

The requirements to comply with the changes in ESR testing must be completed by 6 months from the date of this document. Before then, use of the previous method is authorized.

INCH-POUND
MIL-PRF-55365/11D
w/AMENDMENT 1
24 March 2017
SUPERSEDING
MIL-PRF-55365/11D
5 September 2014

PERFORMANCE SPECIFICATION SHEET

CAPACITOR, CHIP, FIXED, TANTALUM, POLARIZED, ESTABLISHED RELIABILITY, NON-ESTABLISHED RELIABILITY AND HIGH RELIABILITY, STYLES CWR19 AND CWR29

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](#).

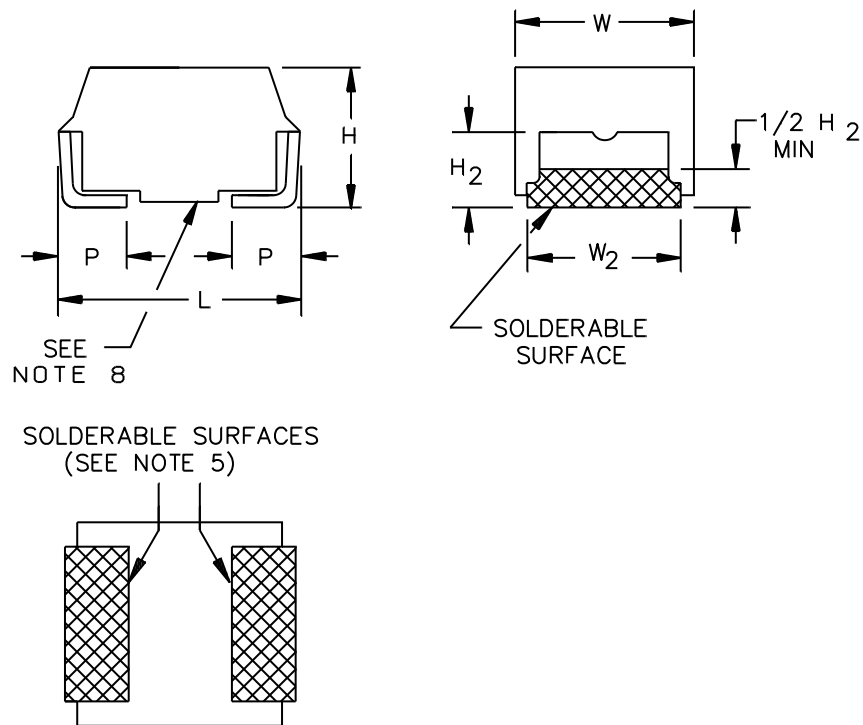


FIGURE 1. Style CWR19 and CWR29 (molded) capacitors.

AMSC N/A

FSC 5910



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Case size	L ± .015 (0.38)	W ±.015 (0.38)	H ±.015 (0.38)	P +.010 (0.25) -.005 (0.13)	W ₂	H ₂ min
A	.100 (2.54)	.050 (1.27)	.050 (1.27)	.030 (0.76)	.050 ±.005 (1.27±0.13)	.030 (0.76)
B	.150 (3.81)	.050 (1.27)	.050 (1.27)	.030 (0.76)	.050 ±.005 (1.27±0.13)	.030 (0.76)
C	.200 (5.08)	.050 (1.27)	.050 (1.27)	.030 (0.76)	.050 ±.005 (1.27±0.13)	.030 (0.76)
D	.150 (3.81)	.100 (2.54)	.050 (1.27)	.030 (0.76)	.095+.005,-.010 (2.41+0.13, -0.25)	.030 (0.76)
E	.200 (5.08)	.100 (2.54)	.050 (1.27)	.030 (0.76)	.095+.005,-.010 (2.41+0.13, -0.25)	.030 (0.76)
F	.220 (5.59)	.135 (3.43)	.070 (1.78)	.030 (0.76)	.130±.005 (3.30±0.13)	.040 (1.02)
G	.265 (6.73)	.110 (2.79)	.110 (2.79)	.050 (1.27)	.105±.005 (2.67±0.13)	.060 (1.52)
H	.285 (7.24)	.150 (3.81)	.110 (2.79)	.050 (1.27)	.145+.005, -.020 (3.68+0.13, -0.51)	.060 (1.52)
X	.273 (6.93)	.213 (5.41)	.108 (2.74)	.047 (1.19)	.120 ± .005 (3.05 ± 0.13)	.048 (1.22)

