

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.

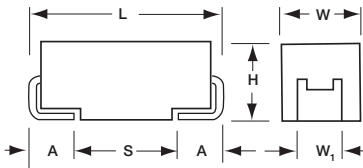
For Space Level applications, AVX SRC9000 qualification is recommended (see ratings table for part number availability).

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	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.

For RoHS compliant products, please select correct termination style.

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.

For RoHS compliant products, please select correct termination style.

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.

For RoHS compliant products, please select correct termination style.

*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									



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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 SRC900 P/N	Case	Cap @ 120Hz	DC Rated Voltage	ESR @ 100kHz	DF Max	+125°C		+25°C		85°C		125°C		150°C			
				µF @ 25°C	V @ +85°C	Ohms @ +25°C	(%)	(µA)	(%)	(%)	A	V	A	V	A	V	A	V	
				+85°C	+125°C	+25°C	-55°C	Power Dissipation	25°C Ripple	85°C Ripple	125°C Ripple	150°C Ripple	185°C Ripple	25°C Ripple	85°C Ripple	125°C Ripple	150°C Ripple		
CWR11C2250H	TBJA225*04C□□#0A++	TBJA225*04C□□□□□9A++	A	2.2	4	8	9	0.075	6	6	9	0.09	0.04	0.09	0.04	0.09	0.04	0.31	
CWR11C4750H	TBJA475*04C□□#0A++	TBJA475*04C□□□□□9A++	A	4.7	4	8	9	0.075	6	6	9	0.09	0.04	0.09	0.04	0.09	0.04	0.31	
CWR11C6850H	TBJB685*04C□□#0A++	TBJB685*04C□□□□□9A++	A	6.8	4	5.5	9	0.085	6	6	9	0.085	0.12	0.11	0.05	0.68	0.62	0.27	
CWR11C1060H	TBJB106*04C□□#0A++	TBJB106*04C□□□□□9A++	B	10	4	4	9	0.085	6	6	9	0.085	0.12	0.11	0.05	0.68	0.62	0.27	
CWR11C1560H	TBJB156*04C□□#0A++	TBJB156*04C□□□□□9A++	B	15	4	3.5	9	0.085	6	6	9	0.085	0.12	0.11	0.05	0.68	0.62	0.27	
CWR11C3360H	TBJC336*04C□□#0A++	TBJC336*04C□□□□□9A++	C	33	4	2.2	9	0.110	15.6	13	17	0.110	0.22	0.20	0.09	0.49	0.44	0.20	
CWR11C6860H	TBJD686*04C□□#0A++	TBJD686*04C□□□□□9A++	D	68	4	1.1	12	0.150	32.4	6	9	0.150	0.37	0.33	0.15	0.41	0.37	0.16	
CWR11C1070H	TBJD107*04C□□#0A++	TBJD107*04C□□□□□9A++	D	100	4	0.9	12	0.150	48	8	12	0.150	0.41	0.37	0.16	0.37	0.33	0.15	
CWR11D1550H	TBJA155*06C□□#0A++	TBJA155*06C□□□□□9A++	A	1.5	6	8	6	0.075	6	6	9	0.075	0.10	0.09	0.04	0.77	0.70	0.31	
CWR11D2250H	TBJA225*06C□□#0A++	TBJA225*06C□□□□□9A++	A	2.2	6	8	6	0.075	6	6	9	0.075	0.10	0.09	0.04	0.77	0.70	0.31	
CWR11D3350H	TBJA335*06C□□#0A++	TBJA335*06C□□□□□9A++	A	3.3	6	8	6	0.075	6	6	9	0.075	0.10	0.09	0.04	0.77	0.70	0.31	
CWR11D4750H	TBJB475*06C□□#0A++	TBJB475*06C□□□□□9A++	B	4.7	6	5.5	9	0.085	6	6	9	0.085	0.12	0.11	0.05	0.68	0.62	0.27	
CWR11D6850H	TBJB685*06C□□#0A++	TBJB685*06C□□□□□9A++	B	6.8	6	4.5	9	0.085	6	6	9	0.085	0.12	0.11	0.05	0.68	0.62	0.27	
CWR11D1060H	TBJB106*06C□□#0A++	TBJB106*06C□□□□□9A++	B	10	6	3.5	9	0.085	6	6	9	0.085	0.12	0.11	0.05	0.68	0.62	0.27	
CWR11D1560H	TBJC156*06C□□#0A++	TBJC156*06C□□□□□9A++	C	15	6	3	9	0.110	10.8	6	9	0.110	0.22	0.20	0.09	0.49	0.44	0.20	
CWR11D2260H	TBJC226*06C□□#0A++	TBJC226*06C□□□□□9A++	C	22	6	2.2	14	0.150	14	14	16.8	0.150	0.37	0.33	0.15	0.41	0.37	0.16	
CWR11D4760H	TBJD476*06C□□#0A++	TBJD476*06C□□□□□9A++	D	47	6	1.1	12	0.150	28	28	33.6	0.150	0.41	0.37	0.16	0.41	0.37	0.16	
CWR11D6860H	TBJD686*06C□□#0A++	TBJD686*06C□□□□□9A++	D	68	6	0.9	12	0.150	43	43	51.6	0.150	0.41	0.37	0.16	0.41	0.37	0.16	
CWR11F1550H	TBJA155*010C□□#0A++	TBJA155*010C□□□□□9A++	A	1	10	10	6	0.075	6	6	9	0.075	0.10	0.09	0.04	0.77	0.70	0.31	
CWR11F2250H	TBJA225*010C□□#0A++	TBJA225*010C□□□□□9A++	A	1.5	10	8	6	0.075	6	6	9	0.075	0.10	0.09	0.04	0.77	0.70	0.31	
