Surge Components, Inc.
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Unit 401, 4/F, Block B,
Hoi Luen Industrial Centre,
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Phone: 852-2172 7607

TUR/TSR Series

Key Features

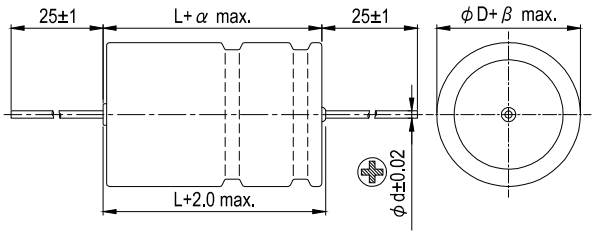
- High vibration resitance
- High ripple current capability
- Low ESR
- Useful life 3,000 hours at 125℃
- Shelf life up to 15 years at a storage temperature of 30℃
- RoHS compliance
- AEC-Q200 Parts Available: Replace "S" Suffix with "KS" or "LS" Suffix

Specifications

Rated Voltage V_R	25 ~ 40 V_{DC}	
Surge Voltage V_S	1.15 · V_R	
Rated Capacitance C_R	1,400 ~ 10,000 μF	at 100 Hz, 20℃
Capacitance Tolerance	-10% ~ +30%	
Leakage Current I_{leak} (at 20℃)	$I_{leak} \leq 0.006\ \mu A \cdot CV + 4\mu A$ C = Rated capacitance in μF, V = Rated DC working voltage in V	After 5 minutes
Useful Life 125℃: V_R , $I_{AC,R}$	3,000 Hrs	Requirements: Cap.: Within ± 30% of initial value ESR: Within 300% of specified value I_{leak} : Within initial specified limit
Voltage Endurance Test 125℃: V_R	2,000 Hrs	Requirements: Cap.: Within ± 10% of initial value ESR: Within 130% of specified value I_{leak} : Within initial specified limit
Vibration Resistance	The wires of the Axial-lead capacitor should be mounted at a distance of (6 ± 1) mm from its body, which is additionally clamped. Soldering star capacitors should be mounted in a upright position and its terminals should be firmly soldered to the PCB and body additionally clamped. Vibration test according to IEC 60068-2-6, test Fc: Frequency range 10 Hz ~ 2 KHz, max. displacement amplitude 1.5 mm, max. acceleration 20 g, in total 6 hours (3*2 hours).	
Detail Specification Sectional Specification	Similar to CECC 30301-802 IEC 60384-4	

Product Dimensions

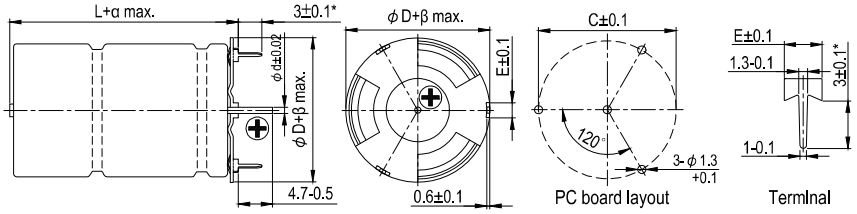
TUR Series



Unit: mm

φD	16	18	21
φd	1.0		
α	0.5		
β	0.5		

TSR Series



Unit: mm

φD	16	18	21
C	16.5	18.5	21.5
E	3.1		3.6
φd	1.0		
α	2.5		
β	1.2		

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Aluminum Electrolytic Capacitors

