

# TAZ Series



## CWR19 - MIL-PRF-55365/11 Established Reliability, COTS-Plus & Space Level



An extended range of capacitor ratings beyond CWR09 that is fully qualified to MIL-PRF-55365/11, this series represents the most flexible of surface mount form factors, offering nine case sizes (the original A through H of CWR09) and adds the new X case size.

The molded body / compliant termination construction ensures no TCE mismatch with any substrate. This construction is compatible with a wide range of SMT board assembly processes including wave or reflow solder, conductive epoxy or compression bonding techniques. The parts also carry full polarity and capacitance / voltage marking.

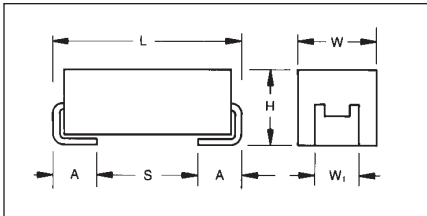
The four smaller cases are characterized by their low profile construction, with the A case being the world's smallest molded military tantalum chip.

The series is qualified to MIL-PRF-55365 Weibull "B", "C", "D" and "T" levels, with all surge options ("A", "B" & "C") available.

For Space Level applications, AVX SRC 9000 qualification is recommended (see ratings table for part number availability).

There are four termination finishes available: solder plated, fused solder plated, hot solder dipped and gold plated (these are "H", "K", "C" and "B" termination, respectively, per MIL-PRF-55365). In addition, the molding compound has been selected to meet the requirements of UL94V-0 (Flame Retardancy) and outgassing requirements of NASA SP-R-0022A.

The TAZ "X" case size components are considered to be MSL 3 in accordance with J-STD-020.



### MARKING

(White marking on black body)



**Polarity Stripe (+)**

**Capacitance Code  
Rated Voltage**

### CASE DIMENSIONS:

millimeters (inches)

Case Code	Length (L) ±0.38 (0.015)	Width (W) ±0.38 (0.015)	Height (H) ±0.38 (0.015)	Term. Width (W <sub>t</sub> )	Term. Length (A) +0.25/-0.13 (+0.010/-0.005)	S min	Typical Weight (g)
A	2.54 (0.100)	1.27 (0.050)	1.27 (0.050)	1.27±0.13 (0.050±0.005)	0.76 (0.030)	0.38 (0.015)	0.016
B	3.81 (0.150)	1.27 (0.050)	1.27 (0.050)	1.27±0.13 (0.050±0.005)	0.76 (0.030)	1.65 (0.065)	0.025
C	5.08 (0.200)	1.27 (0.050)	1.27 (0.050)	1.27±0.13 (0.050±0.005)	0.76 (0.030)	2.92 (0.115)	0.035
D	3.81 (0.150)	2.54 (0.100)	1.27 (0.050)	2.41+0.13/-0.25 (0.095+0.005/-0.010)	0.76 (0.030)	1.65 (0.065)	0.045
E	5.08 (0.200)	2.54 (0.100)	1.27 (0.050)	2.41+0.13/-0.25 (0.095+0.005/-0.010)	0.76 (0.030)	2.92 (0.115)	0.065
F	5.59 (0.220)	3.43 (0.135)	1.78 (0.070)	3.30±0.13 (0.130±0.005)	0.76 (0.030)	3.43 (0.135)	0.125
G	6.73 (0.265)	2.79 (0.110)	2.79 (0.110)	2.67±0.13 (0.105±0.005)	1.27 (0.050)	3.56 (0.140)	0.205
H	7.24 (0.285)	3.81 (0.150)	2.79 (0.110)	3.68+0.13/-0.51 (0.145+0.005/-0.020)	1.27 (0.050)	4.06 (0.160)	0.035
X	6.93 Max (0.273)	5.41 Max (0.213)	2.74 Max (0.108)	3.05±0.13 (0.120±0.005)	1.19 (0.047)	N/A	0.420

### CWR19-MIL-PRF 55365/11

### CAPACITANCE AND RATED VOLTAGE, V<sub>R</sub> (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Rated voltage DC (V <sub>R</sub> ) at 85°C						
µF	Code	4V (C)	6V (D)	10V (F)	15V (H)	20V (J)	25V (K)	35V (M)
0.10	104							
0.15	154							
0.22	224							
0.33	334							A
0.47	474						A	
0.68	684					A		
1.0	105				A	A	B	
1.5	155				A	B		
2.2	225			A	A	B	D	
3.3	335	A	A	A	B	D	E	
4.7	475	A	A	B/C	B/C/D	E		
6.8	685	A	B	B/C/D	D/E	E	F	G
10	106	B	B	B/C/D/E	D/E	E/F	G	H
15	156	B	B/D/E	D/E	E/F	F	G	
22	226	B/D	D/E	E	F	G	G/H	
33	336	D/E	E	F	F/G	H	H	
47	476	E	F	F/G	G/H	H/X		
68	686	E	F/G	G	G/H			
100	107	F	G	G/H	H			
150	157	G	G	H/X				
220	227	H	H	H				
330	337	H	H					