NOTES:

1. Dimensions are in inches. Metric (millimeter) equivalents are given in parenthesis for general information only.
2. These capacitors are designed for mounting by dip soldering, thermo-compression bonding, reflow soldering, or other conventional means.
3. The anode (+) terminal shall be identified by a marking on the case.
4. The termination width (W₂) shall be maintained to the top of the solderable area.
5. Solderable surfaces are only those surfaces designated as such. Termination edges are not considered solderable.
6. When solder coated terminations are required, add an additional .015 inch (0.38 mm) to the above listed tolerances for "L", "H", "P", and "W₂" for each case size.
7. CWR19 capacitors have higher capacitance values than CWR09s of the same case size and voltage rating (see [MIL-PRF-55365/4](#)). CWR29s are low ESR versions of both CWR09s and CWR19s.
8. Shown with optional glue pad. At the option of the manufacturer, a glue pad between the solderable surfaces may be substituted.

FIGURE 1. Style CWR19 and CWR29 (molded) capacitors - Continued.

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REQUIREMENTS:

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

Termination finish: In accordance with termination finishes B, C, H, or K of [MIL-PRF-55365](#).

DC rated voltage: See [table I](#) or [table II](#). 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](#) or [table II](#).

Capacitance: See [table I](#) or [table II](#).

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

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

Equivalent series resistance (ESR): In accordance with [MIL-PRF-55365](#) (see [table I](#) or [table II](#)).

Moisture resistance:

CWR19: In accordance with [MIL-PRF-55365](#).

CWR29: In accordance with [MIL-PRF-55365](#), except:

Initial measurements: Capacitance and ESR.

Final measurements:

DCL, capacitance, and DF: In accordance with [MIL-PRF-55365](#).

ESR: Shall not exceed 200 percent of the specified value (see [table I](#) or [table II](#)) and shall not change more than 100 percent from the initial measured value.

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.

