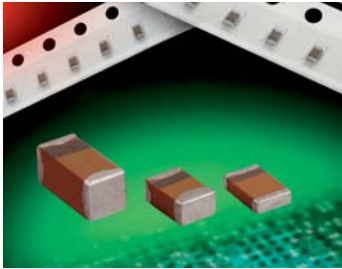


Low Profile



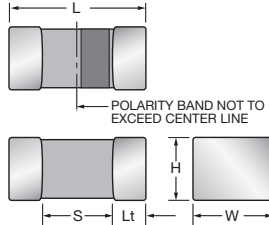
FEATURES

- The world's smallest surface mount tantalum capacitor
- CV range: 1.0-220µF / 2-16V
- 5 case sizes available in low profile option
- Industrial and hi-rel medical applications



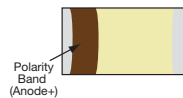
APPLICATIONS

- Industrial portable applications



MARKING

H, J, T, U, V CASE



CASE DIMENSIONS: millimeters (inches)

Code	EIA Code	EIA Metric	L+0.20 (0.008) -0.00 (0.000)	W+0.15 (0.006) -0.00 (0.000)	H max	Termination Spacing(S)	Minimum Termination Length (Lt)
H	0805	2012-10	2.00 (0.079)	1.35 (0.053)	1.00 (0.039)	0.70 (0.028) min	0.15 (0.006)
J	0603	1608-08	1.60 (0.063)	0.85 (0.033)	0.75 (0.030)	0.55 (0.022) min	0.15 (0.006)
T	1210	3528-12	3.50 ± 0.20 (0.138 ± 0.008)	2.80 ^{+0.20} _{-0.10} (0.110 ^{+0.008} _{-0.004})	1.20 (0.047)	2.00 (0.079) min	0.15 (0.006)
U	0805	2012-06	2.00 (0.079)	1.35 (0.053)	0.60 (0.024)	0.70 (0.028) min	0.15 (0.006)
V	1206	3216-08	3.20 ± 0.20 (0.126 ± 0.008)	1.60 ± 0.20 (0.063 ± 0.008)	0.75 (0.030)	1.80 (0.071) min	0.15 (0.006)

HOW TO ORDER

TAC	U	475	*	004	R	TA
Type TACmicrochip®	Case Size See table above	Capacitance Code pF code: 1st two digits represent significant figures, 3rd digit represents multiplier (number of zeros to follow)	Tolerance K=±10% M=±20%	Rated DC Voltage 002=2Vdc 003=3Vdc 004=4Vdc 006=6.3Vdc 010=10Vdc 016=16Vdc	Packaging R = 7" Standard Tin Termination Plastic Tape X = 4 1/4" Standard Tin Termination Plastic Tape A = 7" Gold Termination Plastic Tape F = 4 1/4" Gold Termination Plastic Tape	Alternative characters may be used for special requirements

TECHNICAL SPECIFICATIONS

Technical Data:	All technical data relate to an ambient temperature of +25°C							
Capacitance Range:	0.1 µF to 220 µF							
Capacitance Tolerance:	±10%; ±20%							
Leakage Current DCL:	0.01CV or 0.5µA whichever is the greater							
Rated Voltage (V _R)	≤ +85°C:	2	3	4	6.3	10	16	
Category Voltage (V _C)	≤ +125°C:	1.3	2	2.7	4	7	10	
Surge Voltage (V _S)	≤ +85°C:	2.7	3.9	5.2	8	13	20	
Surge Voltage (V _S)	≤ +125°C:	1.7	2.6	3.2	5	8	12	
Temperature Range:	-55°C to +125°C							
Reliability:	1% per 1000 hours at 85°C, V _R with 0.1Ω/V series impedance, 60% confidence level							
Termination Finish:	Nickel and Tin Plating (standard), Nickel and Gold Plating option available upon request							

Low Profile

CAPACITANCE AND RATED VOLTAGE RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Voltage Rating DC (V _R) at 85°C					
µF	Code	2.0V	3.0V	4.0V	6.3V	10V	16V
0.10 0.15 0.22	104 154 224						
0.33 0.47 0.68	334 474 684						
1.0 1.5 2.2	105 155 225					U	U
3.3 4.7 6.8	335 475 685			U	U		
10 15 22	106 156 226	U		J	H H	H/V V	
33 47 68	336 476 686		H	H		T	
100 150 220	107 157 227		T		T		

Not recommended for new designs, higher voltage or smaller case size substitution are offered.

Released codes

Engineering samples - please contact manufacturer

*Codes under development - subject to change.