### HOW TO ORDER

#### COTS-PLUS & MIL QPL (CWR19):

TAZ	H	227	*	006	C	□	#	@	0	^	++
<b>Type</b>	<b>Case Size</b>	<b>Capacitance Code</b> pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	<b>Capacitance Tolerance</b> M = ±20% K = ±10% J = ±5%	<b>Voltage Code</b> 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 015 = 15Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc	<b>Standard or Low ESR Range</b> C = Std ESR L = Low ESR	<b>Packaging</b> B = Bulk R = 7" T&R S = 13" T&R W = Waffle  See page 6 for additional packaging options.	<b>Inspection Level</b> S = Std. Conformance L = Group A  M = MIL (JAN) CWR19	<b>Reliability Grade</b> Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. Z = Non-ER	<b>Qualification Level</b> 0 = N/A T = T Level 9 = SRC9000	<b>Termination Finish</b> H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated 7 = Matte Sn (COTS-Plus only)	<b>Surge Test Option</b> 00 = None 23 = 10 Cycles, +25°C 24 = 10 Cycles, -55°C & +85°C 45 = 10 cycles, -55°C & +85°C before Weibull

**Not RoHS Compliant**

LEAD-FREE LEAD-FREE COMPATIBLE COMPONENT  
For RoHS compliant products, please select correct termination style.

#### CWR19 P/N CROSS REFERENCE:

CWR19	D	^	227	*	@	H	+	□
<b>Type</b>	<b>Voltage Code</b> C = 4Vdc D = 6Vdc F = 10Vdc H = 15Vdc J = 20Vdc K = 25Vdc M = 35Vdc	<b>Termination Finish</b> H = Solder Plated K = Solder Fused C = Hot Solder Dipped B = Gold Plated	<b>Capacitance Code</b> pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	<b>Capacitance Tolerance</b> M = ±20% K = ±10% J = ±5%	<b>Reliability Grade</b> Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. T = T Level A = Non-ER	<b>Case Size</b>	<b>Surge Test Option</b> A = 10 cycles, +25°C B = 10 cycles, -55°C & +85°C C = 10 cycles, -55°C & +85°C before Weibull Z = None required	<b>Packaging</b> Bulk = Standard TR = 7" T&R TR13 = 13" T&R W = Waffle  See page 6 for additional packaging options.

**Not RoHS Compliant**

#### SPACE LEVEL OPTIONS TO SRC9000\*:

TAZ	H	227	*	006	C	□	L	@	9	^	++
<b>Type</b>	<b>Case Size</b>	<b>Capacitance Code</b> pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	<b>Capacitance Tolerance</b> M = ±20% K = ±10% J = ±5%	<b>Voltage Code</b> 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 015 = 15Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc	<b>Standard or Low ESR Range</b> C = Std ESR L = Low ESR	<b>Packaging</b> B = Bulk R = 7" T&R S = 13" T&R W = Waffle  See page 6 for additional packaging options.	<b>Inspection Level</b> L = Group A	<b>Reliability Grade</b> Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf.	<b>Qualification Level</b> 9 = SRC9000	<b>Termination Finish</b> H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated	<b>Surge Test Option</b> 45 = 10 cycles, -55°C & +85°C before Weibull

**Not RoHS Compliant**

\*Contact factory for AVX SRC9000 Space Level SCD details.

### TECHNICAL SPECIFICATIONS

Technical Data:	Unless otherwise specified, all technical data relate to an ambient temperature of 25°C								
Capacitance Range:	0.33 µF to 330 µF								
Capacitance Tolerance:	±5%; ±10%; ±20%								
Rated Voltage: (V <sub>R</sub> )	≤85°C:	4	6	10	15	20	25	35	
Category Voltage: (V <sub>C</sub> )	125°C:	2.7	4	6.7	10	13.3	16.7	23.3	
Surge Voltage: (V <sub>S</sub> )	≤85°C:	5.3	8	13.3	20	26.7	33.3	46.7	
	125°C:	3.5	5.3	8.7	13.3	17.8	22.2	31.1	
Temperature Range:	-55°C to +125°C								