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TABLE I. Style CWR19 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		
	Volts	µF	µA	µA	µA	%	%	%	Ohms	
CWR19C - 335 -- A -	4	3.3	1	10	12	6	8	8	12	A
CWR19C - 475 -- A -	4	4.7	1	10	12	6	8	8	12	A
CWR19C - 685 -- A -	4	6.8	1	10	12	6	8	8	12	A
CWR19C - 106 -- B -	4	10	1	10	12	8	10	10	8	B
CWR19C - 156 -- B -	4	15	1	10	12	8	10	10	8	B
CWR19C - 226 -- B -	4	22	1	10	12	8	10	10	8	B
CWR19C - 226 -- D -	4	22	1	10	12	8	10	12	4	D
CWR19C - 336 -- D -	4	33	2	20	24	8	10	12	4	D
CWR19C - 336 -- E -	4	33	2	20	24	8	10	12	3	E
CWR19C - 476 -- E -	4	47	2	20	24	8	10	12	3	E
CWR19C - 686 -- E -	4	68	3	30	36	8	10	12	3	E
CWR19C - 107 -- F -	4	100	4	40	48	10	12	12	2	F
CWR19C - 157 -- G -	4	150	6	60	72	10	12	12	1	G
CWR19C - 227 -- H -	4	220	8	80	96	10	12	12	1	H
CWR19C - 337 -- H -	4	330	10	100	120	10	12	12	0.9	H
CWR19D - 335 -- A -	6	3.3	1	10	12	6	8	8	12	A
CWR19D - 475 -- A -	6	4.7	1	10	12	6	8	8	12	A
CWR19D - 685 -- B -	6	6.8	1	10	12	6	8	8	8	B
CWR19D - 106 -- B -	6	10	1	10	12	6	8	8	8	B
CWR19D - 156 -- B -	6	15	1	10	12	8	10	10	8	B
CWR19D - 156 -- D -	6	15	1	10	12	8	10	12	5	D
CWR19D - 156 -- E -	6	15	1	10	12	8	10	12	3	E
CWR19D - 226 -- D -	6	22	1	10	12	6	8	8	5	D
CWR19D - 226 -- E -	6	22	2	20	24	8	10	12	3.5	E
CWR19D - 336 -- E -	6	33	2	20	24	6	8	8	3.5	E
CWR19D - 476 -- F -	6	47	3	30	36	8	10	12	3.5	F
CWR19D - 686 -- F -	6	68	4	40	48	10	12	12	1.5	F
CWR19D - 686 -- G -	6	68	4	40	48	10	12	12	1	G
CWR19D - 107 -- G -	6	100	6	60	72	10	12	12	1.1	G
CWR19D - 157 -- G -	6	150	10	100	120	10	12	12	1.1	G
CWR19D - 227 -- H -	6	220	10	100	120	10	12	12	0.9	H
CWR19D - 337 -- H -	6	330	20	200	240	10	12	12	0.9	H
CWR19F - 225 -- A -	10	2.2	1	10	12	6	8	8	12	A
CWR19F - 335 -- A -	10	3.3	1	10	12	6	8	8	12	A
CWR19F - 475 -- B -	10	4.7	1	10	12	6	8	8	8	B
CWR19F - 475 -- C -	10	4.7	1	10	12	6	8	8	5.5	C
CWR19F - 685 -- B -	10	6.8	1	10	12	6	8	8	8	B
CWR19F - 685 -- C -	10	6.8	1	10	12	6	8	8	5.5	C
CWR19F - 685 -- D -	10	6.8	1	10	12	6	8	8	5	D
CWR19F - 106 -- B -	10	10	1	10	12	8	10	10	8	B
CWR19F - 106 -- C -	10	10	1	10	12	6	8	8	5.5	C
CWR19F - 106 -- D -	10	10	1	10	12	6	8	8	4	D
CWR19F - 106 -- E -	10	10	1	10	12	6	8	8	3.5	E
CWR19F - 156 -- D -	10	15	2	20	24	6	8	8	5	D
CWR19F - 156 -- E -	10	15	2	20	24	8	10	10	3	E
CWR19F - 226 -- E -	10	22	3	30	36	8	10	10	2	E
CWR19F - 336 -- F -	10	33	3	30	36	8	10	10	1.5	F
CWR19F - 476 -- F -	10	47	4	40	48	10	12	12	1.5	F
CWR19F - 476 -- G -	10	47	4	40	48	10	12	12	1	G
CWR19F - 686 -- G -	10	68	6	60	72	10	12	12	1.1	G
CWR19F - 107 -- G -	10	100	10	100	120	10	12	12	1.1	G
CWR19F - 107 -- H -	10	100	10	100	120	10	12	12	0.9	H
CWR19F - 157 -- H -	10	150	15	150	180	10	12	12	0.9	H
CWR19F - 157 -- X -	10	150	15	150	180	10	12	12	0.9	X
CWR19F - 227 -- H -	10	220	20	200	240	10	12	12	0.9	H

See footnote at the end of table.

