



# TCK Series 105°C V- chip Aluminum Electrolytic Capacitor

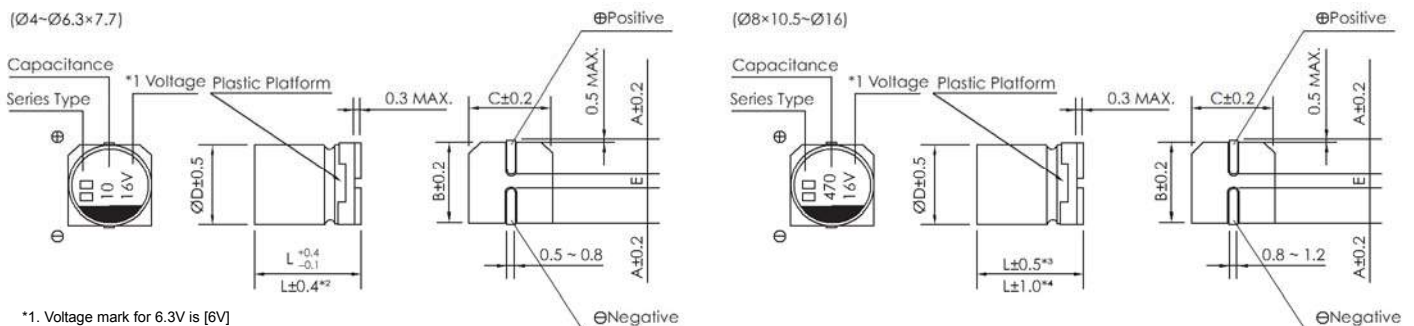
Operating with wide temperature range -40~+105°C  
 Load life of 1000~2000 hours  
 Comply with the RoHS directive



## SPECIFICATIONS

Items	Characteristics											
Operation Temperature Range	-40 ~ +105°C											
Voltage Range	4 ~ 450V											
Capacitance Range	0.1 ~ 6800μF											
Capacitance Tolerance	±20% at 120Hz, 20°C											
Leakage Current	Rated Voltage	6.3 ~ 100V	160 ~ 450V									
	Case size	∅4~∅10	∅12.5~∅16	∅6.3~∅16								
	Time	after 2 min. (application of rated voltage)	after 1 min. (application of rated voltage)	after 5 min. (application of rated voltage)								
	Leakage current	≤0.01CV or 3μA, whichever is greater	≤0.03CV or 4μA, whichever is greater	≤0.04CV+100μA, whichever is greater								
Dissipation Factor (tan δ)	Measurement frequency : 120Hz, Temperature											
	Rated Voltage (V)	4	6.3	10	16	25	35	50	63	100	160~250	350~450
Stability at Low Temperature	Measurement frequency : 120Hz											
	Rated Voltage (V)	4	6.3	10	16	25	35	50~63	100	160~250	350~450	
Load Life	After 2000 hrs. (1000 hrs. for ∅4~∅6.3×5.4) application of the rated voltage at 105°C, they meet the characteristics listed below.											
	Capacitance Change	Within ±20% of initial value for capacitors of 10V or more (Within ±30% of initial value for capacitors of 4V or less)										
	Dissipation Factor	200% or less of initial specified value										
	Leakage Current	initial specified value or less										
Resistance to Soldering Heat	After reflow soldering and restored at room temperature, they meet the characteristics listed below.											
	Capacitance Change	Within ±10% of initial value										
Marking	Black print on the case top.											

## DRAWING (Unit: mm)



\*1. Voltage mark for 6.3V is [6V]  
 \*2. Applicable to ∅6.3×7.7  
 \*3. Applicable to ∅8×10.5~∅10  
 \*4. Applicable to ∅12.5~∅16



**DIMENSIONS (Unit: mm)**

∅D x L	4 x 5.4	5 x 5.4	6.3 x 5.4	6.3 x 7.7	8 x 10.5	10 x 10.5	10 x 13.5	12.5 x 13.5	12.5 x 16	16 x 16.5
A	2.0	2.2	2.6	2.6	3.0	3.3	3.3	4.9	4.9	5.8
B	4.3	5.3	6.6	6.6	8.4	10.4	10.4	13.0	13.0	17.0
C	4.3	5.3	6.6	6.6	8.4	10.4	10.4	13.0	13.0	17.0
E ± 0.2	1.0	1.4	1.9	1.9	3.1	4.7	4.7	4.7	4.7	6.4
L	5.4	5.4	5.4	7.7	10.5	10.5	13.5	13.5	16.0	16.5

**DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT**

•Case size ∅D×L(mm), ripple current (mA rms) at 105°C, 120Hz

WV Code	μF	4V		6.3 V		10 V		16 V		25 V	
		Size	Ripple current	Size	Ripple current	Size	Ripple current	Size	Ripple current	Size	Ripple current
4.7	475									4 x 5.4	13
10	106							4 x 5.4	18	5 x 5.4 (4 x 5.4)	20 (14)
22	226			4 x 5.4	22	5 x 5.4 (4 x 5.4)	25 (20)	5 x 5.4 (4 x 5.4)	27 (20)	6.3 x 5.4 (5 x 5.4)	36 (25)
33	336	5 x 5.4 (4 x 5.4)	30 (18)	5 x 5.4 (4 x 5.4)	27 (22)	5 x 5.4 (4 x 5.4)	30 (22)	6.3 x 5.4 (5 x 5.4)	40 (28)	6.3 x 5.4 (5 x 5.4)	44 (29)
47	476	5 x 5.4 (4 x 5.4)	36 (24)	5 x 5.4 (4 x 5.4)	33 (25)	5 x 5.4	30	6.3 x 5.4 (5 x 5.4)	48 (31)	6.3 x 5.4	48
100	107	6.3 x 5.4 (5 x 5.4)	60 (43)	6.3 x 5.4 (5 x 5.4)	50 (39)	6.3 x 5.4 (5 x 5.4)	53 (45)	6.3 x 5.4	60	6.3 x 7.7	91
150	157	6.3 x 5.4	52	6.3 x 5.4	55	6.3 x 5.4	62	6.3 x 7.7	95	8 x 10.5 (6.3 x 7.7)	140 (100)
220	227	6.3 x 5.4	57	6.3 x 7.7 (6.3 x 5.4)	105 (67)	6.3 x 7.7	105	8 x 10.5 (6.3 x 7.7)	150 (105)	8 x 10.5	175
330	337	6.3 x 7.7	100	6.3 x 7.7	105	8x10.5	196	8 x 10.5	195	10 x 10.5 (8 x 10.5)	240 (220)
470	477	6.3 x 7.7	105	8 x 10.5 (6.3 x 7.7)	210 (120)	10 x 10.5 (8 x 10.5)	260 (210)	10 x 10.5 (8 x 10.5)	295 (230)	10 x 10.5	280
680	687	8 x 10.5	210	8 x 10.5	210	10 x 10.5	270	10 x 10.5	315	10 x 13.5	400
1000	108	8 x 10.5	230	10 x 10.5 (8 x 10.5)	300 (230)	10 x 10.5	315	12.5 x 13.5 (10 x 13.5) (10 x 10.5)	500 (390) (340)	12.5 x 13.5	580
1500	158	10 x 10.5	315	10 x 13.5 (10 x 10.5)	450 (315)	10 x 13.5	460	12.5 x 13.5	550	12.5 x 16	850
2200	228	10 x 13.5 (10 x 10.5)	440 p-340p <sub>s</sub>	12.5 x 13.5 (10 x 13.5)	620 (500)	12.5 x 13.5	680	16 x 16.5 (12.5 x 16)	950 (750)	16 x 16.5	1050
3300	338	10 x 13.5	490	12.5 x 16 (12.5 x 13.5)	700 (660)	16 x 16.5	1000	16 x 16.5	1000		
4700	478	12.5 x 13.5	600	16 x 16.5	1000						
6800	688	16 x 16.5 (12.5 x 16)	950 p-650p <sub>s</sub>								

WV Code	μF	35 V		50 V		63 V		100 V	
		Size	Ripple current	Size	Ripple current	Size	Ripple current	Size	Ripple current
0.1	104			4 x 5.4	0.7	4 x 5.4	0.7		
0.22	224			4 x 5.4	1.6	4 x 5.4	1.6		
0.33	334			4 x 5.4	2.5	4 x 5.4	2.5		
0.47	474			4 x 5.4	3.5	4 x 5.4	3.5		
1	105			4 x 5.4	7	4 x 5.4	7	4 x 5.4	7
2.2	225			4 x 5.4	11	4 x 5.4	11	6.3 x 5.4	14
3.3	335	4 x 5.4	13	4 x 5.4	13	5 x 5.4	13	6.3 x 7.7 (6.3 x 5.4)	32 (20)
4.7	475	4 x 5.4	14	5 x 5.4 (4 x 5.4)	16 (13)	5 x 5.4	16	6.3 x 7.7 (6.3 x 5.4)	35 (21)
10	106	5 x 5.4 (4 x 5.4)	21 (14)	6.3 x 5.4	24	6.3 x 7.7 (6.3 x 5.4)	39 (24)	8 x 10.5 (6.3 x 7.7)	77 (35)
22	226	6.3 x 5.4 (5 x 5.4)	38 (30)	6.3 x 7.7 (6.3 x 5.4)	51 (42)	8 x 10.5 (6.3 x 7.7)	98 (49)	10 x 10.5 (8 x 10.5)	126 (84)
33	336	6.3 x 5.4	42	6.3 x 7.7	60	8 x 10.5	112	10 x 10.5	133
47	476	6.3 x 7.7 (6.3 x 5.4)	70 (50)	8 x 10.5 (6.3 x 7.7)	120 (63)	10 x 10.5 (8 x 10.5)	160 (119)	12.5 x 13.5 (10 x 13.5) (10 x 10.5)	250 (160) (140)
68	686					Case size	Ripple current	12.5 x 13.5 (10 x 13.5)	300 (180)



### DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

Case size ØD×L(mm), ripple current (mA rms) at 105°C, 120Hz

WV		35 V		50 V		63 V		100 V		160 V	
µF	Code	Size	Ripple current	Size	Ripple current	Size	Ripple current	Size	Ripple current	Size	Ripple current
22	226									10 × 13.5	50
33	336									12.5 × 13.5	95
47	476									12.5 × 13.5 (16 × 16.5)	205 (240)
100	107	8 × 10.5 (6.3 × 7.7)	120 (84)	10 × 10.5 (8 × 10.5)	170 (140)	12.5 × 13.5 (10 × 13.5) (10 × 10.5)	270 (210) (196)	16 × 16.5 (12.5 × 13.5)	450 (380)	16 × 16.5	250
150	157	8 × 10.5	155	10 × 10.5	170	10 × 13.5	225				
220	227	10 × 10.5 (8 × 10.5)	220 (190)	10 × 13.5 (10 × 10.5)	280 (220)	16 × 16.5 (12.5 × 13.5)	560 (470)	16 × 16.5	550		
330	337	10 × 10.5	245	16 × 16.5 (12.5 × 13.5) (10 × 13.5)	600 (420) (295)	16 × 16.5 (12.5 × 16)	700 (510)				
470	477	12.5 × 13.5 (10 × 13.5)	520 (375)	16 × 16.5 (12.5 × 16)	700 (520)	16 × 16.5	750				
680	687	12.5 × 13.5	530	16 × 16.5	750						
1000	108	16 × 16.5 (12.5 × 16)	750 (600)								

WV		200 V		250 V		350 V		400 V		450 V	
µF	Code	Size	Ripple current	Size	Ripple current	Size	Ripple current	Size	Ripple current	Size	Ripple current
3.3	335							10 × 13.5	40	10 × 13.5	40
4.7	475			10 × 13.5		10 × 13.5	85	10 × 13.5 (12.5 × 13.5)	45 (48)	10 × 13.5 (12.5 × 13.5)	42 45
10	106	10 × 13.5	75	10 × 13.5	75	12.5 × 13.5	105	12.5 × 13.5	50	12.5 × 13.5	55
22	226	12.5 × 13.5	105	12.5 × 13.5	105	16 × 16.5	130	16 × 16.5	85	16 × 16.5	85
33	336	12.5 × 13.5	120	16 × 16.5	135						
47	476	16 × 16.5	220								
100	107										

### FREQUENCY COEFFICIENT OF ALLOWABLE RIPPLE CURRENT

Frequency		50Hz	120Hz	300Hz	1KHz	10KHz~
Coefficient	Ø4 ~ Ø10	0.1 ~ 68µF	0.70	1.00	1.17	1.50
		100 ~ 3300µF	0.85	1.00	1.08	1.30
	Ø12.5 ~ Ø16	~ 68µF	0.75	1.00	1.35	2.00
		100 ~ 680µF	0.80	1.00	1.23	1.50
		1000 ~ 6800µF	0.85	1.00	1.10	1.13

### ◆ How to order

<u>TCK</u>	<u>A</u>	<u>106</u>	<u>M</u>	<u>0035</u>	<u>0505</u>	<u>R</u>	<u>000</u>
<b>Type</b>	<b>Material Code</b>	<b>Capacitance Code</b>	<b>Tolerance</b>	<b>Rated Voltage</b>	<b>Size Code</b>	<b>Package Code</b>	<b>Suffix Indicate Special Requirement</b>
TCK	A: Aluminum Cap For TCS, TCK TFZ TKZ....etc.	pF Code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) 106 = 10uF 107 = 100uF	M: +/-20%	Code 0035: 35VDC <b>For DC Voltage</b> 0006: 6.3VDC 0035: 35VDC 0100: 100VDC	Code 0505: Size 5x5.4mm <b>Size for V-chip E-cap</b> 0405: Size 4x5.4mm 0605: Size 6.3x5.4mm 0607: Size 6.3x7.7mm 1010: Size 10x10.5mm	R: Tape & Reel	000: Indicating Standard