# TAZ Series



## CWR19 - MIL-PRF-55365/11 Established Reliability, COTS-Plus & Space Level

RATING & PART NUMBER REFERENCE			Parametric Specifications by Rating per MIL-PRF-55365/11									Typical Ripple Data by Rating							
CWR19 P/N	AVX MIL & COTS-Plus P/N	AVX SRC9000 P/N	Case	Cap @ 120Hz μF @ 25°C	DC Rated Voltage V @ +85°C	ESR @ 100kHz Ohms @ +25°C	DCL max			DF Max			Power Dissipation W	25°C Ripple A (100kHz)	85°C Ripple A (100kHz)	125°C Ripple A (100kHz)	25°C Ripple V (100kHz)	85°C Ripple V (100kHz)	125°C Ripple V (100kHz)
							+25°C (μA)	+85°C (μA)	+125°C (μA)	+25°C (%)	+(85/125)°C (%)	-55°C (%)							
CWR19A105@A+	TAZ A 105 * 015 C □ # @ 0 ^ ++	TAZ A 105 * 015 C □ L @ 9 ^ ++	A	1	15	15	1	10	12	6	8	8	0.050	0.06	0.05	0.02	0.87	0.78	0.35
CWR19A155@A+	TAZ A 155 * 015 C □ # @ 0 ^ ++	TAZ A 155 * 015 C □ L @ 9 ^ ++	A	1.5	15	15	1	10	12	6	8	8	0.050	0.06	0.05	0.02	0.87	0.78	0.35
CWR19A225@A+	TAZ A 225 * 015 C □ # @ 0 ^ ++	TAZ A 225 * 015 C □ L @ 9 ^ ++	A	2.2	15	15	1	10	12	6	8	8	0.050	0.06	0.05	0.02	0.87	0.78	0.35
CWR19A335@B+	TAZ B 335 * 015 C □ # @ 0 ^ ++	TAZ B 335 * 015 C □ L @ 9 ^ ++	B	3.3	15	9	1	10	12	6	8	8	0.070	0.09	0.08	0.04	0.79	0.71	0.32
CWR19A475@B+	TAZ B 475 * 015 C □ # @ 0 ^ ++	TAZ B 475 * 015 C □ L @ 9 ^ ++	B	4.7	15	5	1	10	12	6	8	8	0.070	0.12	0.11	0.05	0.69	0.53	0.24
CWR19A475@C+	TAZ C 475 * 015 C □ # @ 0 ^ ++	TAZ C 475 * 015 C □ L @ 9 ^ ++	C	4.7	15	5.5	1	10	12	6	8	8	0.075	0.12	0.11	0.05	0.64	0.58	0.26
CWR19A475@D+	TAZ D 475 * 015 C □ # @ 0 ^ ++	TAZ D 475 * 015 C □ L @ 9 ^ ++	D	4.7	15	6	1	10	12	6	8	8	0.080	0.12	0.10	0.05	0.69	0.62	0.28
CWR19A685@D+	TAZ D 685 * 015 C □ # @ 0 ^ ++	TAZ D 685 * 015 C □ L @ 9 ^ ++	D	6.8	15	6	1	10	12	6	8	8	0.080	0.12	0.10	0.05	0.69	0.62	0.28
CWR19A106@D+	TAZ D 106 * 015 C □ # @ 0 ^ ++	TAZ D 106 * 015 C □ L @ 9 ^ ++	D	10	15	6	2	20	24	6	8	8	0.080	0.12	0.10	0.05	0.69	0.62	0.28
CWR19A685@E+	TAZ E 685 * 015 C □ # @ 0 ^ ++	TAZ E 685 * 015 C □ L @ 9 ^ ++	E	6.8	15	3	1	10	12	8	10	12	0.090	0.17	0.16	0.07	0.52	0.47	0.21
CWR19A106@E+	TAZ E 106 * 015 C □ # @ 0 ^ ++	TAZ E 106 * 015 C □ L @ 9 ^ ++	E	10	15	4	2	20	24	6	8	8	0.090	0.15	0.14	0.06	0.60	0.54	0.24
CWR19A156@E+	TAZ E 156 * 015 C □ # @ 0 ^ ++	TAZ E 156 * 015 C □ L @ 9 ^ ++	E	15	15	4	2	20	24	6	8	8	0.090	0.15	0.14	0.06	0.60	0.54	0.24
CWR19A156@F+	TAZ F 156 * 015 C □ # @ 0 ^ ++	TAZ F 156 * 015 C □ L @ 9 ^ ++	F	15	15	3	2	20	24	8	10	10	0.100	0.18	0.16	0.07	0.55	0.49	0.22