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TABLE I. Style CWR19 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	
CWR19H - 105 -- A -	15	1	1	10	12	6	8	8	15	A
CWR19H - 155 -- A -	15	1.5	1	10	12	6	8	8	15	A
CWR19H - 225 -- A -	15	2.2	1	10	12	6	8	8	15	A
CWR19H - 335 -- B -	15	3.3	1	10	12	6	8	8	9	B
CWR19H - 475 -- B -	15	4.7	1	10	12	6	8	8	5	B
CWR19H - 475 -- C -	15	4.7	1	10	12	6	8	8	5.5	C
CWR19H - 475 -- D -	15	4.7	1	10	12	6	8	8	6	D
CWR19H - 685 -- D -	15	6.8	1	10	12	6	8	8	6	D
CWR19H - 685 -- E -	15	6.8	1	10	12	8	10	12	3	E
CWR19H - 106 -- D -	15	10	2	20	24	6	8	8	6	D
CWR19H - 106 -- E -	15	10	2	20	24	6	8	8	4	E
CWR19H - 156 -- E -	15	15	2	20	24	6	8	8	4	E
CWR19H - 156 -- F -	15	15	2	20	24	8	10	10	3	F
CWR19H - 226 -- F -	15	22	3	30	36	8	10	10	3	F
CWR19H - 336 -- F -	15	33	5	50	60	6	8	8	3	F
CWR19H - 336 -- G -	15	33	6	60	72	8	10	10	1.1	G
CWR19H - 476 -- G -	15	47	10	100	120	8	10	10	1.1	G
CWR19H - 476 -- H -	15	47	10	100	120	8	10	10	0.9	H
CWR19H - 686 -- G -	15	68	10	100	120	8	10	10	1.1	G
CWR19H - 686 -- H -	15	68	10	100	120	8	10	10	0.9	H
CWR19H - 107 -- H -	15	100	15	150	180	10	12	12	0.9	H
CWR19J - 684 -- A -	20	0.68	1	10	12	6	8	8	15	A
CWR19J - 105 -- A -	20	1	1	10	12	6	8	8	15	A
CWR19J - 155 -- B -	20	1.5	1	10	12	6	8	8	9	B
CWR19J - 225 -- B -	20	2.2	1	10	12	6	8	8	9	B
CWR19J - 335 -- D -	20	3.3	1	10	12	6	8	8	6	D
CWR19J - 475 -- E -	20	4.7	1	10	12	6	8	8	6	E
CWR19J - 685 -- E -	20	6.8	2	20	24	6	8	8	5	E
CWR19J - 106 -- E -	20	10	2	20	24	6	8	8	5	E
CWR19J - 106 -- F -	20	10	2	20	24	6	8	8	3	F
CWR19J - 156 -- F -	20	15	3	30	36	6	8	8	3	F
CWR19J - 226 -- G -	20	22	4	40	48	6	8	8	2.5	G
CWR19J - 336 -- H -	20	33	6	60	72	8	10	10	0.9	H
CWR19J - 476 -- H -	20	47	10	100	120	8	10	10	0.9	H
CWR19J - 476 -- X -	20	47	10	100	120	8	10	10	0.9	X
CWR19K - 474 -- A -	25	0.47	1	10	12	6	8	8	15	A
CWR19K - 105 -- B -	25	1	1	10	12	6	8	8	10	B
CWR19K - 225 -- D -	25	2.2	1	10	12	6	8	8	6	D
CWR19K - 335 -- E -	25	3.3	1	10	12	6	8	8	4	E
CWR19K - 685 -- F -	25	6.8	2	20	24	6	8	8	3	F
CWR19K - 156 -- G -	25	15	4	40	48	6	8	8	1.4	G
CWR19K - 226 -- G -	25	22	6	60	72	6	8	8	1.4	G
CWR19K - 226 -- H -	25	22	6	60	72	6	8	8	0.9	H
CWR19K - 226 -- X -	25	22	6	60	72	6	8	8	0.9	X
CWR19K - 336 -- H -	25	33	10	100	120	8	10	10	0.9	H
CWR19K - 336 -- X -	25	33	10	100	120	8	10	10	0.9	X
CWR19M - 334 -- A -	35	0.33	1	10	12	6	8	8	22	A
CWR19M - 685 -- G -	35	6.8	3	30	36	6	8	8	1.5	G
CWR19M - 106 -- H -	35	10	4	40	48	8	10	10	0.9	H
CWR19M - 156 -- X -	35	15	6	60	72	6	8	8	0.9	X

^{1/} Complete Part or Identifying Number (PIN) shall include additional symbols to indicate termination finish, capacitance tolerance, product level designator, and surge current option letter. If surge current is not required, the last dash shall be replaced with the letter Z.

