

TS-W/TS-S Series

TS-W/TS-S series are not recommended for new design. Select TS-U/TS-NH or TS-UP/TS-HA series as alternatives.

SPECIFICATIONS

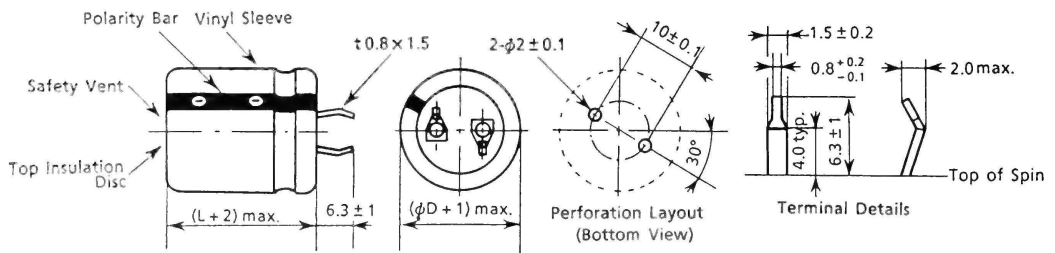
Item	Performance Characteristics							
Rated Working Voltage Range	16V to 250V DC							
Operating Temperature Range	- 40°C to + 85°C							
Capacitance Tolerance	-10 to + 30% (120Hz, + 20°C)							
Leakage Current	Leakage current shall be measured after a 5 minute application of rated working voltage at + 20°C.							
	Leakage current conditions	C V	V					
	$I \leq 0.01CV \text{ } [\mu A]$	$\leq 100\,000$	$\leq 100V \text{ rating}$					
	$I \leq 3 \times \sqrt{CV} \text{ } [\mu A]$	$> 100\,000$	$\leq 100V \text{ rating}$					
		-	$\geq 160V \text{ rating}$					
(C = nominal capacitance in microfarads, V = rated working voltage in volts)								
Tangent of Loss Angle	tan δ at 120Hz, + 20°C							
	Nominal cap. range Rated W.V. [V] $[\mu F]$	220 - 1 000	2 200 - 3 300	4 700 - 6 800	10 000 - 15 000			
	16, 25	-	< 0.25	< 0.25	< 0.35			
	35 to 63	< 0.18	< 0.20	< 0.25	≤ 0.30			
	80, 100	< 0.15	< 0.20	-	-			
	160 to 250	< 0.10	-	-	-			
Surge Voltage	Rated working voltage [V]	16	25	35	50	63		
	Surge voltage [V]	20	32	44	63	79		
	Rated working voltage [V]	80	100	160	200	250		
	Surge voltage [V]	100	125	200	250	300		
Ripple Current	Refer to tabulated maximum permissible ripple current or standard products table.							
Ripple Current Correction Factor for Frequency	Frequency [Hz]	50	60	120	500	1k	10k – 50k	
	Correction factor	16-100V	0.93	0.95	1.00	1.05	1.08	1.15
	(Multiplier)	160-250V	0.75	0.80	1.00	1.20	1.25	1.40
High Temperature Loading	Test conditions							
	Duration	1 000h						
	Ambient temperature	+ 85°C						
	Applied voltage	DC voltage with maximum permissible ripple current specified at + 85°C (Sum of DC voltage and super-imposed peak AC voltage for maximum permissible ripple current should be equal to rated DC working voltage).						

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SPECIFICATIONS (continued)

Item	Performance Characteristics	
High Temperature Loading (continued)	Post test requirements at +20°C	
	Leakage current	≤ Initial specified value
	Capacitance change	≤ ±20% of initial measured value
	tan δ	≤ 150% of initial specified value
Shelf Life	Test conditions	
	Duration	1000h
	Ambient temperature	+85°C
	Applied voltage	(None)
	Post test conditioning by application of voltage	
	Applied voltage	Rated working voltage
	Duration	30min
	Ambient temperature	+20°C
	Discharge after application of voltage	Discharge through a resistor
	Stabilization time	24h to 48h after discharge
	Post test requirements at +20°C (after Post test conditioning)	
	Leakage current	≤ Initial specified value
	Capacitance change	≤ ±20% of initial measured value
	tan δ	< 150% of Initial specified value

DIMENSIONS [mm]