CWR19A226@F+	TAZ F 226 * 015 C □ # @ 0 ^ ++	TAZ F 226 * 015 C □ L @ 9 ^ ++	F	22	15	3	3	30	36	8	10	10	0.100	0.18	0.16	0.07	0.55	0.49	0.22
CWR19A336@F+	TAZ F 336 * 015 C □ # @ 0 ^ ++	TAZ F 336 * 015 C □ L @ 9 ^ ++	F	33	15	3	5	50	60	6	8	8	0.100	0.18	0.16	0.07	0.55	0.49	0.22
CWR19A336@G+	TAZ G 336 * 015 C □ # @ 0 ^ ++	TAZ G 336 * 015 C □ L @ 9 ^ ++	G	33	15	1.1	6	60	72	8	10	10	0.125	0.34	0.30	0.13	0.37	0.33	0.15
CWR19A476@G+	TAZ G 476 * 015 C □ # @ 0 ^ ++	TAZ G 476 * 015 C □ L @ 9 ^ ++	G	47	15	1.1	10	100	120	8	10	10	0.125	0.34	0.30	0.13	0.37	0.33	0.15
CWR19A686@G+	TAZ G 686 * 015 C □ # @ 0 ^ ++	TAZ G 686 * 015 C □ L @ 9 ^ ++	G	68	15	1.1	10	100	120	8	10	10	0.125	0.34	0.30	0.13	0.37	0.33	0.15
CWR19H476@H+	TAZ H 476 * 015 C □ # @ 0 ^ ++	TAZ H 476 * 015 C □ L @ 9 ^ ++	H	47	15	0.9	10	100	120	8	10	10	0.150	0.41	0.37	0.16	0.37	0.33	0.15
CWR19H686@H+	TAZ H 686 * 015 C □ # @ 0 ^ ++	TAZ H 686 * 015 C □ L @ 9 ^ ++	H	68	15	0.9	10	100	120	8	10	10	0.150	0.41	0.37	0.16	0.37	0.33	0.15
CWR19A107@H+	TAZ H 107 * 015 C □ # @ 0 ^ ++	TAZ H 107 * 015 C □ L @ 9 ^ ++	H	100	15	0.9	15	150	180	10	12	12	0.150	0.41	0.37	0.16	0.37	0.33	0.15
CWR19A684@A+	TAZ A 684 * 020 C □ # @ 0 ^ ++	TAZ A 684 * 020 C □ L @ 9 ^ ++	A	0.68	20	15	1	10	12	6	8	8	0.050	0.06	0.05	0.02	0.87	0.78	0.35
CWR19A105@A+	TAZ A 105 * 020 C □ # @ 0 ^ ++	TAZ A 105 * 020 C □ L @ 9 ^ ++	A	1	20	15	1	10	12	6	8	8	0.050	0.06	0.05	0.02	0.87	0.78	0.35
CWR19A155@B+	TAZ B 155 * 020 C □ # @ 0 ^ ++	TAZ B 155 * 020 C □ L @ 9 ^ ++	B	1.5	20	9	1	10	12	6	8	8	0.070	0.09	0.08	0.04	0.79	0.71	0.32
CWR19A225@B+	TAZ B 225 * 020 C □ # @ 0 ^ ++	TAZ B 225 * 020 C □ L @ 9 ^ ++	B	2.2	20	9	1	10	12	6	8	8	0.070	0.09	0.08	0.04	0.79	0.71	0.32
CWR19A335@D+	TAZ D 335 * 020 C □ # @ 0 ^ ++	TAZ D 335 * 020 C □ L @ 9 ^ ++	D	3.3	20	6	1	10	12	6	8	8	0.080	0.12	0.10	0.05	0.69	0.62	0.28
CWR19A475@E+	TAZ E 475 * 020 C □ # @ 0 ^ ++	TAZ E 475 * 020 C □ L @ 9 ^ ++	E	4.7	20	6	1	10	12	6	8	8	0.090	0.12	0.11	0.05	0.73	0.66	0.29
CWR19A685@E+	TAZ E 685 * 020 C □ # @ 0 ^ ++	TAZ E 685 * 020 C □ L @ 9 ^ ++	E	6.8	20	5	2	20	24	6	8	8	0.090	0.13	0.12	0.05	0.67	0.60	0.27
CWR19A106@E+	TAZ E 106 * 020 C □ # @ 0 ^ ++	TAZ E 106 * 020 C □ L @ 9 ^ ++	E	10	20	5	2	20	24	6	8	8	0.090	0.13	0.12	0.05	0.67	0.60	0.27
CWR19A106@F+	TAZ F 106 * 020 C □ # @ 0 ^ ++	TAZ F 106 * 020 C □ L @ 9 ^ ++	F	10	20	3	2	20	24	6	8	8	0.100	0.18	0.16	0.07	0.55	0.49	0.22
