

PERFORMANCE SPECIFICATION SHEET

CAPACITORS, CHIP, FIXED, TANTALUM, POLARIZED  
ESTABLISHED RELIABILITY, NON-ESTABLISHED RELIABILITY AND HIGH RELIABILITY,  
STYLE CWR11 (METRIC)

This specification sheet is approved for use by all Departments  
and Agencies of the Department of Defense.

The requirements for acquiring the product described herein  
shall consist of this specification sheet and [MIL-PRF-55365](#).

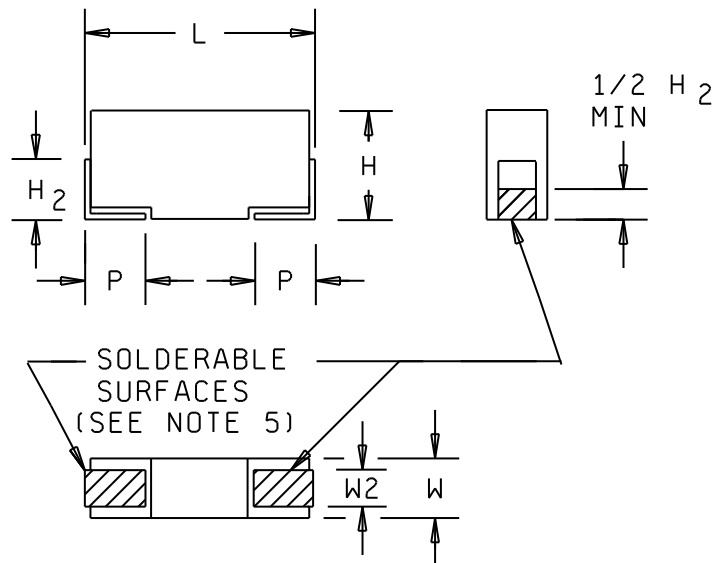


FIGURE 1. Style CWR11 (molded) capacitors.

Dimensions						
Case code	H	H <sub>2</sub> (min)	L	P ±0.3 (.012)	W	W <sub>2</sub> ±0.1 (.004) (see note 4)
A	1.6 ±.2 (.063 ±.008)	0.7 (.028)	3.2 ±.2 (.126 ±.008)	0.8 (.031)	1.6 ±.2 (0.063 ±.008)	1.2 (.047)
B	1.9 ±.2 (.075 ±.008)	0.7 (.028)	3.5 ±.2 (.138 ±.008)	0.8 (.031)	2.8 ±.2 (.110 ±.008)	2.2 (.087)
C	2.5 ±.3 (.098 ±.012)	1.0 (.039)	6.0 ±.3 (.236 ±.012)	1.3 (.051)	3.2 ±.3 (.126 ±.012)	2.2 (.087)
D	2.8 ±.3 (.110 ±.012)	1.0 (.039)	7.3 ±.3 (.287 ±.012)	1.3 (.051)	4.3 ±.3 (.169 ±.012)	2.4 (.094)

## NOTES:

1. Dimensions are in millimeters. Inch equivalents are given in parenthesis for general information only.
2. These capacitors are designed for mounting by dip or wave soldering, reflow soldering, thermo-compression bonding, or other conventional means.
3. The anode (+) terminal shall be indicated by a marking on the case or by bevel on anode end.
4. Applicable to solderable surfaces only. The configuration of the nonsolderable area is optional.
5. Solderable surfaces are only those surfaces designated as such. Termination edges are not considered solderable.
6. For solder coated terminations, add an additional 0.38 mm (.015 inch) to the tolerances for "L", "H", "P", and "W<sub>2</sub>" for each case size.

FIGURE 1. Style CWR11 (molded) capacitors - Continued.

REQUIREMENTS:

Dimensions and configuration: See [figure 1](#).

Termination finish: In accordance with [MIL-PRF-55365](#).

DC rated voltage: See [table I](#). Above +85°C, voltage derating is required (see [MIL-PRF-55365](#)).

Operating temperature range: -55°C to +125°C.

Product level designator: In accordance with [MIL-PRF-55365](#).

DC leakage (DCL): See [table I](#).

Capacitance: See [table I](#).

Capacitance tolerance: ±5 percent (J), ±10 percent (K), or ±20 percent (M).

Dissipation factor (DF): See [table I](#).

Equivalent series resistance (ESR) at 100 kHz: In accordance with [MIL-PRF-55365](#). See [table I](#).

Resistance to soldering heat: In accordance with [MIL-PRF-55365](#).

Stability at low and high temperatures: In accordance with [MIL-PRF-55365](#).

Life:

2,000 hours: In accordance with [MIL-PRF-55365](#).

10,000 hours: In accordance with [MIL-PRF-55365](#).

| Solderability: In accordance with [MIL-PRF-55365](#), except that following steam aging; test samples may have a 30 minute bake out at +150°C prior to solder dipping.

Marking: In accordance with [MIL-PRF-55365](#), to be marked on top of case as follows: Print orientation is optional.

