

**CSK**

Series CSK

Tantalum Electrolytic Capacitors Surface Mount With High Reliability Type

Brief Introduction

CSK Series is molded solid tantalum chip capacitor with sintered anode and the marks is laser printed on surface of the package,featuring small size, small weight, high reliability and long life, CSK series is suitable for SMD electric circuits in telecommunications,computer,mobile phone set, portable digital devices,CSK series is equivalent to KEMET T493 series, The applicable specification is GJB2283-95 and Q/XRD 20004-2004 prepared

SPECIFICATION:

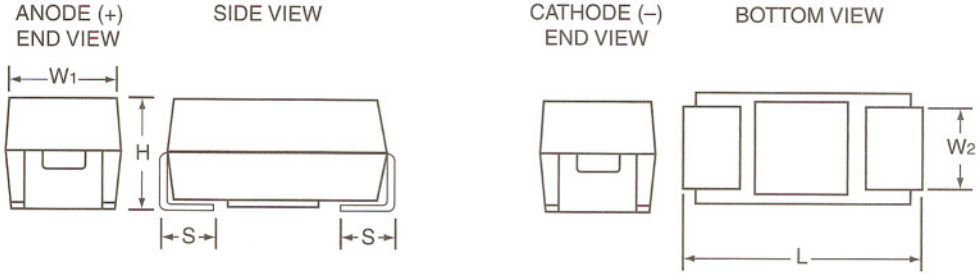
Item	Performance Characteristics																						
Operating Temperature Range	-55 to + 125°C (>85°C with rated voltage derating)																						
Rated Working Voltage Range	4 to 50 V DC																						
Nominal Capacitance Range	0.1 to 100 μF																						
Capacitance Tolerance	±20% ± 10% (120Hz, +20°C)																						
Leakage Current	Not more than 0.01CV [μA] or 0.5μA whichever is greater																						
tan δ (120Hz, +20°C)	0.04 max. for ≤ 1.0μF																						
	0.06 max. for 1.5 to 68μF																						
	0.08 max. for 100 to 470 μF																						
Characteristics at High and Low Temperature	-55°C	Capacitance change	±12% of initial measured value at +20°C																				
	+125°C	Leakage current	≤12.5% of initial measured value																				
		Capacitance change	±15% of initial measured value at +20°C																				
Moisture Resistance	Test conditions																						
	Relative humidity : 90 to 95% without load Ambient temperature : +40°C Duration : 500 hours Post test requirements at + 20°C Leakage current : ≤ Initial specified value Capacitance change : ± 10% of initial measured value tan δ : ≤ Initial specified value																						
Endurance	Test conditions																						
	<table border="1"> <thead> <tr> <th>Item \ Conditions</th> <th colspan="2">Derating</th> <th>Rating</th> </tr> </thead> <tbody> <tr> <td>Duration</td> <td colspan="2">2000 hours</td> <td>2000 hours</td> </tr> <tr> <td>Ambient temperature</td> <td colspan="2">+ 125°C</td> <td>+ 85°C</td> </tr> <tr> <td>Applied voltage</td> <td colspan="2">Derated working voltage</td> <td>Rated working voltage</td> </tr> <tr> <td>Source impedance</td> <td colspan="2">1Ω/V</td> <td>1Ω/V</td> </tr> </tbody> </table>			Item \ Conditions	Derating		Rating	Duration	2000 hours		2000 hours	Ambient temperature	+ 125°C		+ 85°C	Applied voltage	Derated working voltage		Rated working voltage	Source impedance	1Ω/V		1Ω/V
	Item \ Conditions	Derating		Rating																			
	Duration	2000 hours		2000 hours																			
	Ambient temperature	+ 125°C		+ 85°C																			
	Applied voltage	Derated working voltage		Rated working voltage																			
Source impedance	1Ω/V		1Ω/V																				
Derating voltage + 125°C																							
<table border="1"> <tbody> <tr> <td>Working voltage [V] DC</td> <td>4</td> <td>6.3</td> <td>10</td> <td>16</td> <td>20</td> <td>25</td> <td>35</td> <td>50</td> </tr> <tr> <td>Derating voltage [V] DC</td> <td>2.5</td> <td>4</td> <td>6.3</td> <td>10</td> <td>13</td> <td>16</td> <td>22</td> <td>32</td> </tr> </tbody> </table>			Working voltage [V] DC	4	6.3	10	16	20	25	35	50	Derating voltage [V] DC	2.5	4	6.3	10	13	16	22	32			
Working voltage [V] DC	4	6.3	10	16	20	25	35	50															
Derating voltage [V] DC	2.5	4	6.3	10	13	16	22	32															
Post test requirements at +20°C																							
Leakage current : ≤ 125% of initial specified value Capacitance change : ± 10% of initial measured value tan δ : ≤ Initial specified value																							
Shelf Life	Test conditions		Post test requirements at +20°C																				
	Duration	: 2000 hours	Same limits for "Endurance".																				
	Ambient temperature	: +125°C																					
	Applied voltage	: (none)																					
Solder Heat Resistance	The capacitor shall withstand dipping into solder bath for 5±1 seconds at 260±5°C																						