CWR19A156@F+	TAZ F 156 * 020 C □ # @ 0 ^ ++	TAZ F 156 * 020 C □ L @ 9 ^ ++	F	15	20	3	3	30	36	6	8	8	0.100	0.18	0.16	0.07	0.55	0.49	0.22
CWR19A226@G+	TAZ G 226 * 020 C □ # @ 0 ^ ++	TAZ G 226 * 020 C □ L @ 9 ^ ++	G	22	20	2.5	4	40	48	6	8	8	0.125	0.22	0.20	0.09	0.56	0.50	0.22
CWR19A336@H+	TAZ H 336 * 020 C □ # @ 0 ^ ++	TAZ H 336 * 020 C □ L @ 9 ^ ++	H	33	20	0.9	6	60	72	8	10	10	0.150	0.41	0.37	0.16	0.37	0.33	0.15
CWR19A476@H+	TAZ H 476 * 020 C □ # @ 0 ^ ++	TAZ H 476 * 020 C □ L @ 9 ^ ++	H	47	20	0.9	10	100	120	8	10	10	0.150	0.41	0.37	0.16	0.37	0.33	0.15
CWR19A476@X+	TAZ X 476 * 020 C □ # @ 0 ^ ++	TAZ X 476 * 020 C □ L @ 9 ^ ++	X	47	20	0.9	10	100	120	8	10	10	0.200	0.47	0.42	0.19	0.42	0.38	0.17
CWR19K474@A+	TAZ A 474 * 025 C □ # @ 0 ^ ++	TAZ A 474 * 025 C □ L @ 9 ^ ++	A	0.47	25	15	1	10	12	6	8	8	0.050	0.06	0.05	0.02	0.87	0.78	0.35
CWR19K105@B+	TAZ B 105 * 025 C □ # @ 0 ^ ++	TAZ B 105 * 025 C □ L @ 9 ^ ++	B	1	25	10	1	10	12	6	8	8	0.070	0.08	0.08	0.03	0.84	0.75	0.33
CWR19K225@D+	TAZ D 225 * 025 C □ # @ 0 ^ ++	TAZ D 225 * 025 C □ L @ 9 ^ ++	D	2.2	25	6	1	10	12	6	8	8	0.080	0.12	0.10	0.05	0.69	0.62	0.28
CWR19K335@E+	TAZ E 335 * 025 C □ # @ 0 ^ ++	TAZ E 335 * 025 C □ L @ 9 ^ ++	E	3.3	25	4	1	10	12	6	8	8	0.090	0.15	0.14	0.06	0.60	0.54	0.24
CWR19K685@F+	TAZ F 685 * 025 C □ # @ 0 ^ ++	TAZ F 685 * 025 C □ L @ 9 ^ ++	F	6.8	25	3	2	20	24	6	8	8	0.100	0.18	0.16	0.07	0.55	0.49	0.22
CWR19K156@G+	TAZ G 156 * 025 C □ # @ 0 ^ ++	TAZ G 156 * 025 C □ L @ 9 ^ ++	G	15	25	1.4	4	40	48	6	8	8	0.125	0.30	0.27	0.12	0.42	0.38	0.17
CWR19K226@G+	TAZ G 226 * 025 C □ # @ 0 ^ ++	TAZ G 226 * 025 C □ L @ 9 ^ ++	G	22	25	1.4	6	60	72	6	8	8	0.125	0.30	0.27	0.12	0.42	0.38	0.17
CWR19K226@H+	TAZ H 226 * 025 C □ # @ 0 ^ ++	TAZ H 226 * 025 C □ L @ 9 ^ ++	H	22	25	0.9	6	60	72	6	8	8	0.150	0.41	0.37	0.16	0.37	0.33	0.15
CWR19K336@H+	TAZ H 336 * 025 C □ # @ 0 ^ ++	TAZ H 336 * 025 C □ L @ 9 ^ ++	H	33	25	0.9	10	100	120	8	10	10	0.150	0.41	0.37	0.16	0.37	0.33	0.15
CWR19M334@A+	TAZ A 334 * 035 C □ # @ 0 ^ ++	TAZ A 334 * 035 C □ L @ 9 ^ ++	A	0.33	35	22	1	10	12	6	8	8	0.050	0.05	0.04	0.02	1.05	0.94	0.42
CWR19M685@G+	TAZ G 685 * 035 C □ # @ 0 ^ ++	TAZ G 685 * 035 C □ L @ 9 ^ ++	G	6.8	35	1.5	3	30	36	6	8	8	0.125	0.29	0.26	0.12	0.43	0.39	0.17
CWR19M106@H+	TAZ H 106 * 035 C □ # @ 0 ^ ++	TAZ H 106 * 035 C □ L @ 9 ^ ++	H	10	35	0.9	4	40	48	8	10	10	0.150	0.41	0.37	0.16	0.37	0.33	0.15

