

TR Series High Moisture Resistance Products

Feature

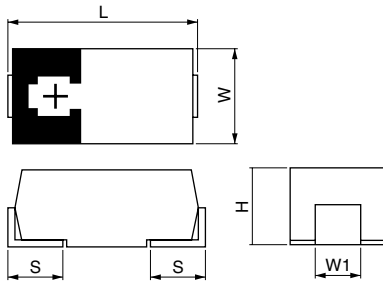
TR series are improved model of the moisture resistance more than standard products. Suitable for the industrial equipment.



Specifications

Items	Condition	Characteristics		
Operating Temperature range	—	-55 to +105 (°C)		
Rated capacitance range	120Hz/20°C	33 to 680 (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 (%) ,B2size:≤ 8.0 (%) 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,(B2size:1000h) 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 (Load)	85°C, 85%RH, 500h, rated voltage applied	ΔC/C	Within+50%, -20% of the initial value (2R5TRE220MAZB, 2R5TRE470M (F.C), 2R5TRE330M (F.C), 2R5TRE220M (F.C))	
		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 (2R5TRE220MAZB, 2R5TRE470M (F.C), 2R5TRE330M (F.C), 2R5TRE220M (F.C))	
		D.F.	≤ 1.5 times the initial limit	
		L.C.	≤ 3 times the initial limit	
Surge	105°C,1000 times,1kΩdischarge resistance,surge voltage applied *Rated temp. 85°C products: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*1 (±0.3)	W (±0.2)	H*2 (±0.2)	S (±0.2)	W1 (±0.1)
B2	3.5	2.8	1.9	0.8	2.2
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 ±0.2:B2 *2 ±0.1:D2E,B2

Size List

RV (SV)	2.5	4	6.3	10
33				B2
47			B2	
68		B2		D2E
100			B2	
150		B2	D2E	D3L
220	B2,D2E	D2E	D2E	D4
330	D2E	D3L	D3L	
470	D2E	D3L		
680	D3L			

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
B2	4TRB68M	4.0	105	68	8.0	27.2	70	1100	3	
	6TRB47M	6.3	105	47	8.0	29.6	70	1100		
	10TRB33M	10.0	105	33	8.0	33	70	1100		
D2E	2R5TRE470M	2.5	105	470	10.0	117.5	25	2400	3	2a
	2R5TRE470MF						15	3100		
	2R5TRE470MC						12	3500		
	2R5TRE330M	2.5	105	330	10.0	82.5	25	2400		
	2R5TRE330MF						15	3100		
	2R5TRE330MC						12	3500		
	2R5TRE220M	2.5	105	220	10.0	55	25	2400		
	2R5TRE220MF						15	3100		
	2R5TRE220MC						12	3500		
	4TRE220M	4.0	105	220	10.0	88	25	2400		
	4TRE220MI						18	2800		
	6TRE220M	6.3	105	220	10.0	138.6	25	2400		
	6TRE220MI						18	2800		
	6TRE150M	6.3	105	150	10.0	94.5	25	2400		
	10TRE68M	10.0	105	68	10.0	68	25	2400		
D3L	2R5TRE680ML	2.5	105	680	10.0	170	25	2400		
	2R5TRE680MFL						15	3100		
	4TRE470ML	4.0	105	470	10.0	188	25	2400		
	4TRE470MIL						18	2800		
	4TRE330ML	4.0	105	330	10.0	132	25	2400		
	6TRE330ML	6.3	105	330	10.0	207.9	25	2400		
	10TRE150ML	10.0	105	150	10.0	150	25	2400		
D4	10TRE220MZ	10.0	105	220	15.0	220	35	2500		

*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
B2	2R5TRE220MAZB	2.5	85	2.0	105	220	8.0	55.0	35	1400	3	3
	4TRE150MAZB	4.0	85	3.2	105	150	8.0	60.0	35	1400		
	6TRE100MAZB	6.3	85	5.0	105	100	8.0	63.0	35	1400		

*1 100k to 500kHz, 45°C