Series CSK



Tantalum Electrolytic Capacitors Surface Mount With High Reliability Type

1. Tantalum Capacitor CHIP TYPE OUTLINE DRAWINGS.



2. Dimensions Millimeters (Inch)

Case Size	L±0.2 (0.008)	W1±0.2 (0.008)	H±0.2 (0.008)	S±0.2 (0.008)	W2±0.2 (0.008)
A	3.2 (0.126)	1.6 (0.063)	1.6 (0.063)	0.8 (0.031)	1.2 (0.047)
B	3.5 (0.137)	2.8 (0.110)	1.9 (0.075)	0.8 (0.031)	2.2 (0.087)
C	6.0 (0.236)	3.2 (0.126)	2.5 (0.098)	1.3 (0.051)	2.2 (0.087)
D	7.3 (0.287)	4.3 (0.169)	2.8 (0.110)	1.3 (0.051)	2.4 (0.094)

3. Rated Voltage, Capacitance of Capacitors.

Rated Voltage (V)	4	6.3	10	16	20	25	35	50
Code	0G	0J	1A	1C	1D	1E	1V	1H
Capacitance (μF)	Case Size							
0.10 (104)							A	A
0.15 (154)							A	B
0.22 (224)							A	B
0.33 (334)						A	A	B
0.47 (474)					A	A	B	C
0.68 (684)				A	A	B	B	C
1.0 (105)			A	A	B	B	B	C
1.5 (155)		A	A	B	B	B	C	D
2.2 (225)	A	A	B	B	B	C	C	D
3.3 (335)	A	B	B	B	C	C	D	D
4.7 (475)	B	B	B	C	C	D	D	D
6.8 (685)	B	B	C	C	D	D	D	
10 (106)	B	C	C	C	D	D	D	
15 (156)	C	C	C	D	D	D		
22 (226)	C	D	D	D	D			
33 (336)	D	D	D	D				
47 (476)	D	D	D					
68 (686)	D	D						
100 (107)	D							



Series CSK

Tantalum Electrolytic Capacitors Surface Mount With High Reliability Type

Ratings and Part Number Reference

Part No.	Case Size	Capacitance μF	DCL (μA) Max.	DF % Max.	ESR max. (Ω) @ 100kHz
4 volt @ 85°C (2.5 volt, @ 125°C)					
CSKA 0G225(#) TR	A	2.2	0.5	6	8
CSKA 0G335(#) TR	A	3.3	0.5	6	8
CSKB 0G475(#) TR	B	4.7	0.5	6	8
CSKB 0G685(#) TR	B	6.8	0.5	6	5.5
CSKB 0G106(#) TR	B	10	0.5	6	4.0
CSKC 0G156(#) TR	C	15	0.6	6	3.5
CSKC 0G226(#) TR	C	22	0.88	6	3.2
CSKD 0G336(#) TR	D	33	1.32	6	2.2
CSKD 0G476(#) TR	D	47	1.88	6	1.6
CSKD 0G686(#) TR	D	68	2.72	6	1.1
CSKD 0G107(#) TR	D	100	4.0	8	0.9
6.3 volt @ 85°C (4 volt, @ 125°C)					
CSKA 0J155(#) TR	A	1.5	0.5	6	8
CSKA 0J225(#) TR	A	2.2	0.5	6	8
CSKB 0J335(#) TR	B	3.3	0.5	6	8
CSKB 0J475(#) TR	B	4.7	0.5	6	5.5
CSKB 0J685(#) TR	B	6.8	0.5	6	4.5
CSKC 0J106(#) TR	C	10	0.63	6	3.5
CSKC 0J156(#) TR	C	15	0.94	6	3.0
CSKD 0J226(#) TR	D	22	1.38	6	2.2
CSKD 0J336(#) TR	D	33	2.07	6	1.6
CSKD 0J476(#) TR	D	47	2.96	6	1.1
CSKD 0J686(#) TR	D	68	4.28	6	0.9