Case code A

J	(+) polarity stripe, J = JAN
105X	- capacitance in picofarad code manufacturer's identifier

Case codes B, C, and D

J	(+) polarity stripe, J = JAN
105	- capacitance in picofarad code
35X	- rated voltage; manufacturer's identifier

Alternate case code A marking

X	(+) polarity stripe, X = manufacturer's identifier
105J	- capacitance in picofarad code; J = JAN

At the option of the manufacturer, the lot date code may be marked on the top of the case for any case code.

TABLE I. Style CWR11 characteristics.

Part or identifying number (PIN) <u>1/</u>	DC rated voltage (+85°C)	Cap. (nom)	DC Leakage (max)			Dissipation factor (max)			Max ESR 100 kHz +25°C	Case size
			+25°C	+85°C	+125°C	+25°C	+85°C +125°C	-55°C		
	<u>Volts</u>	<u>μF</u>	<u>μA</u>	<u>μA</u>	<u>μA</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>Ohms</u>	
CWR11C-225 ---	4	2.2	0.5	5.0	6.0	6	9	9	8.0	A
CWR11C-475 ---	4	4.7	0.5	5.0	6.0	6	9	9	8.0	A
CWR11C-685 ---	4	6.8	0.5	5.0	6.0	6	9	9	5.5	B
CWR11C-106 ---	4	10.0	0.5	5.0	6.0	6	9	9	4.0	B
CWR11C-156 ---	4	15.0	0.6	6.0	7.2	6	9	9	3.5	B
CWR11C-336 ---	4	33.0	1.3	13.0	15.6	6	9	9	2.2	C
CWR11C-686 ---	4	68.0	2.7	27.0	32.4	6	9	9	1.1	D
CWR11C-107 ---	4	100.0	4.0	40.0	48.0	8	12	12	0.9	D
CWR11D-155 ---	6	1.5	0.5	5.0	6	6	9	9	8.0	A
CWR11D-225 ---	6	2.2	0.5	5.0	6	6	6	9	8.0	A
CWR11D-335 ---	6	3.3	0.5	5.0	6	6	9	9	8.0	A
CWR11D-475 ---	6	4.7	0.5	5.0	6	6	9	9	5.5	B
CWR11D-685 ---	6	6.8	0.5	5.0	6	6	6	9	4.5	B
CWR11D-106 ---	6	10.0	0.6	6.0	7.2	6	9	9	3.5	B
CWR11D-156 ---	6	15.0	0.9	9.0	10.8	6	6	9	3.0	C
CWR11D-226 ---	6	22.0	1.4	14.0	16.8	6	9	9	2.2	C
CWR11D-476 ---	6	47.0	2.8	28.0	33.6	6	6	9	1.1	D
CWR11D-686 ---	6	68.0	4.3	43.0	51.6	6	9	9	0.9	D
CWR11F-105 ---	10	1.0	0.5	5.0	6.0	4	6	6	10.0	A
CWR11F-155 ---	10	1.5	0.5	5.0	6.0	6	6	9	8.0	A
CWR11F-225 ---	10	2.2	0.5	5.0	6.0	6	9	9	8.0	A
CWR11F-335 ---	10	3.3	0.5	5.0	6.0	6	9	9	5.5	B
CWR11F-475 ---	10	4.7	0.5	5.0	6.0	6	9	9	4.5	B
CWR11F-685 ---	10	6.8	0.7	7.0	8.4	6	9	9	3.5	B
CWR11F-156 ---	10	15.0	1.5	15.0	18.0	6	6	9	2.5	C
CWR11F-336 ---	10	33.0	3.3	33.0	39.6	6	9	9	1.1	D
CWR11F-476 ---	10	47.0	4.7	47.0	56.4	6	9	9	0.9	D
CWR11H-684 ---	15	0.68	0.5	5.0	6.0	4	6	6	12.0	A
CWR11H-105 ---	15	1.0	0.5	5.0	6.0	4	6	6	10.0	A
CWR11H-155 ---	15	1.5	0.5	5.0	6.0	6	9	9	8.0	A
CWR11H-225 ---	15	2.2	0.5	5.0	6.0	6	9	9	5.5	B
CWR11H-335 ---	15	3.3	0.5	5.0	6.0	6	8	9	5.0	B
CWR11H-475 ---	15	4.7	0.7	7.0	8.4	6	9	9	4.0	B
CWR11H-106 ---	15	10.0	1.6	16.0	19.2	6	8	9	2.5	C
CWR11H-226 ---	15	22.0	3.3	33.0	39.6	6	8	9	1.1	D
CWR11H-336 ---	15	33.0	5.3	53.0	63.6	6	9	9	0.9	D
CWR11J-474 ---	20	0.47	0.5	5.0	6.0	4	6	6	14.0	A
CWR11J-684 ---	20	0.68	0.5	5.0	6.0	4	6	6	12.0	A
CWR11J-105 ---	20	1.0	0.5	5.0	6.0	4	6	6	10.0	A
CWR11J-155 ---	20	1.5	0.5	5.0	6.0	6	9	9	6.0	B
CWR11J-225 ---	20	2.2	0.5	5.0	6.0	6	8	9	5.0	B
CWR11J-335 ---	20	3.3	0.7	7.0	8.4	6	9	9	4.0	B
CWR11J-475 ---	20	4.7	1.0	10.0	12.0	6	8	9	3.0	C
CWR11J-685 ---	20	6.8	1.4	14.0	16.8	6	9	9	2.4	C
CWR11J-156 ---	20	15.0	3.0	30.0	36.0	6	8	9	1.1	D
CWR11J-226 ---	20	22.0	4.4	44.0	52.8	6	9	9	0.9	D