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TABLE II. Style CWR29 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		
	Volts	µF	µA	µA	µA	%	%	%	Ohms	
CWR29C - 225 -- A -	4	2.2	1	10	12	6	8	8	4	A
CWR29C - 335 -- A -	4	3.3	1	10	12	6	8	8	6	A
CWR29C - 475 -- A -	4	4.7	1	10	12	6	8	8	6	A
CWR29C - 475 -- B -	4	4.7	1	10	12	6	8	8	3.2	B
CWR29C - 685 -- A -	4	6.8	1	10	12	6	8	8	6	A
CWR29C - 685 -- C -	4	6.8	1	10	12	6	8	8	2.2	C
CWR29C - 106 -- B -	4	10	1	10	12	8	10	10	3.2	B
CWR29C - 106 -- D -	4	10	1	10	12	8	8	10	1.3	D
CWR29C - 156 -- B -	4	15	1	10	12	8	10	10	3.2	B
CWR29C - 156 -- E -	4	15	1	10	12	8	10	12	1	E
CWR29C - 226 -- B -	4	22	1	10	12	8	10	10	3.2	B
CWR29C - 226 -- D -	4	22	1	10	12	8	10	12	1.3	D
CWR29C - 336 -- D -	4	33	2	20	24	8	10	12	1.3	D
CWR29C - 336 -- E -	4	33	2	20	24	8	10	12	0.9	E
CWR29C - 336 -- F -	4	33	2	20	24	8	10	12	0.6	F
CWR29C - 476 -- E -	4	47	2	20	24	8	10	12	0.9	E
CWR29C - 686 -- E -	4	68	3	30	36	8	10	12	0.9	E
CWR29C - 686 -- G -	4	68	3	30	36	10	12	12	0.275	G
CWR29C - 107 -- F -	4	100	4	40	48	10	12	12	0.550	F
CWR29C - 107 -- H -	4	100	4	40	48	10	12	12	0.180	H
CWR29C - 157 -- G -	4	150	6	60	72	10	12	12	0.250	G
CWR29C - 227 -- H -	4	220	8	80	96	10	12	12	0.200	H
CWR29C - 337 -- H -	4	330	10	100	120	10	12	12	0.180	H
CWR29D - 155 -- A -	6	1.5	1	10	12	6	8	8	4	A
CWR29D - 335 -- A -	6	3.3	1	10	12	6	8	8	6	A
CWR29D - 335 -- B -	6	3.3	1	10	12	6	8	8	3.2	B
CWR29D - 475 -- A -	6	4.7	1	10	12	6	8	8	6	A
CWR29D - 475 -- C -	6	4.7	1	10	12	6	8	8	2.2	C
CWR29D - 685 -- B -	6	6.8	1	10	12	6	8	8	3.2	B
CWR29D - 685 -- D -	6	6.8	1	10	12	6	8	8	1.5	D
CWR29D - 106 -- B -	6	10	1	10	12	6	8	8	3.2	B
CWR29D - 106 -- E -	6	10	1	10	12	8	10	12	1	E
CWR29D - 156 -- B -	6	15	1	10	12	8	10	10	3.2	B
CWR29D - 156 -- D -	6	15	1	10	12	8	10	12	1.7	D
CWR29D - 156 -- E -	6	15	1	10	12	8	10	12	0.9	E
CWR29D - 226 -- D -	6	22	1	10	12	6	8	8	1.7	D
CWR29D - 226 -- E -	6	22	2	20	24	8	10	12	1	E
CWR29D - 226 -- F -	6	22	2	20	24	8	10	12	0.6	F
CWR29D - 336 -- E -	6	33	2	20	24	6	8	8	1	E
CWR29D - 476 -- F -	6	47	3	30	36	8	10	12	1	F
CWR29D - 476 -- G -	6	47	3	30	36	10	12	12	0.275	G
CWR29D - 686 -- F -	6	68	4	40	48	10	12	12	0.400	F
CWR29D - 686 -- G -	6	68	4	40	48	10	12	12	0.25	G
CWR29D - 686 -- H -	6	68	4	40	48	10	12	12	0.180	H
CWR29D - 107 -- G -	6	100	6	60	72	10	12	12	0.275	G
CWR29D - 157 -- G -	6	150	10	100	120	10	12	12	0.275	G
CWR29D - 227 -- H -	6	220	10	100	120	10	12	12	0.180	H
CWR29D - 337 -- H -	6	330	20	200	240	10	12	12	0.18	H
CWR29F - 105 -- A -	10	1	1	10	12	6	8	8	5	A
CWR29F - 225 -- A -	10	2.2	1	10	12	6	8	8	6	A
CWR29F - 225 -- B -	10	2.2	1	10	12	6	8	8	3.2	B
CWR29F - 335 -- A -	10	3.3	1	10	12	6	8	8	6	A
CWR29F - 335 -- C -	10	3.3	1	10	12	6	8	8	2.2	C
CWR29F - 475 -- B -	10	4.7	1	10	12	6	8	8	3.2	B
CWR29F - 475 -- C -	10	4.7	1	10	12	6	8	8	2.2	C