Part No.	Case Size	Capacitance μF	DCL (μA) Max.	DF % Max.	ESR max. (Ω) @ 100kHz
10 volt @ 85°C (6.3 volt, @ 125°C)					
CSKA 1A105(#) TR	A	1.0	0.5	4	10
CSKA 1A155(#) TR	A	1.5	0.5	6	8
CSKB 1A225(#) TR	B	2.2	0.5	6	8
CSKB 1A335(#) TR	B	3.3	0.5	6	5.5
CSKB 1A475(#) TR	B	4.7	0.5	6	4.5
CSKC 1A685(#) TR	C	6.8	0.68	6	3.5
CSKC 1A106(#) TR	C	10	1.0	6	3
CSKC 1A156(#) TR	C	15	1.5	6	2.2
CSKD 1A226(#) TR	D	22	2.2	6	1.6
CSKD 1A336(#) TR	D	33	3.3	6	1.1
CSKD 1A476(#) TR	D	47	4.7	6	0.9
16 volt @ 85°C (10 volt, @ 125°C)					
CSKA 1C684(#) TR	A	0.68	0.5	4	12.0
CSKA 1C105(#) TR	A	1.0	0.5	6	10.0
CSKB 1C155(#) TR	B	1.5	0.5	6	8.0
CSKB 1C225(#) TR	B	2.2	0.5	6	5.5
CSKB 1C335(#) TR	B	3.3	0.52	6	4.5
CSKC 1C475(#) TR	C	4.7	0.75	6	3.5
CSKC 1C685(#) TR	C	6.8	1.08	6	3.0
CSKC 1C106(#) TR	C	10	1.6	6	2.2
CSKD 1C156(#) TR	D	15	2.4	6	1.6
CSKD 1C226(#) TR	D	22	3.52	6	1.1
CSKD 1C336(#) TR	D	33	5.28	6	0.9

For 10% tolerance, insert, "K" in (#) above.
For 20% tolerance, insert, "M" in (#) above.

Series CSK

Tantalum Electrolytic Capacitors Surface Mount With High Reliability Type



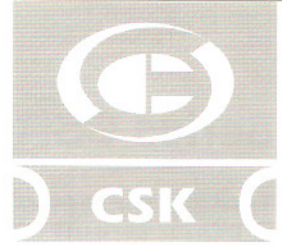
Ratings and Part Number Reference

Part No.	Case Size	Capacitance μF	DCL (μA) Max.	DF % Max.	ESR max. (Ω) @ 100kHz
20 volt @ 85°C (13 volt, @125°C)					
CSKA 1D474(#TR)	A	0.47	0.5	4	12.0
CSKA 1D684(#TR)	A	0.68	0.5	4	11.0
CSKB 1D105(#TR)	B	1.0	0.5	4	10.0
CSKB 1D155(#TR)	B	1.5	0.5	4	6.0
CSKB 1D225(#TR)	B	2.2	0.5	6	5.0
CSKC 1D335(#TR)	C	3.3	0.66	6	4.0
CSKC 1D475(#TR)	C	4.7	0.94	6	3.0
CSKD 1D685(#TR)	D	6.8	1.36	6	2.4
CSKD 1D106(#TR)	D	10	2.0	6	1.8
CSKD 1D156(#TR)	D	15	3.0	6	1.1
CSKD 1D226(#TR)	D	22	4.4	6	0.9
25 volt @ 85°C (16 volt, @125°C)					
CSKA 1E334(#TR)	A	0.33	0.5	4	15.0
CSKA 1E474(#TR)	A	0.47	0.5	4	14.0
CSKB 1E684(#TR)	B	0.68	0.5	4	7.5
CSKB 1E105(#TR)	B	1.0	0.5	4	6.5
CSKB 1E155(#TR)	B	1.5	0.5	6	6.5
CSKC 1E225(#TR)	C	2.2	0.55	6	5.0
CSKC 1E335(#TR)	C	3.3	0.82	6	4.0
CSKD 1E475(#TR)	D	4.7	1.17	6	2.5
CSKD 1E685(#TR)	D	6.8	1.7	6	1.4
CSKD 1E106(#TR)	D	10	2.5	6	1.2
CSKD 1E156(#TR)	D	15	3.75	6	1.0

Part No.	Case Size	Capacitance μF	DCL (μA) Max.	DF % Max.	ESR max. (Ω) @ 100kHz
35 volt @ 85°C (22 volt, @125°C)					
CSKA 1V104(#TR)	A	0.1	0.5	4	24.0
CSKA 1V154(#TR)	A	0.15	0.5	4	21.0
CSKA 1V224(#TR)	A	0.22	0.5	4	18.0
CSKA 1V334(#TR)	A	0.33	0.5	4	15.0
CSKB 1V474(#TR)	B	0.47	0.5	4	10.0
CSKB 1V684(#TR)	B	0.68	0.5	4	8.0
CSKB 1V105(#TR)	B	1.0	0.5	4	6.5
CSKC 1V155(#TR)	C	1.5	0.5	6	4.5
CSKC 1V225(#TR)	C	2.2	0.7	6	3.5
CSKD 1V335(#TR)	D	3.3	1.10	6	2.5
CSKD 1V475(#TR)	D	4.7	1.64	6	1.5
CSKD 1V685(#TR)	D	6.8	2.38	6	1.3
CSKD 1V106(#TR)	D	10	3.50	6	1.1
50 volt @ 85°C (32 volt, @125°C)					
CSKA 1H104(#TR)	A	0.1	0.5	4	22.0
CSKB 1H154(#TR)	B	0.15	0.5	4	17.0
CSKB 1H224(#TR)	B	0.22	0.5	4	14.0
CSKB 1H334(#TR)	B	0.33	0.5	4	12.0
CSKC 1H474(#TR)	C	0.47	0.5	4	8.0
CSKC 1H684(#TR)	C	0.68	0.5	4	7.0
CSKC 1H105(#TR)	C	1.0	0.5	4	5.5
CSKD 1H155(#TR)	D	1.5	0.75	6	4.0
CSKD 1H225(#TR)	D	2.2	1.1	6	2.5
CSKD 1H335(#TR)	D	3.3	1.65	6	2.0
CSKD 1H475(#TR)	D	4.7	2.35	6	1.4

