35	0.08	82.5	2R5TPE330MAZB			2000
	85	2.0	105	3.5		2.8	1.9		3200	9/300kHz	0.08	165.0	ETPE330MA9GB	2000			
	105	2.5	105	3.5		2.8	1.9		3200	9/300kHz	0.08	165.0	ETPE330M9GB	2000			
	85	2.0	105	3.5		2.8	1.9		2700	15	0.08	165.0	ETPE330MAFB	2000			
	105	2.5	105	3.5		2.8	1.9		2700	15	0.08	165.0	ETPE330MFB	2000			
	4	105	4.0	105		100	3.5		2.8	1.9	1400	35	0.08	40.0			4TPE100MZB
		85	3.2	105	150	3.5	2.8		1.9	1400	35	0.08	60.0	4TPE150MAZB			2000
85		3.2	105	220	3.5	2.8	1.9	1400	35	0.08	88.0	4TPE220MAZB	2000				
105		6.3	105	100	3.5	2.8	1.9	1600	25	0.08	63.0	6TPE100MPB	2000				
85	5.0	105	3.5		2.8	1.9	1400	35	0.08	63.0	6TPE100MAZB	2000					
105	6.3	105	3.5		2.8	1.9	1400	35	0.08	63.0	6TPE100MZB	2000					
85	5.0	105	120		3.5	2.8	1.9	1400	35	0.08	75.6	6TPE120MAZB	2000				
6.3	85	5.0	105		150	3.5	2.8	1.9	1600	25	0.08	94.5	6TPE150MAPB	2000			
	85	5.0	105			3.5	2.8	1.9	1400	35	0.08	94.5	6TPE150MAZB	2000			
	85	5.0	105		220	3.5	2.8	1.9	1400	35	0.10	138.6	6TPE220MAZB	2000			
	85	5.0	105			3.5	2.8	1.9	1600	25	0.10	138.6	6TPE220MAPB	2000			
	8	85	6.3	105		100	3.5	2.8	1.9	1400	35	0.08	80.0	8TPE100MAZB	2000		
		10	85	8.0		47	3.5	2.8	1.9	1400	35	0.08	47.0	10TPE47MAZB	2000		

*1: Ripple current (100 kHz / +45 °C)

*2: ESR (100 kHz / +20 °C)

*3: tan δ (120 Hz / +20 °C)

*4: After 5 minutes

• Please refer to each page in this catalog for "Reflow conditions" and "Taping specifications".

Surface Mount Type

Series: **TPE** Size : **D**



POSCAP

Features

- Low profile (Height 1.5 mm max.)
- Low ESR (7 mΩ)
- Large capacitance (1500 μF max.)
- RoHS compliance, Halogen free

Specifications

Size code	D15E	D2E	D3L	D4
Category temp. range	-55 °C to +105 °C			
Rated volt. range	6.3 V.DC	2.5 V.DC to 10 V.DC		
Category volt. range	5.0 V.DC	2.5 V.DC to 10 V.DC		
Rated cap. range	470 μF	68 μF to 470 μF	220 μF to 680 μF	330 μF to 1500 μF
Capacitance tolerance	±20 % (120 Hz / +20 °C)			
Leakage current	Please see the attached characteristics list			
Dissipation factor (tan δ)	Please see the attached characteristics list			
Surge voltage	Rated voltage × 1.15			
Endurance	+105 °C, 2000 h rated voltage applied			
	Rated temp, +85 °C Products : +85 °C, 1000 h, rated voltage applied			
	6TPE330MAP, 6TPE470MAZU : +85 °C, 2000 h,			
	Capacitance change	Within ±20 % of the initial value		
Damp heat (Steady State)	+60 °C, 90 % to 95 %, 500 h, No-applied voltage			
	Capacitance change	Within +50 %, -20 % of the initial value (2R5TPE220M (I, F, 9), 2R5TPE330M (I, F, C, 9, 7), 2R5TPE470M (I, F, C, 9, 7), 2R5TPE1000MF, 2R5TPE1500M (F, C))		
	Dissipation factor (tan δ)	≤ 1.5 times of the initial limit		
	Leakage current	≤ 3 times of the initial limit		

Marking

Diagram illustrating the marking on the capacitor. The marking includes: Polarity marking(+), R.capacitance (μF), R.voltage code, and Lot No.

R.voltage code		Unit : V.DC	
e	2.5	j	6.3
g	4.0	A	10.0

Dimensions (not to scale)

Diagram illustrating the dimensions of the capacitor: L, W, H, S, and W1.