CWR11F3350H	TBJA335*010C□□#0A++	TBJA335*010C□□□□□9A++	A	3.3	10	5.5	9	0.085	6	6	9	0.085	0.12	0.11	0.05	0.68	0.62	0.27	
CWR11F4750H	TBJB475*010C□□#0A++	TBJB475*010C□□□□□9A++	B	4.7	10	4.5	9	0.085	6	6	9	0.085	0.12	0.11	0.05	0.68	0.62	0.27	
CWR11F6850H	TBJB685*010C□□#0A++	TBJB685*010C□□□□□9A++	B	6.8	10	3.5	9	0.085	6	6	9	0.085	0.12	0.11	0.05	0.68	0.62	0.27	
CWR11F1560H	TBJC156*010C□□#0A++	TBJC156*010C□□□□□9A++	C	15	10	2.5	15	0.110	7	8.4	6	9	0.110	0.21	0.19	0.08	0.52	0.47	0.21
CWR11F3360H	TBJC336*010C□□#0A++	TBJC336*010C□□□□□9A++	D	33	10	1.1	12	0.150	33	33	39.6	0.150	0.37	0.33	0.15	0.41	0.37	0.16	
CWR11F4760H	TBJD476*010C□□#0A++	TBJD476*010C□□□□□9A++	D	47	10	0.9	12	0.150	47	47	56.4	0.150	0.41	0.37	0.16	0.41	0.37	0.16	
CWR11F6840H	TBJA684*015C□□#0A++	TBJA684*015C□□□□□9A++	A	0.68	15	12	6	0.075	6	6	9	0.075	0.10	0.09	0.04	0.77	0.70	0.31	
CWR11H1050H	TBJA105*015C□□#0A++	TBJA105*015C□□□□□9A++	A	1	15	10	6	0.075	6	6	9	0.075	0.10	0.09	0.04	0.77	0.70	0.31	
CWR11H1550H	TBJA155*015C□□#0A++	TBJA155*015C□□□□□9A++	A	1.5	15	8	6	0.075	6	6	9	0.075	0.10	0.09	0.04	0.77	0.70	0.31	
CWR11H2250H	TBJB225*015C□□#0A++	TBJB225*015C□□□□□9A++	B	2.2	15	5.5	9	0.085	6	6	9	0.085	0.12	0.11	0.05	0.68	0.62	0.27	
CWR11H3350H	TBJB335*015C□□#0A++	TBJB335*015C□□□□□9A++	B	3.3	15	5	9	0.085	6	6	9	0.085	0.12	0.11	0.05	0.68	0.62	0.27	
CWR11H4750H	TBJC475*015C□□#0A++	TBJC475*015C□□□□□9A++	C	4.7	15	4	9	0.085	6	6	9	0.085	0.12	0.11	0.05	0.68	0.62	0.27	
CWR11H6840H	TBJD684*020C□□#0A++	TBJD684*020C□□□□□9A++	D	0.68	20	12	6	0.075	6	6	9	0.075	0.10	0.09	0.04	0.77	0.70	0.31	
CWR11J1050H	TBJA105*020C□□#0A++	TBJA105*020C□□□□□9A++	A	1	20	10	6	0.075	6	6	9	0.075	0.10	0.09	0.04	0.77	0.70	0.31	
CWR11J1550H	TBJA155*020C□□#0A++	TBJA155*020C□□□□□9A++	A	1.5	20	6	9	0.075	6	6	9	0.075	0.10	0.09	0.04	0.77	0.70	0.31	
CWR11J2250H	TBJB225*020C□□#0A++	TBJB225*020C□□□□□9A++	B	2.2	20	5	9	0.085	6	6	9	0.085	0.12	0.11	0.05	0.68	0.62	0.27	
CWR11J3350H	TBJB335*020C□□#0A++	TBJB335*020C□□□□□9A++	B	3.3	20	4	9	0.085	6	6	9	0.085	0.12	0.11	0.05	0.68	0.62	0.27	
CWR11J4750H	TBJC475*020C□□#0A++	TBJC475*020C□□□□□9A++	C	4.7	20	3	1	0.110	10	12	8.4	0.110	0.19	0.17	0.08	0.57	0.52	0.23	
CWR11J6850H	TBJC685*020C□□#0A++	TBJC685*020C□□□□□9A++	C	6.8	20	2.4	14	0.150	14	16.8	6	9	0.150	0.37	0.33	0.15	0.41	0.37	0.16
CWR11K1560H	TBJD156*020C□□#0A++	TBJD156*020C□□□□□9A++	D	15	20	1.1	12	0.150	30	30	36	0.150	0.41	0.37	0.16	0.41	0.37	0.16	
CWR11K3340H	TBJA334*025C□□#0A++	TBJA334*025C□□□□□9A++	A	0.33	25	15	6	0.075	6	6	9	0.075	0.10	0.09	0.04	0.77	0.70	0.31	
CWR11K4740H	TBJA474*025C□□#0A++	TBJA474*025C□□□□□9A++	A	0.47	25	14	6	0.075	6	6	9	0.075	0.10	0.09	0.04	0.77	0.70	0.31	
CWR11K6840H	TBJB684*025C□□#0A++	TBJB684*025C□□□□□9A++	B	0.68	25	14	6	0.085	6	6	9	0.085	0.12	0.11	0.05	0.68	0.62	0.27	
CWR11K1050H	TBJB105*025C□□#0A++	TBJB105*025C□□□□□9A++	B	1	25	6.5	6	0.085	6	6	9	0.085	0.12	0.11	0.05	0.68	0.62	0.27	
CWR11K1550H	TBJB155*025C□□#0A++	TBJB155*025C□□□□□9A++	B	1.5	25	6.5	6	0.085	6	6	9	0.085	0.12	0.11	0.05	0.68	0.62	0.27	
CWR11K2250H	TBJC225*025C□□#0A++	TBJC225*025C□□□□□9A++	C	2.2	25	3.5	9	0.110	7.2	6	9	0.110	0.18	0.16	0.07	0.62	0.56	0.25	
CWR11K3350H	TBJC335*025C□□#0A++	TBJC335*025C□□□□□9A++	C	3.3	25	3.5	9	0.110	10.8	9	12	0.110	0.18	0.16	0.07	0.62	0.56	0.25	
CWR11K4750H	TBJD475*025C□□#0A++	TBJD475*025C□□□□□9A++	C	4.7	25	2.5	12	0.150	14.4	12	14.4	0.150	0.21	0.19	0.08	0.52	0.47	0.21	
CWR11K6850H	TBJD685*025C□□#0A++	TBJD685*025C□□□□□9A++	D	6.8	25	1.4	17	0.150	17	20.4	6	9	0.150	0.33	0.29	0.13	0.46	0.41	0.18

