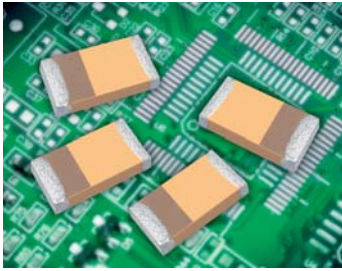


## Low Profile



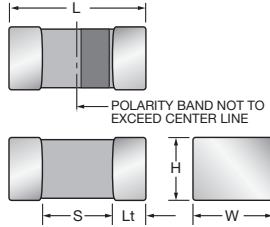
### FEATURES

- The world's smallest surface mount tantalum capacitor
- CV range: 1.0-100µF / 2-16V
- 6 case sizes available in low profile option
- Industrial and hi-rel medical applications



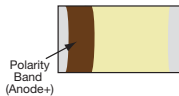
### APPLICATIONS

- Industrial portable applications



### MARKING

#### H, I, 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)
I	1206	3216-05	3.20±0.20 (0.126±0.008)	1.60±0.20 (0.063±0.008)	0.50 (0.020)	1.80 (0.071) 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 <sup>+0.20</sup> <sub>-0.10</sub> (0.110 <sup>+0.008</sup> <sub>-0.004</sub> )	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

<b>TAC</b>	<b>U</b>	<b>475</b>	<b>*</b>	<b>004</b>	<b>R</b>	<b>TA</b>
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 100 µF							
Capacitance Tolerance:	±10%; ±20%							
Leakage Current DCL:	0.01CV or 0.5µA whichever is the greater							
Rated Voltage (V <sub>R</sub> )	≤ +85°C:	2	3	4	6.3	10	16	
Category Voltage (V <sub>C</sub> )	≤ +125°C:	1.3	2	2.7	4	7	10	
Surge Voltage (V <sub>S</sub> )	≤ +85°C:	2.7	3.9	5.2	8	13	20	
Surge Voltage (V <sub>S</sub> )	≤ +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 <sub>R</sub> 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 <sub>R</sub> ) at 85°C					
µF	Code	2.0V	3.0V	4.0V	6.3V	10V	16V
1.0	105						U
1.5	155						U
2.2	225						U
3.3	335				U		
4.7	475			U	U		
6.8	685			U	U		
10	106	U		J	I	H/V	
15	156				H	V	
22	226				H		
33	336			H			
47	476		H				T
68	686						T
100	107						T

Available Ratings

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

Low Profile: H, I, 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 Max. (µA)	DF Max. (%)	ESR Max. @ 100kHz (Ω)	MSL	100kHz RMS Current (mA)			Product Category
											25°C	85°C	125°C	
<b>2 Volt @ 85°C</b>														
TACU106*002#TA	U	10	2	85	1.3	125	0.5	8	5	1	84	75	33	1
<b>3 Volt @ 85°C</b>														
TACH476*003#TA	H	47	3	85	2	125	1.4	20	5	1	89	80	36	3
<b>4 Volt @ 85°C</b>														
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
<b>6.3 Volt @ 85°C</b>														
TACU335*006#TA	U	3.3	6.3	85	4	125	0.5	8	5	1	84	75	33	1
TACI106*006#TA	I	10	6.3	85	4	125	0.6	20	5	1	84	75	33	2
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
<b>10 Volt @ 85°C</b>														
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
<b>16 Volt @ 85°C</b>														
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 223.

**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						
<b>Endurance</b>	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				
<b>Humidity</b>	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				
<b>Temperature Stability</b>	Step	Temperature°C	Duration(min)							
	1	+20±2	15							
	2	-55+0/-3	15	DCL	+20°C	-55°C	+20°C	+85°C	+125°C	+20°C
	3	+20±2	15	ΔC/C	n/a	+0/-25%	±5%	+20/-0%	+25/-0%	±20%
	4	+85+3/-0	15	DF	IL*	1.5 x IL*	IL*	1.5 x IL*	2 x IL*	1.5 x IL*
	5	+125+3/-0	15	ESR	IL*	1.25 x IL*	IL*	1.25 x IL*	2 x IL*	1.5 x IL*
	6	+20±2	15							
<b>Surge Voltage</b>	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