Size code	L±0.2	W±0.2	H±0.1	S±0.2	W1±0.1
D15E	7.3	4.3	1.4	1.1	2.4
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

Unit : mm

* External figure are the reference.
* 1 ±0.1 : D15E, D2E

Characteristics list

Rated voltage e (V.DC)	Rated temp. (°C)	Category voltage (V.DC)	Category temp. (°C)	Rated cap. (μF)	Case size (mm)			Size code	Specifications				Standard		Floor life level									
					L	W	H		Ripple current ^{*1} (mA r.m.s.)	ESR ^{*2} (mΩ max.)	tan δ ^{*3}	LC ^{*4} (μA)	Part number	Min. Packaging Qty (pcs)	Reflow temp ≤260°C	Reflow temp ≤250°C								
2.5	105	2.5	105	220	7.3	4.3	1.8	D2E	3900	9	0.10	55.0	2R5TPE220M9	3000	3									
	105	2.5	105		7.3	4.3	1.8		3100	15	0.10	55.0	2R5TPE220MF	3000										
	105	2.5	105		7.3	4.3	1.8		2800	18	0.10	55.0	2R5TPE220MI	3000										
	105	2.5	105	330	7.3	4.3	1.8		2400	25	0.10	55.0	2R5TPE220M	3000										
	105	2.5	105		7.3	4.3	1.8		4400	7	0.10	82.5	2R5TPE330M7	3000										
	105	2.5	105		7.3	4.3	1.8		3900	9	0.10	82.5	2R5TPE330M9	3000										
	105	2.5	105	470	7.3	4.3	1.8		3500	12	0.10	82.5	2R5TPE330MC	3000										
	105	2.5	105		7.3	4.3	1.8		3100	15	0.10	82.5	2R5TPE330MF	3000										
	105	2.5	105		7.3	4.3	1.8		2800	18	0.10	82.5	2R5TPE330MI	3000										
	105	2.5	105	680	7.3	4.3	1.8		2400	25	0.10	82.5	2R5TPE330M	3000										
	105	2.5	105		7.3	4.3	1.8		4400	7	0.10	117.5	2R5TPE470M7	3000										
	105	2.5	105		7.3	4.3	1.8		3900	9	0.10	117.5	2R5TPE470M9	3000										
	4	105	2.5	105	1000	7.3	4.3		1.8	D3L	3500	12	0.10	170.0			2R5TPE470MC	3000	-					
		105	2.5	105		7.3	4.3		1.8		3100	15	0.10	170.0			2R5TPE470MI	3000						
		105	2.5	105		7.3	4.3		1.8		2800	18	0.10	117.5			2R5TPE470M	3000						
		105	2.5	105	1500	7.3	4.3		3.8		D4	3900	15	0.15			250.0	2R5TPE1000MF			2000			
		105	2.5	105		7.3	4.3		3.8			4400	12	0.15			375.0	2R5TPE1500MC			2000			
		105	2.5	105		7.3	4.3		3.8			3900	15	0.15			375.0	2R5TPE1500MF			2000			
6.3		105	4.0	105	150	7.3	4.3	1.8	D2E			2800	18	0.10	60.0	4TPE150MI	3000	2a						
		105	4.0	105		7.3	4.3	1.8				3100	15	0.10	88.0	4TPE220MF	3000							
		105	4.0	105		7.3	4.3	1.8				2800	18	0.10	88.0	4TPE220MI	3000							
		105	4.0	105	220	7.3	4.3	1.8				D3L	2400	25	0.10	88.0	4TPE220M					3000		
		105	4.0	105		7.3	4.3	1.8					2800	18	0.10	132.0	4TPE330MI					3000		
		105	4.0	105		7.3	4.3	1.8					2400	25	0.10	132.0	4TPE330M					3000		
		105	4.0	105	330	7.3	4.3	2.8					D3L	3500	12	0.10	188.0					4TPE470MCL	2500	
		105	4.0	105		7.3	4.3	2.8						3100	15	0.10	188.0					4TPE470MFL	2500	
		105	4.0	105		7.3	4.3	2.8						2800	18	0.10	188.0					4TPE470MIL	2500	
		105	4.0	105	470	7.3	4.3	2.8						D4	2400	25	0.10					188.0	4TPE470ML	2500
		105	4.0	105		7.3	4.3	1.8							2800	18	0.10					63.0	6TPE100MI	3000
		105	4.0	105		7.3	4.3	1.8							2400	25	0.10					63.0	6TPE100M	3000
	10	105	6.3	105	100	7.3	4.3	1.8		D2E					3100	15	0.10		94.5	6TPE150MF		3000	3	
		105	6.3	105		7.3	4.3	1.8							2800	18	0.10		94.5	6TPE150MI		3000		
		105	6.3	105		7.3	4.3	1.8							2400	25	0.10		94.5	6TPE150M		3000		
		105	6.3	105	150	7.3	4.3	1.8			D3L				2800	18	0.10		138.6	6TPE220MI		3000		
		105	6.3	105		7.3	4.3	1.8							2400	25	0.10		138.6	6TPE220M		3000		
		105	6.3	105		7.3	4.3	1.8							2400	25	0.10		138.6	6TPE220MAP		3000		
85		5.0	105	220	7.3	4.3	1.8	D3L	2400						25	0.10	207.9	6TPE330MAP	3000					
85		5.0	105		7.3	4.3	1.8		2400						25	0.10	207.9	6TPE330MAL	2500					
85		5.0	105		7.3	4.3	2.8		2400						25	0.10	207.9	6TPE330MA9EL	2500					
85		5.0	105	330	7.3	4.3	2.8		D4			3900			9/500kHz	0.10	207.9	6TPE330MA9EL	2500					
105		6.3	105		7.3	4.3	2.8					3100			15	0.10	207.9	6TPE330MFL	2500					
105		6.3	105		7.3	4.3	2.8					2800			18	0.10	207.9	6TPE330MIL	2500					
105		6.3	105	470	7.3	4.3	2.8					D4	2400		25	0.10	207.9	6TPE330ML	2500					
85		5.0	105		7.3	4.3	3.8						4400		10	0.10	207.9	6TPE330MAA	2000					
85		5.0	105		7.3	4.3	1.4						1700		35	0.10	296.1	6TPE470MAZU	4000					
105		6.3	105	680	7.3	4.3	3.8						D15E	3500	18	0.15	296.1	6TPE470MI	2000					
105		6.3	105		7.3	4.3	3.8							3000	25	0.15	296.1	6TPE470M	2000					
105		6.3	105		7.3	4.3	3.8							3500	18	0.15	428.4	6TPE680MI	2000					
105	6.3	105	1000	7.3	4.3	3.8	D4			3000				25	0.15	428.4	6TPE680M	2000						
105	6.3	105		7.3	4.3	3.8				2400				25	0.10	68.0	10TPE68M	3000						
105	10.0	105		7.3	4.3	1.8				2800				18	0.10	220.0	10TPE220MIL	2500						
10	105	10.0	105	220	7.3	4.3				2.8	D3L			2400	25	0.10	220.0	10TPE220ML	2500	-				
	105	10.0	105		7.3	4.3				2.8				2400	25	0.10	220.0	10TPE220ML	2500					
	105	10.0	105	330	7.3	4.3				3.8				D4	3000	25	0.10	330.0	10TPE330M			2000		
	105	10.0	105		7.3	4.3		3.8		3000					25	0.10	330.0	10TPE330M	2000					