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STANDARD PRODUCTS TABLE

Rated Working Voltage [V]	Nominal Capacitance (120Hz, +20°C) [μ F]	Maximum Permissible ripple current (120Hz, +85°C) [A rms]	TS-W Series		TS-S Series	
			Part Number	Dimensions ϕ D $\times$ L [mm]	Part Number	Dimensions ϕ D $\times$ L [mm]
16	3 300	1.80	ECET16R332SW	22 $\times$ 25	—	—
	4 700	2.45	ECET16R472SW	22 $\times$ 31.5	ECES1CV472S	25 $\times$ 25
	6 800	3.10	ECET16R682SW	22 $\times$ 40	ECES1CV682S	30 $\times$ 25
	10 000	3.85	ECET16R103SW	25 $\times$ 40	ECES1CV103S	30 $\times$ 31.5
	15 000	4.60	ECET16R153SW	30.5 $\times$ 50	ECES1CV153S	35 $\times$ 31.5
25	2 200	1.70	ECET25R222SW	22 $\times$ 25	—	—
	3 300	2.40	ECET25R332SW	22 $\times$ 31.5	ECES1EV332S	25 $\times$ 25
	4 700	2.90	ECET25R472SW	22 $\times$ 40	ECES1EV472S	30 $\times$ 25
	6 800	3.55	ECET25R682SW	25 $\times$ 40	ECES1EV682S	30 $\times$ 31.5
	10 000	4.20	ECET25R103SW	25 $\times$ 50	ECES1EV103S	35 $\times$ 31.5
	15 000	4.90	ECET25R153SW	30.5 $\times$ 50	—	—
35	1 000	1.35	ECET35R102SW	22 $\times$ 25	—	—
	2 200	2.45	ECET35R222SW	22 $\times$ 31.5	ECES1VV222S	25 $\times$ 25
	3 300	3.05	ECET35R332SW	22 $\times$ 40	ECES1VV332S	30 $\times$ 25
	4 700	3.60	ECET35R472SW	25 $\times$ 40	ECES1VV472S	30 $\times$ 31.5
	6 800	4.10	ECET35R682SW	25 $\times$ 50	ECES1VV682S	35 $\times$ 31.5
	10 000	4.70	ECET35R103SW	30.5 $\times$ 50	—	—
50	1 000	1.40	ECET50R102SW	22 $\times$ 25	—	—
	2 200	2.60	ECET50R222SW	22 $\times$ 40	ECES1HV222S	30 $\times$ 25
	3 300	3.20	ECET50R332SW	25 $\times$ 40	ECES1HV332S	30 $\times$ 31.5
	4 700	3.75	ECET50R472SW	25 $\times$ 50	ECES1HV472S	35 $\times$ 31.5
	6 800	4.30	ECET50R682SW	30.5 $\times$ 50	—	—
63	470	1.10	ECET63R472SW	22 $\times$ 25	—	—
	1 000	1.95	ECET63R102SW	22 $\times$ 31.5	ECES1JV102S	25 $\times$ 25
	2 200	2.90	ECET63R222SW	22 $\times$ 40	ECES1JV222S	30 $\times$ 31.5
	3 300	3.40	ECET63R332SW	25 $\times$ 50	ECES1JV332S	35 $\times$ 31.5
	4 700	3.80	ECET63R472SW	30.5 $\times$ 50	—	—
80	470	1.10	ECET80R471SW	22 $\times$ 31.5	—	—
	680	1.25	—	—	ECES1KV681S	25 $\times$ 25
	1 000	2.00	ECET80R102SW	22 $\times$ 40	ECES1KV102S	30 $\times$ 25
	2 200	3.05	ECET80R222SW	25 $\times$ 50	ECES1KV222S	35 $\times$ 31.5
	3 300	3.55	ECET80R332SW	30.5 $\times$ 50	—	—
100	470	1.15	ECET2AR471SW	22 $\times$ 31.5	ECES2AV471S	25 $\times$ 25
	680	1.30	—	—	ECES2AV681S	30 $\times$ 25
	1 000	2.00	ECET2AR102SW	25 $\times$ 40	ECES2AV102S	30 $\times$ 31.5
	2 200	2.90	ECET2AR222SW	30.5 $\times$ 50	—	—

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Rated Working Voltage [V]	Nominal Capacitance (120Hz, +20°C) [μF]	Maximum Permissible ripple current (120Hz, +85°C) [A rms]	TS-W Series		TS-S Series	
			Part Number	Dimensions φD × L [mm]	Part Number	Dimensions φD × L [mm]
160	220	1.00	—	—	ECES2CV221S	25 × 25
	330	1.30	ECET2CR331SW	22 × 40	ECES2CV331S	30 × 25
	470	1.60	ECET2CR471SW	25 × 50	ECES2CV471S	30 × 31.5
	680	1.80	ECET2CR681SW	30.5 × 50	ECES2CV681S	35 × 31.5
	820	2.00	ECET2CR821SW	30.5 × 50	—	—
180	220	1.10	ECET2PR221SW	25 × 40	ECES2PV221S	30 × 25
	330	1.50	ECET2PR331SW	25 × 40	ECES2PV331S	30 × 31.5
	470	1.80	ECET2PR471SW	25 × 50	ECES2PV471S	35 × 31.5
	680	2.10	ECET2PR681SW	30.5 × 50	—	—
200	220	1.30	ECET2DR221SW	25 × 40	ECES2DV221S	30 × 25
	330	1.60	ECET2DR331SW	25 × 50	ECES2DV331S	30 × 31.5
	470	1.90	ECET2DR471SW	30.5 × 50	ECES2DV471S	35 × 31.5
	560	2.10	ECET2DR561SW	30.5 × 50	—	—
	680	2.30	ECET2DR681SW	30.5 × 50	—	—
250	150	1.00	—	—	ECES2EV151S	30 × 25
	220	1.30	ECET2ER221SW	25 × 40	ECES2EV221S	30 × 31.5
	330	1.60	ECET2ER331SW	25 × 50	ECES2EV331S	35 × 31.5
	470	1.90	ECET2ER471SW	30.5 × 50	—	—