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.

**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.





# TAZ Series



## CWR29 - MIL-PRF-55365/11 Established Reliability, COTS-Plus & Space Level



A low ESR version of CWR09 and CWR19 that is fully qualified to MIL-PRF-55365/11, the CWR29 series represents the most flexible of surface mount form factors and the optimum power handling for all filtering applications. It is offered in nine case sizes (the original A through H of CWR09 and adding the new X case size).

The molded body / compliant termination construction ensures no TCE mismatch with any substrate. This construction is compatible with a wide range of SMT board assembly processes including wave or reflow solder, conductive epoxy or compression bonding techniques. The parts also carry full polarity and capacitance / voltage marking.

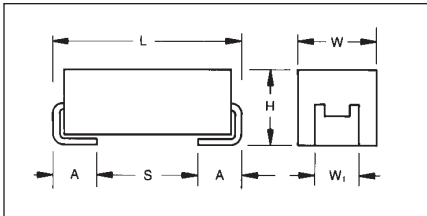
The five smaller cases are characterized by their low profile construction, with the A case being the world's smallest molded military tantalum chip.

The series is qualified to MIL-PRF-55365 Weibull "B", "C", "D" and "T" levels, with all surge options ("A", "B" & "C") available.

For Space Level applications, AVX SRC 9000 qualification is recommended (see ratings table for part number availability).

There are four termination finishes available: solder plated, fused solder plated, hot solder dipped and gold plated (these are "H", "K", "C" and "B" termination, respectively, per MIL-PRF-55365). In addition, the molding compound has been selected to meet the requirements of UL94V-0 (Flame Retardancy) and outgassing requirements of NASA SP-R-0022A.

The TAZ "X" case size components are considered to be MSL 3 in accordance with J-STD-020.



### MARKING

(White marking on black body)



**Polarity Stripe (+)**

**Capacitance Code  
Rated Voltage**

### CASE DIMENSIONS:

millimeters (inches)

Case Code	Length (L) ±0.38 (0.015)	Width (W) ±0.38 (0.015)	Height (H) ±0.38 (0.015)	Term. Width (W <sub>t</sub> )	Term. Length (A) +0.25/-0.13 (+0.010/-0.005)	S min	Typical Weight (g)
A	2.54 (0.100)	1.27 (0.050)	1.27 (0.050)	1.27±0.13 (0.050±0.005)	0.76 (0.030)	0.38 (0.015)	0.016
B	3.81 (0.150)	1.27 (0.050)	1.27 (0.050)	1.27±0.13 (0.050±0.005)	0.76 (0.030)	1.65 (0.065)	0.025
C	5.08 (0.200)	1.27 (0.050)	1.27 (0.050)	1.27±0.13 (0.050±0.005)	0.76 (0.030)	2.92 (0.115)	0.035
D	3.81 (0.150)	2.54 (0.100)	1.27 (0.050)	2.41+0.13/-0.25 (0.095+0.005/-0.010)	0.76 (0.030)	1.65 (0.065)	0.045
E	5.08 (0.200)	2.54 (0.100)	1.27 (0.050)	2.41+0.13/-0.25 (0.095+0.005/-0.010)	0.76 (0.030)	2.92 (0.115)	0.065
F	5.59 (0.220)	3.43 (0.135)	1.78 (0.070)	3.30±0.13 (0.130±0.005)	0.76 (0.030)	3.43 (0.135)	0.125
G	6.73 (0.265)	2.79 (0.110)	2.79 (0.110)	2.67±0.13 (0.105±0.005)	1.27 (0.050)	3.56 (0.140)	0.205
H	7.24 (0.285)	3.81 (0.150)	2.79 (0.110)	3.68+0.13/-0.51 (0.145+0.005/-0.020)	1.27 (0.050)	4.06 (0.160)	0.035
X	6.93 Max (0.273)	5.41 Max (0.213)	2.74 Max (0.108)	3.05±0.13 (0.120±0.005)	1.19 (0.047)	N/A	0.420

### CWR29-MIL-PRF 55365/11

### CAPACITANCE AND RATED VOLTAGE, V<sub>R</sub> (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Rated voltage DC (V <sub>R</sub> ) at 85°C							
µF	Code	4V (C)	6V (D)	10V (F)	15V (H)	20V (J)	25V (K)	35V (M)	50V (N)
0.10	104								A
0.15	154								A
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	D
1.0	105			A	A	A/B	B/C	D	E
1.5	155		A		A/B	B/C	D	E	F
2.2	225	A		A/B	A/C	B/D	D/E		F
3.3	335	A	A/B	A/C	B/D	D/E	E	F	G
4.7	475	A/B	A/C	B/C/D	B/C/D/E	E	F	G	H
6.8	685	A/C	B/D	B/C/D/E	D/E	E/F	F/G	G/H	
10	106	B/D	B/E	B/C/D/E	D/E/F	E/F	G	H	
15	156	B/E	B/D/E	D/E/F	E/F	F/G	G/H		
22	226	B/D	D/E/F	E	F/G	G/H	G/H		
33	336	D/E/F	E	F/G	F/G/H	H	H		
47	476	E	F/G	F/G/H	G/H	H/X			
68	686	E/G	F/G/H	G	G/H				
100	107	F/H	G	G/H	H				
150	157	G	G	H/X					
220	227	H	H	H					
330	337	H	H						