*1: Ripple current (100 kHz / +45 °C)

*2: ESR (100 kHz / +20 °C)

*3: tan δ (120 Hz / +20 °C)

*4: After 5 minutes

• Please refer to each page in this catalog for "Reflow conditions" and "Taping specifications".

Guidelines and precautions regarding the technical information and use of our products described in this online catalog.

- If you want to use our products described in this online catalog for applications requiring special qualities or reliability, or for applications where the failure or malfunction of the products may directly jeopardize human life or potentially cause personal injury (e.g. aircraft and aerospace equipment, traffic and transportation equipment, combustion equipment, medical equipment, accident prevention, anti-crime equipment, and/or safety equipment), it is necessary to verify whether the specifications of our products fit to such applications. Please ensure that you will ask and check with our inquiry desk as to whether the specifications of our products fit to such applications use before you use our products.
- The quality and performance of our products as described in this online catalog only apply to our products when used in isolation. Therefore, please ensure you evaluate and verify our products under the specific circumstances in which our products are assembled in your own products and in which our products will actually be used.
- If you use our products in equipment that requires a high degree of reliability, regardless of the application, it is recommended that you set up protection circuits and redundancy circuits in order to ensure safety of your equipment.
- The products and product specifications described in this online catalog are subject to change for improvement without prior notice. Therefore, please be sure to request and confirm the latest product specifications which explain the specifications of our products in detail, before you finalize the design of your applications, purchase, or use our products.
- The technical information in this online catalog provides examples of our products' typical operations and application circuits. We do not guarantee the non-infringement of third party's intellectual property rights and we do not grant any license, right, or interest in our intellectual property.
- If any of our products, product specifications and/or technical information in this online catalog is to be exported or provided to non-residents, the laws and regulations of the exporting country, especially with regard to security and export control, shall be observed.

<Regarding the Certificate of Compliance with the EU RoHS Directive/REACH Regulations>

- The switchover date for compliance with the RoHS Directive/REACH Regulations varies depending on the part number or series of our products.
- When you use the inventory of our products for which it is unclear whether those products are compliant with the RoHS Directive/REACH Regulation, please select "Sales Inquiry" in the website inquiry form and contact us.

We do not take any responsibility for the use of our products outside the scope of the specifications, descriptions, guidelines and precautions described in this online catalog.