All technical data relates to an ambient temperature of +20°C measured at 120 Hz, 0.5V RMS unless otherwise stated.
Insert tolerance, K for $\pm 10\%$ and M for $\pm 20\%$.

Series CSK



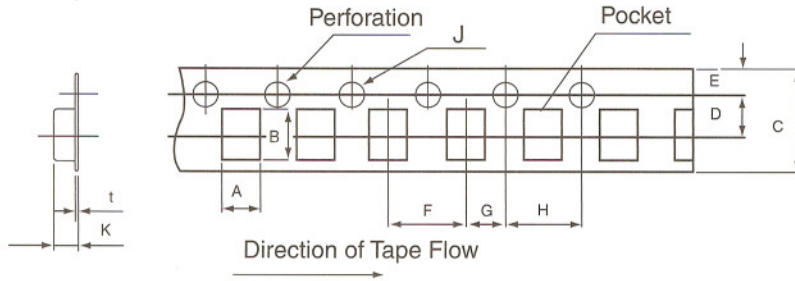
Tantalum Electrolytic Capacitors Surface Mount With High Reliability Type

CARRIER TAPE PACKAGING SPECIFICATIONS EXPLANATION OF PART NUMBERS

C S K
Series Code
A
Case Size
O G
Rated Voltage
4 7 5
Nominal Capacitance
M
Capacitance Tolerance
T
Carrier Tape Packaging
R
Polarity Orientation

Dimensions of the carrier tape and standard parts quantity per reel.

Dimensions

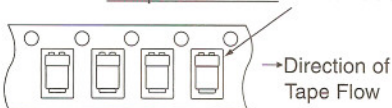


(Unit:mm)

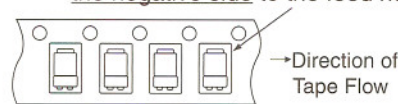
CASE SIZE	A	B	C	D	E	F	G	H	J	K	t	Quantity Per Reel
	±0.1	±0.1	±0.3	±0.1	±0.1	±0.1	±0.1	±0.1	+0.1 -0	MAX		
A	1.9	3.5	8.0	3.5	1.75	4.0	2.0	4.0	1.5	2.5	0.2	2000
B	3.1	3.8	8.0	3.5	1.75	4.0	2.0	4.0	1.5	2.5	0.2	2000
C	3.6	6.4	12.0	5.5	1.75	8.0	2.0	4.0	1.5	3.0	0.3	500
D	4.7	7.7	12.0	5.5	1.75	8.0	2.0	4.0	1.5	3.4	0.3	500

Inserting Direction (Polarity Orientation)

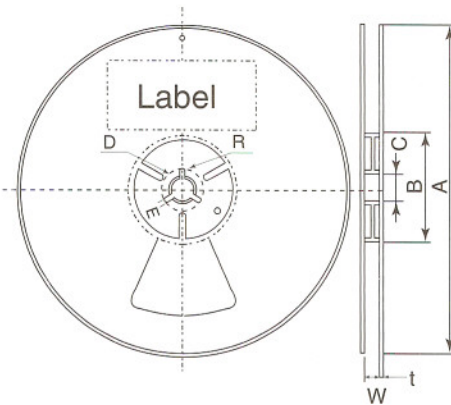
Polarity L: To be inserted with the positive side to the feed hole.



Polarity R: To be inserted with the negative side to the feed hole.



Reel Dimensions



(Unit:mm)

Tape width	8	12
A_3^0	ø 180	←
B_0^{+1}	ø 60	←
$C \pm 0.2$	ø 13	←
$D \pm 0.8$	ø 21	←
$E \pm 0.5$	2.0	←
$W \pm 0.3$	9.0	13.0
$t \pm 0.4$	1.3	←
$R \pm 0.4$	10.5	←

Tape Leader and Tailer