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.



X-ON Electronics

Largest Supplier of Electrical and Electronic Components

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[F931C227MNC](#) [FFLI6B3007KJE](#) [12102U101JAT2A](#) [KIT5000UZ](#) [KITTYPE1400 LF](#) [LD065A332FAB2A](#) [SA205C393JAA](#)
[308016056000413](#) [SK052C105KAA](#) [SR211A151FAA](#) [F931A226MBA](#) [FFB24I0755K--](#) [CK06BX472K](#) [M39014/05-2731](#) [M39014/220476](#)
[CWR29JC476KCHC](#) [TAJB225M035R](#) [TAJC107K006RNJ](#) [TAJD226K035RNJV](#) [TCH9107M035W0055U](#) [TLCU336M004XTA](#)
[TPSA106K016R1000](#) [TPSD337K010R0150](#) [TPSE226K035R0200](#) [TWAE108K030SBEZ0000](#) [TWAE757M060CBEZ0700](#)
[KC3225K3.68640C1GE00](#) [KC7050K50.0000C10E00](#) [069296700101000](#) [07016-092MCCA](#) [TBJV157K016LBLC0024](#) [TPSE336K035R0250](#)
[TWAD108M050CBEZ0700](#) [CX2520DB16000H0FLJC1](#) [CDR14BP510EJUR](#) [RM055C825KAL360](#) [CCR05CG220FS](#)