TUR/TSR

Characteristics and Permissible Ripple Current

Working Voltage (V_{DC})	*Capacitance* 100 Hz, 20℃ (μF)	ϕ D×L (mm)	ESR_{max} 100 Hz, 20℃ (Ω)	ESR_{max} 10k Hz, 20℃ (Ω)	$Imp._{max}$ 100k Hz, 20℃ (Ω)	$I_{AC,R}$ 10k Hz, 125℃ (A_{rms})	Axial-lead Part Number	Soldering star Part Number
25	2,400	18 × 25	0.052	0.032	0.031	3.1	TUR242Q1EAL-1825S	TSR242Q1ESS-1825S
	2,500	16 × 30	0.059	0.039	0.037	2.6	TUR252Q1EAL-1630S	TSR252Q1ESS-1630S
	3,300	18 × 30	0.039	0.024	0.023	3.8	TUR332Q1EAL-1830S	TSR332Q1ESS-1830S
	3,600	16 × 39	0.042	0.028	0.027	3.4	TUR362Q1EAL-1639S	TSR362Q1ESS-1639S
	4,700	18 × 39	0.028	0.017	0.017	5.1	TUR472Q1EAL-1839S	TSR472Q1ESS-1839S
	7,200	21 × 39	0.022	0.014	0.014	5.4	TUR722Q1EAL-2139S	TSR722Q1ESS-2139S
	10,000	21 × 49	0.016	0.011	0.011	6.8	TUR103Q1EAL-2149S	TSR103Q1ESS-2149S
40	1,400	16 × 30	0.072	0.038	0.037	2.6	TUR142Q1GAL-1630S	TSR142Q1GSS-1630S
	1,800	16 × 35	0.057	0.031	0.030	3.0	TUR182Q1GAL-1635S	TSR182Q1GSS-1635S
	1,800	18 × 30	0.050	0.024	0.023	3.8	TUR182Q1GAL-1830S	TSR182Q1GSS-1830S
	2,000	16 × 39	0.051	0.027	0.027	3.4	TUR202Q1GAL-1639S	TSR202Q1GSS-1639S
	2,600	18 × 39	0.035	0.017	0.017	5.1	TUR262Q1GAL-1839S	TSR262Q1GSS-1839S
	3,900	21 × 39	0.027	0.014	0.014	5.4	TUR392Q1GAL-2139S	TSR392Q1GSS-2139S
	5,100	21 × 49	0.021	0.011	0.011	6.8	TUR512Q1GAL-2149S	TSR512Q1GSS-2149S

Part Numbering System

TUR series	1,400 μF	-10% ~ +30%	40V	Axial-lead		16ϕ×30L	
TUR	**142**	**Q**	**1G**	**AL**	**-**	**1630**	**S**
Series name	Capacitance	Capacitance tolerance	Rated voltage	Lead forming	Sealing type	Case size	Regional Code

Note: Please refer to “Part Numbering System” section on page 1 for more details.

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Product Guide

Selection Chart

TUR / TSR
-40 ~ +125℃
High Ripple Current
125℃, 3,000 Hrs

TUK / TSK
-40 ~ +125℃
Long Life Time
125℃, 5,000 Hrs
140℃, 2,000 Hrs

TUP / TSP
-40 ~ +150℃
High Temperature
125℃, 10,000 Hrs
150℃, 2,000 Hrs

Capacitor Series Table

Series	Highlights	Temperature	Rated Voltage Range (V, DC)	Capacitance Range (μF)	Page
TUR / TSR	High Ripple Current	-40 ~ 125℃	25 ~ 40	1,400 ~ 10,000	3 ~ 4
TUK / TSK	High Reliability, Long Lifetime	-40 ~ 125℃	25 ~ 100	220 ~ 10,000	5 ~ 6
TUP / TSP	High Temperature	-40 ~ 150℃	25 ~ 63	360 ~ 4,500	7 ~ 8

Part Numbering System

Product Code Guide

Digit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Example:	T	U	R	1	7	2	Q	1	E	A	L	-	1	8	3	0		

Digit	Description
1 ~ 3	Series Name When the series name is represented by only two letters, a hyphen, "-", is used to fill the third space.
4 ~ 6	Capacitance Capacitance: 220, 300, 700, 1,000, 4,700, 5,600, 10,000 Code: 221, 301, 701, 102, 472, 562, 103
7	Capacitance Tolerance Tolerance: K (±10%), M (±20%), N (±30%), Q (-10 ~ +30%)
8 ~ 9	Rated Voltage Voltage (WV): 25, 35, 40, 50, 63, 75, 100 Code: 1E, 1V, 1G, 1H, 1J, 1R, 2A
10 ~ 11	Lead Forming AL: Axial-lead, SS: Soldering star, PP: Two plate
12	Sealing Type - : Standard
13 ~ 16	Case Size ϕDxL: 16x25, 16x30, 16x35, 16x39, 18x25, 18x30, 18x35, 18x39, 21x30, 21x35, 21x39, 21x49 Code: 1625, 1630, 1635, 1639, 1825, 1830, 1835, 1839, 2130, 2135, 2139, 2149
17	Lead Wire and Marking Type
18	Supplement Code: For special control purposes