See footnote at end of table.

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TABLE II. Style CWR29 characteristics - Continued.

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		
	Volts	µF	µA	µA	µA	%	%	%	Ohms	
CWR29F - 475 -- D -	10	4.7	1	10	12	6	8	8	1.5	D
CWR29F - 685 -- B -	10	6.8	1	10	12	6	8	8	3.2	B
CWR29F - 685 -- C -	10	6.8	1	10	12	6	8	8	2.2	C
CWR29F - 685 -- D -	10	6.8	1	10	12	6	8	8	1.7	D
CWR29F - 685 -- E -	10	6.8	1	10	12	6	8	8	1	E
CWR29F - 106 -- B -	10	10	1	10	12	8	10	10	3.2	B
CWR29F - 106 -- C -	10	10	1	10	12	6	8	8	2.2	C
CWR29F - 106 -- D -	10	10	1	10	12	6	8	8	1.3	D
CWR29F - 106 -- E -	10	10	1	10	12	6	8	8	1	E
CWR29F - 156 -- D -	10	15	2	20	24	6	8	8	1.7	D
CWR29F - 156 -- E -	10	15	2	20	24	8	10	10	0.9	E
CWR29F - 156 -- F -	10	15	2	20	24	8	8	10	0.7	F
CWR29F - 226 -- E -	10	22	3	30	36	8	10	10	0.6	E
CWR29F - 336 -- F -	10	33	3	30	36	8	10	10	0.4	F
CWR29F - 336 -- G -	10	33	3	30	36	10	12	12	0.275	G
CWR29F - 476 -- F -	10	47	4	40	48	10	12	12	0.4	F
CWR29F - 476 -- G -	10	47	4	40	48	10	12	12	0.25	G
CWR29F - 476 -- H -	10	47	5	50	60	10	12	12	0.180	H
CWR29F - 686 -- G -	10	68	6	60	72	10	12	12	0.275	G
CWR29F - 107 -- G -	10	100	10	100	120	10	12	12	0.275	G
CWR29F - 107 -- H -	10	100	10	100	120	10	12	12	0.180	H
CWR29F - 157 -- H -	10	150	15	150	180	10	12	12	0.180	H
CWR29F - 157 -- X -	10	150	15	150	180	10	12	12	0.065	X
CWR29F - 227 -- H -	10	220	20	200	240	10	12	12	0.180	H
CWR29H - 684 -- A -	15	0.68	1	10	12	6	8	8	6.	A
CWR29H - 105 -- A -	15	1	1	10	12	6	8	8	7.5	A
CWR29H - 155 -- A -	15	1.5	1	10	12	6	8	8	7.5	A
CWR29H - 155 -- B -	15	1.5	1	10	12	6	8	8	3.2	B
CWR29H - 225 -- A -	15	2.2	1	10	12	6	8	8	7.5	A
CWR29H - 225 -- C -	15	2.2	1	10	12	6	8	8	2.2	C
CWR29H - 335 -- B -	15	3.3	1	10	12	6	8	8	3.6	B
CWR29H - 335 -- D -	15	3.3	1	10	12	6	8	8	1.7	D
CWR29H - 475 -- B -	15	4.7	1	10	12	6	8	8	2.	B
CWR29H - 475 -- C -	15	4.7	1	10	12	6	8	8	2.2	C
CWR29H - 475 -- D -	15	4.7	1	10	12	6	8	8	2	D
CWR29H - 475 -- E -	15	4.7	1	10	12	6	8	8	1.2	E
CWR29H - 685 -- D -	15	6.8	1	10	12	6	8	8	2	D
CWR29H - 685 -- E -	15	6.8	1	10	12	8	10	12	0.9	E
CWR29H - 106 -- D -	15	10	2	20	24	6	8	8	2	D
CWR29H - 106 -- E -	15	10	2	20	24	6	8	8	1.2	E
CWR29H - 106 -- F -	15	10	2	20	24	6	8	8	0.667	F
CWR29H - 156 -- E -	15	15	2	20	24	6	8	8	1.2	E
CWR29H - 156 -- F -	15	15	2	20	24	8	10	10	0.8	F
CWR29H - 226 -- F -	15	22	3	30	36	8	10	10	0.8	F
CWR29H - 226 -- G -	15	22	4	40	48	6	8	8	0.275	G
CWR29H - 336 -- F -	15	33	5	50	60	6	8	8	0.8	F
CWR29H - 336 -- G -	15	33	6	60	72	8	10	10	0.275	G
CWR29H - 336 -- H -	15	33	5	50	60	8	8	10	0.18	H
CWR29H - 476 -- G -	15	47	10	100	120	8	10	10	0.275	G
CWR29H - 476 -- H -	15	47	10	100	120	8	10	10	0.18	H
CWR29H - 686 -- G -	15	68	10	100	120	8	10	10	0.275	G
CWR29H - 686 -- H -	15	68	10	100	120	8	10	10	0.18	H
CWR29H - 107 -- H -	15	100	15	150	180	10	12	12	0.18	H

