

TBJ Series



CWR11 - MIL-PRF-55365/8 Established Reliability, COTS-Plus & Space Level



Fully qualified to MIL-PRF-55365/8, the CWR11 is the military version of EIA-535BAAC, with four case sizes designed for maximum packaging efficiency on 8mm & 12mm tape for high volume production (ensuring 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 part also carries full polarity, capacitance / voltage and JAN brand marking.

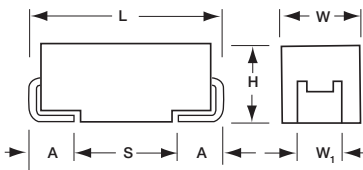
For Space Level applications, AVX SRC9000 qualification is recommended (see ratings table for part number availability).

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).

The molding compound has been selected to meet the requirements of UL94V-0 (Flame Retardancy) and outgassing requirements of ASTM E-595.

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog.

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



MARKING

(Brown marking on gold body)



Polarity Stripe (+)

"J" for "JAN" Brand
Capacitance Code

Rated Voltage
Manufacturer's ID

CASE DIMENSIONS: millimeters (inches)

Case Code	EIA Metric	Length (L)	Width (W)	Height (H)	Term. Width (W ₁) ±0.10 (±0.004)	Term. Length A ±0.30(±0.012)	S min
A	3216-18	3.20±0.20 (0.126±0.008)	1.60±0.20 (0.063±0.008)	1.60±0.20 (0.063±0.008)	1.20 (0.047)	0.80 (0.031)	1.80 (0.071)
B	3528-21	3.50±0.20 (0.138±0.008)	2.80±0.20 (0.110±0.008)	1.90±0.20 (0.075±0.008)	2.20 (0.087)	0.80 (0.031)	1.40 (0.055)
C	6032-28	6.00±0.30 (0.236±0.012)	3.20±0.30 (0.126±0.012)	2.50±0.30 (0.098±0.012)	2.20 (0.087)	1.30 (0.051)	2.90 (0.114)
D	7343-31	7.30±0.30 (0.287±0.012)	4.30±0.30 (0.169±0.012)	2.80±0.30 (0.110±0.012)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)

CAPACITANCE AND RATED VOLTAGE, V_R (MIL VOLTAGE CODE) RANGE CASE SIZE

Capacitance		Rated voltage DC (V _R) to 85°C							
μF	Code	4V (C)	6V (D)	10V (F)	15V (H)	20V (J)	25V (K)	35V (M)	50V (N)
0.10	104							A	A
0.15	154							A	B
0.22	224							A	B
0.33	334						A	A	B
0.47	474				A	A	A	B	C
0.68	684				A	A	B	B	C
1.0	105			A	A	A	B	B	C
1.5	155		A	A	A	B	B	C	D
2.2	225	A	A	A	B	B	C	C	D
3.3	335		A	B	B	B	C	C	D
4.7	475	A	B	B	B	C	C	D	D
6.8	685	B	B	B		C	D	D	
10	106	B	B		C		D		
15	156	B	C	C		D	D		
22	226		C		D	D			
33	336	C		D	D				
47	476		D	D					
68	686	D	D						
100	107	D							

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HOW TO ORDER

COTS-PLUS & MIL QPL (CWR11):

TBJ	D	686	*	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	Packaging B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 8 for additional packaging options.	Inspection Level S = Std. Conformance L = Group A M = MIL (JAN) CWR11	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

For RoHS compliant products, please select correct termination style.

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CWR11 P/N CROSS REFERENCE:

CWR11	D	^	686	*	@	+	□
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	Surge Test Option A = 10 cycles, +25°C B = 10 cycles, -55°C & +85°C C = 10 cycles, -55°C & +85°C before Weibull If blank, None required	Packaging Bulk = Standard TR = 7" T&R TR13 = 13" T&R W = Waffle See page 8 for additional packaging options.

For RoHS compliant products, please select correct termination style.

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SPACE LEVEL OPTIONS TO SRC9000*:

TBJ	D	686	*	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	Packaging B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 8 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

For RoHS compliant products, please select correct termination style.

