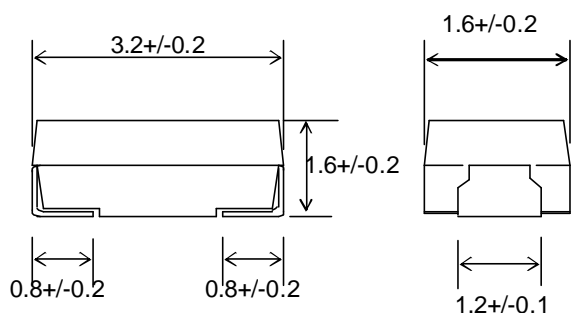


Chip Tantalum capacitor E/SV Series

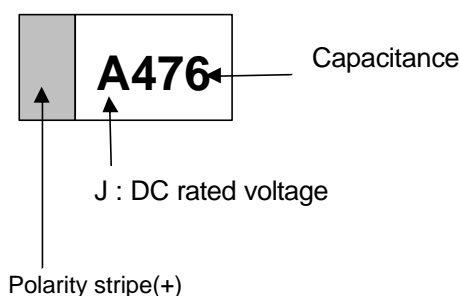
ESVA1A476M (A-case: 47uF/10V)

October, 2007

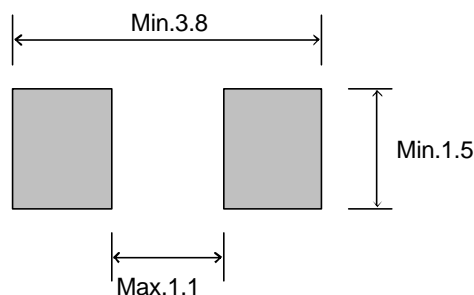
Out view design (Dimensions: mm)



Marking



Pattern design



(Marking of production date code)

	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
2005	A	B	C	D	E	F	G	H	J	K	L	M
2006	N	P	Q	R	S	T	U	V	W	X	Y	Z
2007	a	b	c	d	e	f	g	h	j	k	l	m
2008	n	p	q	r	s	t	u	v	w	x	y	z

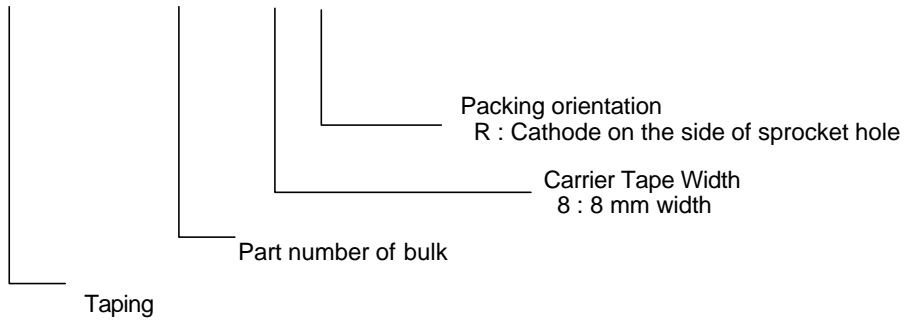
NOTE: Production date code will resume for beginning in 2009.

Ratings

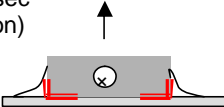
Rated Voltage (V dc.)	Capacitance (uF, 120Hz)	Leakage Current (uA)	Dissipation Factor (tand, 120Hz)			ESR (100kHz)	$\Delta C/C$ (1)	$\Delta C/C$ (2)
			25deg.C 85deg.C	-55deg.C	125deg.C			
10	47	4.7	0.20	0.36	0.24	Max 5ohm	+/- 20%	+/- 20%