### HOW TO ORDER

#### COTS-PLUS & MIL QPL (CWR29):

TAZ	H	227	*	006	C	□	#	@	0	^	++
<b>Type</b>	<b>Case Size</b>	<b>Capacitance Code</b> pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	<b>Capacitance Tolerance</b> M = ±20% K = ±10% J = ±5%	<b>Voltage Code</b> 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 015 = 15Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc	<b>Standard or Low ESR Range</b> C = Std ESR L = Low ESR	<b>Packaging</b> B = Bulk R = 7" T&R S = 13" T&R W = Waffle  See page 6 for additional packaging options.	<b>Inspection Level</b> S = Std. Conformance L = Group A  M = MIL (JAN) CWR29	<b>Reliability Grade</b> Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. Z = Non-ER	<b>Qualification Level</b> 0 = N/A T = T Level 9 = SRC9000	<b>Termination Finish</b> H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated 7 = Matte Sn (COTS-Plus only)	<b>Surge Test Option</b> 00 = None 23 = 10 Cycles, +25°C 24 = 10 Cycles, -55°C & +85°C 45 = 10 cycles, -55°C & +85°C before Weibull

**Not RoHS Compliant**

LEAD-FREE LEAD-FREE COMPATIBLE COMPONENT  
For RoHS compliant products, please select correct termination style.

#### CWR29 P/N CROSS REFERENCE:

CWR29	D	^	227	*	@	H	+	□
<b>Type</b>	<b>Voltage Code</b> C = 4Vdc D = 6Vdc F = 10Vdc H = 15Vdc J = 20Vdc K = 25Vdc M = 35Vdc N = 50Vdc	<b>Termination Finish</b> H = Solder Plated K = Solder Fused Dipped C = Hot Solder Dipped B = Gold Plated	<b>Capacitance Code</b> pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	<b>Capacitance Tolerance</b> M = ±20% K = ±10% J = ±5%	<b>Reliability Grade</b> Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. T = T Level A = Non-ER	<b>Case Size</b>	<b>Surge Test Option</b> A = 10 cycles, +25°C B = 10 cycles, -55°C & +85°C C = 10 cycles, -55°C & +85°C before Weibull Z = None required	<b>Packaging</b> Bulk = Standard TR = 7" T&R TR13 = 13" T&R W = Waffle  See page 6 for additional packaging options.

**Not RoHS Compliant**

#### SPACE LEVEL OPTIONS TO SRC9000\*:

TAZ	H	227	*	006	C	□	L	@	9	^	++
<b>Type</b>	<b>Case Size</b>	<b>Capacitance Code</b> pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	<b>Capacitance Tolerance</b> M = ±20% K = ±10% J = ±5%	<b>Voltage Code</b> 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 015 = 15Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc	<b>Standard or Low ESR Range</b> C = Std ESR L = Low ESR	<b>Packaging</b> B = Bulk R = 7" T&R S = 13" T&R W = Waffle  See page 6 for additional packaging options.	<b>Inspection Level</b> L = Group A	<b>Reliability Grade</b> Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf.	<b>Qualification Level</b> 9 = SRC9000	<b>Termination Finish</b> H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated	<b>Surge Test Option</b> 45 = 10 cycles, -55°C & +85°C before Weibull

**Not RoHS Compliant**

\*Contact factory for AVX SRC9000 Space Level SCD details.

### TECHNICAL SPECIFICATIONS

Technical Data:	Unless otherwise specified, all technical data relate to an ambient temperature of 25°C								
Capacitance Range:	0.1 μF to 330 μF								
Capacitance Tolerance:	±5%; ±10%; ±20%								
Rated Voltage: (V <sub>R</sub> )	≤85°C:	4	6	10	15	20	25	35	50
Category Voltage: (V <sub>C</sub> )	125°C:	2.7	4	6.7	10	13.3	16.7	23.3	33.3
Surge Voltage: (V <sub>S</sub> )	≤85°C:	5.3	8	13.3	20	26.7	33.3	46.7	66.7
	125°C:	3.5	5.3	8.7	13.3	17.8	22.2	31.1	44.5
Temperature Range:	-55°C to +125°C								