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*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:	0.10 µF to 100 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	
Surge Voltage (V _S)	≤ 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									



RATING & PART NUMBER REFERENCE			Parametric Specifications by Rating per MIL-PRF-55365/8										Typical RMS Ripple Data by Rating									
CWR11 P/N	AVX COTS-Plus P/N	AVX SRC9000 P/N	Case	Cap @ 120Hz		DC Rated Voltage @ +85°C	ESR @ 100kHz	DF Max		DCL max		Power Dissipation	25°C		125°C		25°C		85°C		125°C	
				µF @ 25°C	µA @ +85°C			+25°C (%)	+125°C (%)	+25°C (%)	+125°C (%)		85°C A	85°C V	125°C A	125°C V	25°C A	25°C V	85°C A	85°C V	125°C A	125°C V
CWR11K1067@H	TBJ D 106 * 025 C □ □ # @ 0 + + +	TBJ D 106 * 025 C □ □ □ □ □ @ 9 + + +	D	10	25	25	1.2	6	8	9	0.150	0.35	0.32	0.14	0.42	0.38	0.17					
CWR11K1156@H	TBJ D 156 * 025 C □ □ # @ 0 + + +	TBJ D 156 * 025 C □ □ □ □ □ @ 9 + + +	D	15	25	38	45.6	6	9	9	0.150	0.39	0.35	0.15	0.39	0.35	0.15					
CWR11M104@H	TBJ A 104 * 035 C □ □ # @ 0 + + +	TBJ A 104 * 035 C □ □ □ □ □ @ 9 + + +	A	0.1	35	24	2.5	4	6	6	0.075	0.06	0.05	0.02	1.34	1.21	0.54					
CWR11M154@H	TBJ A 154 * 035 C □ □ # @ 0 + + +	TBJ A 154 * 035 C □ □ □ □ □ @ 9 + + +	A	0.15	35	21	0.5	4	6	6	0.075	0.06	0.05	0.02	1.25	1.13	0.50					
CWR11M224@H	TBJ A 224 * 035 C □ □ # @ 0 + + +	TBJ A 224 * 035 C □ □ □ □ □ @ 9 + + +	A	0.22	35	18	0.5	4	6	6	0.075	0.06	0.06	0.03	1.16	1.05	0.46					
CWR11M334@H	TBJ A 334 * 035 C □ □ # @ 0 + + +	TBJ A 334 * 035 C □ □ □ □ □ @ 9 + + +	A	0.33	35	15	0.5	4	6	6	0.075	0.07	0.06	0.03	1.06	0.95	0.42					
CWR11M474@H	TBJ B 474 * 035 C □ □ # @ 0 + + +	TBJ B 474 * 035 C □ □ □ □ □ @ 9 + + +	B	0.47	35	10	0.5	4	6	6	0.085	0.09	0.08	0.04	0.92	0.83	0.37					
CWR11M684@H	TBJ B 684 * 035 C □ □ # @ 0 + + +	TBJ B 684 * 035 C □ □ □ □ □ @ 9 + + +	B	0.68	35	8	0.5	4	6	6	0.085	0.10	0.09	0.04	0.82	0.74	0.33					
CWR11M105@H	TBJ B 105 * 035 C □ □ # @ 0 + + +	TBJ B 105 * 035 C □ □ □ □ □ @ 9 + + +	B	1	35	6.5	0.5	5	6	6	0.085	0.11	0.10	0.05	0.74	0.67	0.30					
CWR11M155@H	TBJ C 155 * 035 C □ □ # @ 0 + + +	TBJ C 155 * 035 C □ □ □ □ □ @ 9 + + +	C	1.5	35	4.5	0.5	5	6	6	0.110	0.16	0.14	0.06	0.70	0.63	0.28					