Tape and Reel

TE ESVA1A476M 8 R



Performance Characteristics

No	ITEM		PERFORMANCE	TEST CONDITION (JIS C5101-1.1998)
1	Operating Temperature		-55 to +125deg.C	
2	Rated Voltage [V.dc]		2.5 4 6.3 10 16 20 25 35	Temperature: 85deg.C
3	Category Voltage [V.dc]		1.6 2.5 4 6.3 10 13 16 22	Temperature: 125deg.C
4	Surge Voltage [V.dc]		3.3 5.2 8 13 20 26 33 46	Temperature: 85deg.C
5	Capacitance		See spec. table	Frequency: 120Hz
6	Capacitance tolerance		+/- 20%	Frequency: 120Hz
7	Tangent of loss angle (tand)		See spec. table	Frequency: 120Hz
8	Leakage Current (L.C.)		0.01CV (uF x volts) or 0.5uA, whichever is greater	Voltage: Rated voltage for 5 min.
9	Equivalent series resistance (ESR)		See spec. table	Frequency: 100kHz Temperature: 25deg.C
10	Dimensions		Mechanical dimensions shall meet the Requirements specified on drawing.	
11	Resistance to Solvent	Visual	Marking shall be legible	Exposure to the following detergent for the duration of 30 +/- 5 sec. - Isopropyl alcohol
12	Vibration	Cap.	Shall be stable for period of measurement.	Frequency: 10 to 2kHz Sweep: 1 minute Amplitude of vibration: 1.5 mm Vibration time: Each plane shall be 2 hours for a total 4 hours. Within last 30 minutes, capacitance shall be measured several times.
		Visual	There shall be no evidence of mechanical damage.	
13	Shock	?C/C	See spec. table of ΔC/C(1)	100 G, Saw-tooth wave
		Tand	Shall be exceed the value No. 7	
		LC	Shall be exceed the value No. 8	
		Visual	There shall be no evidence of mechanical damage.	
14	Terminal strength	Visual	There shall be no evidence of mechanical damage.	Strength: 4.9 N Time: 10 +/- 0.5 sec (Two direction) 
15	Surge Voltage	?C/C	See spec. table of ΔC/C(1)	Temperature: 85 +/- 2 deg.C Applied voltage: No.3 Series resistance: 33ohm Duration of surge: 30 +/- 5 sec. Time between surge: 5.5 min. Number of cycles: 1000
		Tand	Shall not exceed the value in No.7	
		LC	Shall not exceed the value in No.8	
		Visual	There shall be no evidence of mechanical damage.	

No	ITEM	PERFORMANCE	TEST CONDITION (JIS C 5101-1.1998)		
16	Temperature Stability	?C/C	-20 to 0%	Step2	Step Temperature 1 20 +/- 2 deg.C 2 -55 +0/-3 deg.C 3 20 +/- 2 deg.C 4 85 +3/-0 deg.C 5 125 +3/-0 deg. C
		tand	See spec. table		
		?C/C	0 to +20%	Step4	
		tan	See spec. table		
		L.C.	0.1CV (uF x volts) or 5uA, whichever is greater	Step5	
		?C/C	0 to +20%		
		tan	See spec. table		
		L.C.	0.125CV (uF x volts) or 6.25uA, whichever is greater		
17	Resistance to soldering	?C/C	See spec. table of ΔC/C(1)	Reflow soldering method 260deg. C,10sec	
		tand	Shall not exceed the value in No.7		
		LC	Shall not exceed the value in No.8.		
		Visual	There shall be no evidence of mechanical damage.		
18	Solderability	Over 95% of the terminal surface shall be covered by continuous new solder coating after immersion.	The flux shall be a solution containing 25% by weight of water while rosin and 75% by weight of methyl alcohol. Solder temp: 210 +/- 5 deg.C Immersion time: 2 +/- 0.5 sec.		
19	Damp heat steady state	?C/C	See spec. table of ΔC/C(1)	Temperature: 40 +/- 2 deg.C Moisture : 90 to 95%R.H. Duration : 500 ⁺²⁴ ₋₀ hours	
		tand	Shall not exceed 150% of the value in No.7.		
		LC	Shall not exceed the value in No.8.		
		Visual	There shall be no evidence of mechanical damage.		
20	Rapid change of temperature	?C/C	See spec. table of ΔC/C(1)	Part shall be temperature cycled over a temperature range of -55 to 105deg.C, five times continuously as follows. Step Temp. Time 1 -55+3/-3deg.C 30 +/- 3 min 2 room temp. 3 min 3 125+2/-2deg.C 30 +/- 3 min 4 room temp. 3 min	
		tand	Shall not exceed the value in rating table		
		LC	Shall not exceed the value in rating table		
		Visual	There shall be no evidence of mechanical damage.		
21	Life test	?C/C	See spec. table of ΔC/C(2)	Temperature: 85 +/- 2 deg.C Duration: 1000 +48/-0 hours Applied voltage: The value in No.2 Series resistance: 3ohm	
		tand	Shall not exceed the value in No.7.		
		LC	Shall not exceed 125% of the value in No.8.		
		Visual	There shall be no evidence of mechanical damage.		
22	Failure rate	Shall not exceed 1%/1000hr	Temperature: 85 +/- 2 deg. Applied voltage: The value in No.2 Series resistance: 3ohm		