Standard Height Profile: A, B, K, L, R Case

Low Profile: H, J, T, U, V Case

Note: Voltage ratings are minimum values. AVX reserves the right to supply higher ratings in the same case size, to the same reliability standards.

RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Capacitance (µF)	Rated Voltage (V)	Rated Temperature (°C)	Category Voltage (V)	Category Temperature (°C)	DCL (µA) Max.	DF % Max.	ESR Max. (Ω) @ 100kHz	MSL	100kHz RMS Current (mA)			Product Category
											25°C	85°C	125°C	
2 Volt @ 85°C														
TACU106*002#TA	U	10	2	85	1.3	125	0.5	8	5	1	84	75	33	1
3 Volt @ 85°C														
TACH476*003#TA	H	47	3	85	2	125	1.4	20	5	1	89	80	36	3
TACT227*003#TA	T	220	3	85	2	125	6.6	20	1	1	200	180	80	3
4 Volt @ 85°C														
TACU475*004#TA	U	4.7	4	85	2.7	125	0.5	8	5	1	84	75	33	1
TACJ106*004#TA	J	10	4	85	2.7	125	0.5	20	7.5	1	52	46	21	3
TACH336*004#TA	H	33	4	85	2.7	125	1.3	14	5	1	89	80	36	2
6.3 Volt @ 85°C														
TACU335*006#TA	U	3.3	6.3	85	4	125	0.5	8	5	1	84	75	33	1
TACH156*006#TA	H	15	6.3	85	4	125	0.9	8	5	1	89	80	36	3
TACH226*006#TA	H	22	6.3	85	4	125	1.4	10	5	1	89	80	36	2
TACT686*006#TA	T	68	6.3	85	4	125	4.3	15	1	1	200	180	80	2
TACT107*006#TA	T	100	6.3	85	4	125	6.3	12	1	1	200	180	80	2
10 Volt @ 85°C														
TACU225*010#TA	U	2.2	10	85	7	125	0.5	8	5	1	84	75	33	1
TACH106*010#TA	H	10	10	85	7	125	1.0	8	5	1	89	80	36	2
TACV106*010#TA	V	10	10	85	7	125	1.0	10	2	1	132	119	53	2
TACV156*010#TA	V	15	10	85	7	125	1.5	10	2	1	132	119	53	2
TACT476*010#TA	T	47	10	85	7	125	4.7	12	1	1	200	180	80	1
16 Volt @ 85°C														
TACU105*016#TA	U	1	16	85	10	125	0.5	8	5	1	84	75	33	1

Moisture Sensitivity Level (MSL) is defined according to J-STD-020.

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts.

DCL is measured at rated voltage after 5 minutes.

For typical weight and composition see page 200.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

QUALIFICATION TABLE – CATEGORY 1

TEST	TAC low profile series (Temperature range -55°C to +125°C)									
	Condition			Characteristics						
Endurance	Determine after application of rated voltage for 2000 +48/-0 hours at 85±2°C and then leaving 1-2 hours at room temperature. Also determine of 125°C temperature, category voltage for 2000 +48/-0 hours and then leaving 1-2 hours at room temperature. Power supply impedance to be ≤0.1Ω/V.			Visual examination	no visible damage					
				DCL	1.25 x initial limit					
				ΔC/C	within ±10% of initial value					
				DF	1.5 x initial limit					
				ESR	1.5 x initial limit					
Humidity	Determine after storage without applied voltage at 40±2°C and 90-95% relative humidity for 1344 +48/-0 hours and then recovery 1-2 hours at room temperature			Visual examination	no visible damage					
				DCL	initial limit					
				ΔC/C	within ±5% of initial value					
				DF	1.2 x initial limit					
				ESR	1.2 x initial limit					
Temperature Stability	Step	Temperature°C	Duration(min)		+20°C	-55°C	+20°C	+85°C	+125°C	+20°C
	1	+20±2	15	DCL	IL*	n/a	IL*	10 x IL*	12.5 x IL*	IL*
	2	-55+0/-3	15		ΔC/C	n/a	+0/-10%	±5%	+10/-0%	+15/-0%
	3	+20±2	15	DF		IL*	1.5 x IL*	IL*	1.5 x IL*	2 x IL*
	4	+85+3/-0	15		ESR	IL*	1.25 x IL*	IL*	1.25 x IL*	2 x IL*
	5	+125+3/-0	15							
	6	+20±2	15							
Surge Voltage	Test temperature: 85°C+3/0°C Test voltage: 1.3 x rated voltage Series protection resistance 1000±100Ω Discharge resistance: 1000Ω Number of cycles: 1000x Cycle duration: 6 min; 30 sec charge, 5 min 30 sec discharge			Visual examination	no visible damage					
				DCL	initial limit					
				ΔC/C	within ±10% of initial value					
				DF	initial limit					
				ESR	initial limit					