See footnote at end of table.

TABLE I. Style CWR11 characteristics - Continued.

Part or identifying number (PIN) 1/	DC rated voltage (+85°C)	Cap. (nom)	DC Leakage (max)			Dissipation factor (max)			Max ESR 100 kHz +25°C	Case size
			+25°C	+85°C	+125°C	+25°C	+85°C +125°C	-55°C		
	Volts	μF	μA	μA	μA	%	%	%	Ohms	
CWR11K-334 ---	25	0.33	0.5	5.0	6.0	4	6	6	15.0	A
CWR11K-474 ---	25	0.47	0.5	5.0	6.0	4	6	6	14.0	A
CWR11K-684 ---	25	0.68	0.5	5.0	6.0	4	6	6	7.5	B
CWR11K-105 ---	25	1.0	0.5	5.0	6.0	4	6	6	6.5	B
CWR11K-155 ---	25	1.5	0.5	5.0	6.0	6	8	9	6.5	B
CWR11K-225 ---	25	2.2	0.6	6.0	7.2	6	9	9	3.5	C
CWR11K-335 ---	25	3.3	0.9	9.0	10.8	6	8	9	3.5	C
CWR11K-475 ---	25	4.7	1.2	12.0	14.4	6	9	9	2.5	C
CWR11K-685 ---	25	6.8	1.7	17.0	20.4	6	9	9	1.4	D
CWR11K-106 ---	25	10.0	2.5	25.0	30.0	6	8	9	1.2	D
CWR11K-156 ---	25	15.0	3.8	38.0	45.6	6	9	9	1.0	D
CWR11M-104 ---	35	0.10	0.5	5.0	6.0	4	6	6	24.0	A
CWR11M-154 ---	35	0.15	0.5	5.0	6.0	4	6	6	21.0	A
CWR11M-224 ---	35	.22	0.5	5.0	6.0	4	6	6	18.0	A
CWR11M-334 ---	35	.33	0.5	5.0	6.0	4	6	6	15.0	A
CWR11M-474 ---	35	.47	0.5	5.0	6.0	4	6	6	10.0	B
CWR11M-684 ---	35	.68	0.5	5.0	6.0	4	6	6	8.0	B
CWR11M-105 ---	35	1.0	0.5	5.0	6.0	4	6	6	6.5	B
CWR11M-155 ---	35	1.5	0.5	5.0	6.0	6	8	9	4.5	C
CWR11M-225 ---	35	2.2	0.8	8.0	9.6	6	8	9	3.5	C
CWR11M-335 ---	35	3.3	1.2	12.0	14.4	6	8	9	2.5	C
CWR11M-475 ---	35	4.7	1.7	17.0	20.4	6	8	9	1.5	D
CWR11M-685 ---	35	6.8	2.4	24.0	28.8	6	9	9	1.3	D
CWR11N-104 ---	50	.10	0.5	5.0	12	6	8	8	22.0	A
CWR11N-154 ---	50	.15	0.5	5.0	6.0	4	6	6	17.0	B
CWR11N-224 ---	50	.22	0.5	5.0	6.0	4	6	6	14.0	B
CWR11N-334 ---	50	.33	0.5	5.0	6.0	4	6	6	12.0	B
CWR11N-474 ---	50	.47	0.5	5.0	6.0	4	6	6	8.0	C
CWR11N-684 ---	50	.68	0.5	5.0	6.0	4	6	6	7.0	C
CWR11N-105 ---	50	1.0	0.5	5.0	6.0	4	6	6	6.0	C
CWR11N-155 ---	50	1.5	0.8	8.0	9.6	6	8	9	4.0	D
CWR11N-225 ---	50	2.2	1.1	11.0	13.2	6	8	9	2.5	D
CWR11N-335 ---	50	3.3	1.7	17.0	20.4	6	9	9	2.0	D
CWR11N-475 ---	50	4.7	2.4	24.0	28.8	6	9	9	1.5	D

1/ Complete PIN shall include additional symbols to indicate termination finish, capacitance tolerance, product level, and, if applicable, surge current option letter. If optional surge current is not required, the last "-" shall be deleted.

Changes from previous issue. The margins of this specification are marked with vertical lines to indicate where changes from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

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