CWR11M225@H	TBJ C 225 * 035 C □ □ # @ 0 + + +	TBJ C 225 * 035 C □ □ □ □ □ @ 9 + + +	C	2.2	35	3.5	0.8	8	9.6	8	0.110	0.18	0.16	0.07	0.62	0.56	0.25					
CWR11M335@H	TBJ C 335 * 035 C □ □ # @ 0 + + +	TBJ C 335 * 035 C □ □ □ □ □ @ 9 + + +	C	3.3	35	2.5	1.2	12	14.4	6	0.110	0.21	0.19	0.08	0.52	0.47	0.21					
CWR11M475@H	TBJ D 475 * 035 C □ □ # @ 0 + + +	TBJ D 475 * 035 C □ □ □ □ □ @ 9 + + +	D	4.7	35	1.5	1.7	17	20.4	6	0.150	0.32	0.28	0.13	0.47	0.43	0.19					
CWR11M685@H	TBJ D 685 * 035 C □ □ # @ 0 + + +	TBJ D 685 * 035 C □ □ □ □ □ @ 9 + + +	D	6.8	35	1.3	2.4	24	28.8	6	0.150	0.34	0.31	0.14	0.44	0.40	0.18					
CWR11M104@H	TBJ A 104 * 050 C □ □ # @ 0 + + +	TBJ A 104 * 050 C □ □ □ □ □ @ 9 + + +	A	0.1	50	22	0.5	5	12	6	0.075	0.06	0.05	0.02	1.28	1.16	0.51					
CWR11M154@H	TBJ B 154 * 050 C □ □ # @ 0 + + +	TBJ B 154 * 050 C □ □ □ □ □ @ 9 + + +	B	0.15	50	17	0.5	5	6	6	0.085	0.07	0.06	0.03	1.20	1.08	0.48					
CWR11M224@H	TBJ B 224 * 050 C □ □ # @ 0 + + +	TBJ B 224 * 050 C □ □ □ □ □ @ 9 + + +	B	0.22	50	14	0.5	5	6	4	0.085	0.08	0.07	0.03	1.09	0.98	0.44					
CWR11M334@H	TBJ C 334 * 050 C □ □ # @ 0 + + +	TBJ C 334 * 050 C □ □ □ □ □ @ 9 + + +	B	0.33	50	12	0.5	5	6	4	0.085	0.08	0.08	0.03	1.01	0.91	0.40					
CWR11M474@H	TBJ C 474 * 050 C □ □ # @ 0 + + +	TBJ C 474 * 050 C □ □ □ □ □ @ 9 + + +	C	0.47	50	8	0.5	5	6	4	0.110	0.12	0.11	0.05	0.94	0.84	0.38					
CWR11M684@H	TBJ C 684 * 050 C □ □ # @ 0 + + +	TBJ C 684 * 050 C □ □ □ □ □ @ 9 + + +	C	0.68	50	7	0.5	5	6	4	0.110	0.13	0.11	0.05	0.88	0.79	0.35					
CWR11M105@H	TBJ D 105 * 050 C □ □ # @ 0 + + +	TBJ D 105 * 050 C □ □ □ □ □ @ 9 + + +	C	1	50	6	0.5	5	6	4	0.110	0.14	0.12	0.05	0.81	0.73	0.32					
CWR11M155@H	TBJ D 155 * 050 C □ □ # @ 0 + + +	TBJ D 155 * 050 C □ □ □ □ □ @ 9 + + +	D	1.5	50	4	0.8	8	9.6	6	0.150	0.19	0.17	0.08	0.77	0.70	0.31					
CWR11M225@H	TBJ D 225 * 050 C □ □ # @ 0 + + +	TBJ D 225 * 050 C □ □ □ □ □ @ 9 + + +	D	2.2	50	2.5	1.1	11	13.2	6	0.150	0.24	0.22	0.10	0.61	0.55	0.24					
CWR11M335@H	TBJ D 335 * 050 C □ □ # @ 0 + + +	TBJ D 335 * 050 C □ □ □ □ □ @ 9 + + +	D	3.3	50	2	1.7	17	20.4	6	0.150	0.27	0.25	0.11	0.55	0.49	0.22					
CWR11M475@H	TBJ D 475 * 050 C □ □ # @ 0 + + +	TBJ D 475 * 050 C □ □ □ □ □ @ 9 + + +	D	4.7	50	1.5	2.4	24	28.8	6	0.150	0.32	0.28	0.13	0.47	0.43	0.19					

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.