*Initial Limit

QUALIFICATION TABLE – CATEGORY 2

TEST	TAC low profile series (Temperature range -55°C to +125°C)									
	Condition			Characteristics						
Endurance	Determine after application of rated voltage for 2000 +48/-0 hours at 85±2°C and then leaving 1-2 hours at room temperature. Also determine of 125°C temperature, category voltage for 2000 +48/-0 hours and then leaving 1-2 hours at room temperature. Power supply impedance to be ≤0.1Ω/V.			Visual examination	no visible damage					
				DCL	1.25 x initial limit					
				ΔC/C	within ±15% of initial value					
				DF	1.5 x initial limit					
				ESR	1.5 x initial limit					
Humidity	Determine after storage without applied voltage at 40±2°C and 90-95% relative humidity for 1344 +48/-0 hours and then recovery 1-2 hours at room temperature			Visual examination	no visible damage					
				DCL	initial limit					
				ΔC/C	within ±10% of initial value					
				DF	1.2 x initial limit					
				ESR	1.2 x initial limit					
Temperature Stability	Step	Temperature°C	Duration(min)		+20°C	-55°C	+20°C	+85°C	+125°C	+20°C
	1	+20±2	15	DCL	IL*	n/a	IL*	10 x IL*	12.5 x IL*	IL*
	2	-55+0/-3	15		ΔC/C	n/a	+0/-15%	±5%	+15/-0%	+20/-0%
	3	+20±2	15	DF		IL*	1.5 x IL*	IL*	1.5 x IL*	2 x IL*
	4	+85+3/-0	15		ESR	IL*	1.25 x IL*	IL*	1.25 x IL*	2 x IL*
	5	+125+3/-0	15							
	6	+20±2	15							
Surge Voltage	Test temperature: 85°C+3/0°C Test voltage: 1.3 x rated voltage Series protection resistance 1000±100Ω Discharge resistance: 1000Ω Number of cycles: 1000x Cycle duration: 6 min; 30 sec charge, 5 min 30 sec discharge			Visual examination	no visible damage					
				DCL	1.5 x initial limit					
				ΔC/C	within ±15% of initial value					
				DF	1.5 x initial limit					
				ESR	1.5 x initial limit					

*Initial Limit

QUALIFICATION TABLE – CATEGORY 3

TEST	TAC low profile series (Temperature range -55°C to +125°C)										
	Condition			Characteristics							
Endurance	Determine after application of rated voltage for 2000 +48/-0 hours at 85±2°C and then leaving 1-2 hours at room temperature. Also determine of 125°C temperature, category voltage for 2000 +48/-0 hours and then leaving 1-2 hours at room temperature. Power supply impedance to be ≤0.1Ω/V.			Visual examination	no visible damage						
				DCL	1.25 x initial limit						
				ΔC/C	within ±30% of initial value						
				DF	1.5 x initial limit						
				ESR	1.5 x initial limit						
Humidity	Determine after storage without applied voltage at 40±2°C and 90-95% relative humidity for 1344 +48/-0 hours and then recovery 1-2 hours at room temperature			Visual examination	no visible damage						
				DCL	2 x initial limit						
				ΔC/C	within ±30% of initial value						
				DF	1.5 x initial limit						
				ESR	1.25 x initial limit						
Temperature Stability	Step	Temperature°C	Duration(min)		+20°C	-55°C	+20°C	+85°C	+125°C	+20°C	
	1	+20±2	15	DCL	IL*	n/a	IL*	10 x IL*	12.5 x IL*	IL*	
	2	-55+0/-3	15		ΔC/C	n/a	+0/-25%	±5%	+20/-0%	+25/-0%	±20%
	3	+20±2	15	DF		IL*	1.5 x IL*	IL*	1.5 x IL*	2 x IL*	1.5 x IL*
	4	+85+3/-0	15		ESR	IL*	1.25 x IL*	IL*	1.25 x IL*	2 x IL*	1.5 x IL*
	5	+125+3/-0	15								
	6	+20±2	15								
Surge Voltage	Test temperature: 85°C+3/0°C Test voltage: 1.3 x rated voltage Series protection resistance 1000±100Ω Discharge resistance: 1000Ω Number of cycles: 1000x Cycle duration: 6 min; 30 sec charge, 5 min 30 sec discharge			Visual examination	no visible damage						
				DCL	2 x initial limit						
				ΔC/C	within ±30% of initial value						
				DF	2 x initial limit						
				ESR	2 x initial limit						

*Initial Limit