

MARKING

(White marking on black body)



Polarity Stripe (+)

**Capacitance Code
Rated Voltage**

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.

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 _t)	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_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Rated voltage DC (V _R) 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		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	^	++
Type	Case Size	Capacitance Code pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	Capacitance Tolerance M = ±20% K = ±10% J = ±5%	Voltage Code 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 015 = 15Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc	Standard or Low ESR Range C = Std ESR L = Low ESR	Packaging B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 6 for additional packaging options.	Inspection Level S = Std. Conformance L = Group A M = MIL (JAN) CWR19	Reliability Grade 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	Qualification Level 0 = N/A T = T Level 9 = SRC9000	Termination Finish H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated 7 = Matte Sn (COTS-Plus only)	Surge Test Option 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



For RoHS compliant products, please select correct termination style.

CWR19 P/N CROSS REFERENCE:

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

Not RoHS Compliant

*Contact factory for AVX SRC9000 Space Level SCD details.

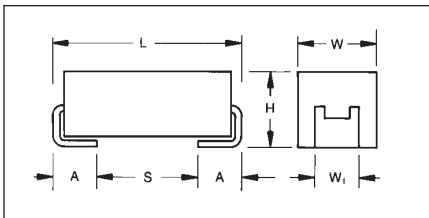
TECHNICAL SPECIFICATIONS

Technical Data:	Unless otherwise specified, all technical data relate to an ambient temperature of 25°C								
Capacitance Range:	0.33 μ F to 330 μ F								
Capacitance Tolerance:	±5%; ±10%; ±20%								
Rated Voltage: (V_R)	≤85°C:	4	6	10	15	20	25	35	
Category Voltage: (V_C)	125°C:	2.7	4	6.7	10	13.3	16.7	23.3	
Surge Voltage: (V_S)	≤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



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



MARKING

(White marking on black body)



Polarity Stripe (+)

**Capacitance Code
Rated Voltage**

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.

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 _t)	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
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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
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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
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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_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

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

CWR29 P/N CROSS REFERENCE:

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

SPACE LEVEL OPTIONS TO SRC9000*:

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

*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 _R)	≤85°C:	4	6	10	15	20	25	35	50	
Category Voltage: (V _C)	125°C:	2.7	4	6.7	10	13.3	16.7	23.3	33.3	
Surge Voltage: (V _S)	≤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	+25°C (μA)	+85°C (μA)	+125°C (μA)	+25°C (%)	DF Max +(65/125)°C (%)	-55°C (%)	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	B	C	D	E	F	G	H									
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	TAZ
	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 ₂	2±0.05	(0.079±0.002)	2±0.05	(0.079±0.002)
P ₀	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 ₁	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 A₀ and B₀ 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