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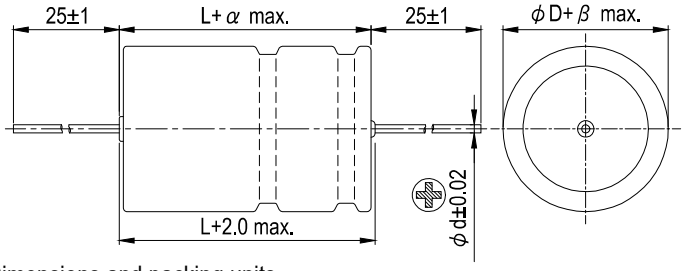
Product Guide

Dimensional and Lead Forming Drawings

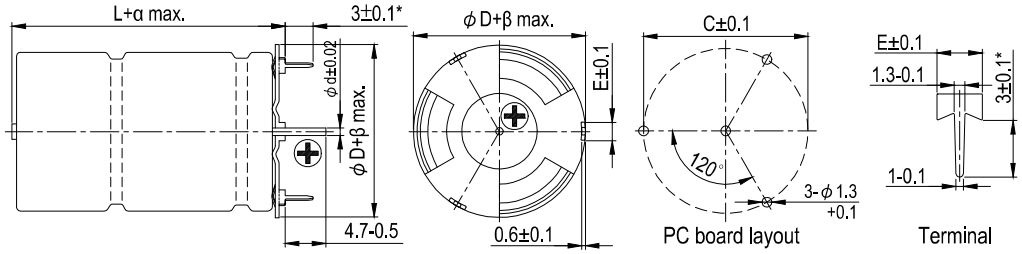
Axial-lead capacitors



Dimensions and packing units

ϕD × L mm	ϕD+β (max.) × L+α (max.) mm	ϕd mm	Q'ty / Tray pcs	Q'ty / Box pcs
16 × 25	16.5 × 25.5	1.0	45	315
16 × 30	16.5 × 30.5	1.0	45	315
16 × 35	16.5 × 35.5	1.0	45	315
16 × 39	16.5 × 39.5	1.0	45	315
18 × 25	18.5 × 25.5	1.0	45	315
18 × 30	18.5 × 30.5	1.0	45	315
18 × 35	18.5 × 35.5	1.0	45	315
18 × 39	18.5 × 39.5	1.0	45	315
21 × 30	21.5 × 30.5	1.0	45	270
21 × 35	21.5 × 35.5	1.0	45	270
21 × 39	21.5 × 39.5	1.0	45	270
21 × 49	21.5 × 49.5	1.0	35	210

Soldering star capacitors



Dimensions and packing units

ϕD × L mm	ϕD+β (max.) × L+α (max.) mm	ϕd mm	C ± 0.1 mm	E ± 0.1 mm	Q'ty / Tray pcs	Q'ty / Box pcs
16 × 25	17.2 × 27.5	1.0	16.5	3.1	45	315
16 × 30	17.2 × 32.5	1.0	16.5	3.1	45	315
16 × 35	17.2 × 37.5	1.0	16.5	3.1	45	315
16 × 39	17.2 × 41.5	1.0	16.5	3.1	35	245
18 × 25	19.2 × 27.5	1.0	18.5	3.1	45	315
18 × 30	19.2 × 32.5	1.0	18.5	3.1	45	315
18 × 35	19.2 × 37.5	1.0	18.5	3.1	45	315
18 × 39	19.2 × 41.5	1.0	18.5	3.1	35	245
21 × 30	22.2 × 32.5	1.0	21.5	3.6	45	270
21 × 35	22.2 × 37.5	1.0	21.5	3.6	45	270
21 × 39	22.2 × 41.5	1.0	21.5	3.6	35	210
21 × 49	22.2 × 51.5	1.0	21.5	3.6	35	210