# TAZ Series



## CWR29 - MIL-PRF-55365/11 Established Reliability, COTS-Plus & Space Level

RATING & PART NUMBER REFERENCE				Parametric Specifications by Rating per MIL-PRF-55365/11									Typical Ripple Data by Rating						
				Cap @ 120Hz μF @ 25°C	DC Rated Voltage V @ +85°C	ESR @ 100kHz Ohms @ +25°C	DCL max			DF Max			Power Dissipation W	25°C Ripple A (100kHz)	85°C Ripple A (100kHz)	125°C Ripple A (100kHz)	25°C Ripple V (100kHz)	85°C Ripple V (100kHz)	125°C Ripple V (100kHz)
CWR29 P/N	AVX MIL & COTS-Plus P/N	AVX SRC9000 P/N	Case	+25°C	+85°C	+125°C	+25°C	+25°C	+25°C	+85/125°C	-55°C								
CWR29N^224^@B+□	TAZ B 224 * 050 L □ # @ 0 ^ ++	TAZ B 224 * 050 L L @ 9 ^ ++	B	0.22	50	6.8	1	10	12	6	8	8	0.070	0.10	0.09	0.04	0.69	0.62	0.28
CWR29N^334^@B+□	TAZ B 334 * 050 L □ # @ 0 ^ ++	TAZ B 334 * 050 L L @ 9 ^ ++	B	0.33	50	4.8	1	10	12	6	8	8	0.070	0.12	0.11	0.05	0.58	0.52	0.23
CWR29N^474^@C+□	TAZ C 474 * 050 L □ # @ 0 ^ ++	TAZ C 474 * 050 L L @ 9 ^ ++	C	0.47	50	3.2	1	10	12	6	8	8	0.075	0.15	0.14	0.06	0.49	0.44	0.20
CWR29N^684^@D+□	TAZ D 684 * 050 L □ # @ 0 ^ ++	TAZ D 684 * 050 L L @ 9 ^ ++	D	0.68	50	2.3	1	10	12	6	8	8	0.080	0.19	0.17	0.07	0.43	0.39	0.17
CWR29N^105^@E+□	TAZ E 105 * 050 L □ # @ 0 ^ ++	TAZ E 105 * 050 L L @ 9 ^ ++	E	1	50	1.7	1	10	12	6	8	8	0.090	0.23	0.21	0.09	0.39	0.35	0.16
CWR29N^155^@F+□	TAZ F 155 * 050 L □ # @ 0 ^ ++	TAZ F 155 * 050 L L @ 9 ^ ++	F	1.5	50	1.1	1	10	12	6	8	8	0.100	0.30	0.27	0.12	0.33	0.30	0.13
CWR29N^225^@F+□	TAZ F 225 * 050 L □ # @ 0 ^ ++	TAZ F 225 * 050 L L @ 9 ^ ++	F	2.2	50	0.7	2	20	24	6	8	8	0.100	0.38	0.34	0.15	0.26	0.24	0.11
CWR29N^335^@G+□	TAZ G 335 * 050 L □ # @ 0 ^ ++	TAZ G 335 * 050 L L @ 9 ^ ++	G	3.3	50	0.5	2	20	24	6	8	8	0.125	0.50	0.45	0.20	0.25	0.23	0.10
CWR29N^475^@H+□	TAZ H 475 * 050 L □ # @ 0 ^ ++	TAZ H 475 * 050 L L @ 9 ^ ++	H	4.7	50	0.5	3	30	36	6	8	8	0.150	0.55	0.49	0.22	0.27	0.25	0.11

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.

**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.



# TAZ Cots+, CWR09, CWR19 and CWR29 Series



## Tape and Reel Packaging

Solid Tantalum Chip TAZ Tape and reel packaging for automatic component placement.  
Please enter required Suffix on order. Bulk packaging is standard.

### TAZ TAPING SUFFIX TABLE

Case Size reference	Tape width mm	P mm	7" (180mm) reel		13" reel (330mm) reel	
			Suffix	Qty.	Suffix	Qty.
A	8	4	R	2500	S	9000
B	12	4	R	2500	S	9000
C	12	4	R	2500	S	9000
D	12	4	R	2500	S	8000
E	12	4	R	2500	S	8000
F	12	8	R	1000	S	3000
G	12	8	R	500	S	2500
H	12	8	R	500	S	2500

Total Tape Thickness – K max	
Case size reference	Millimeters (Inches) DIM
A	2.0 (0.079)
B	4.0 (0.157)
D	4.0 (0.157)
E	4.0 (0.157)
F	4.0 (0.157)
G	4.0 (0.157)
H	4.0 (0.157)

Code	8mm Tape		12mm Tape	
P*	4±0.1 or 8±0.1	(0.157±0.004) (0.315±0.004)	4±0.1 or 8±0.1	(0.157±0.004) (0.315±0.004)
G	0.75 min	(0.03 min)	0.75 min	(0.03 min)
F	3.5±0.04	(0.138±0.002)	5.5±0.05	(0.22±0.002)
E	1.75±0.1	(0.069±0.004)	1.75±0.1	(0.069±0.004)
W	8±0.3	(0.315±0.012)	12±0.3	(0.472±0.012)
P <sub>2</sub>	2±0.05	(0.079±0.002)	2±0.05	(0.079±0.002)
P <sub>0</sub>	4±0.1	(0.157±0.004)	4±0.1	(0.157±0.004)
D	1.5±0.1 -0	(0.059±0.004) (-0)	1.5±0.1 -0	(0.059±0.004) (-0)
D <sub>1</sub>	1.0 min	(0.039 min)	1.5 min	(0.059 min)

\*See taping suffix tables for actual P dimension (component pitch).

### TAPE SPECIFICATION

Tape dimensions comply to EIA RS 481 A  
Dimensions A<sub>0</sub> and B<sub>0</sub> of the pocket and the tape thickness, K, are dependent on the component size.

Tape materials do not affect component solderability during storage.

Carrier Tape Thickness <0.4mm