See footnote at end of table.

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TABLE II. Style CWR29 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		
	<u>Volts</u>	<u>μF</u>	<u>μA</u>	<u>μA</u>	<u>μA</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>Ohms</u>	
CWR29J - 474 -- A -	20	0.47	1	10	12	8	8	10	7.5	A
CWR29J - 684 -- A -	20	0.68	1	10	12	6	8	8	7.5	A
CWR29J - 684 -- B -	20	0.68	1	10	12	6	8	8	5.6	B
CWR29J - 105 -- A -	20	1	1	10	12	6	8	8	7.5	A
CWR29J - 105 -- B -	20	1	1	10	12	6	8	8	4.8	B
CWR29J - 155 -- B -	20	1.5	1	10	12	6	8	8	3.6	B
CWR29J - 155 -- C -	20	1.5	1	10	12	6	8	8	2.4	C
CWR29J - 225 -- B -	20	2.2	1	10	12	6	8	8	3.6	B
CWR29J - 225 -- D -	20	2.2	1	10	12	6	8	8	1.7	D
CWR29J - 335 -- D -	20	3.3	1	10	12	6	8	8	2	D
CWR29J - 335 -- E -	20	3.3	1	10	12	6	8	8	1.2	E
CWR29J - 475 -- E -	20	4.7	1	10	12	6	8	8	1.7	E
CWR29J - 685 -- E -	20	6.8	2	20	24	6	8	8	1.5	E
CWR29J - 685 -- F -	20	6.8	2	20	24	6	8	8	0.7	F
CWR29J - 106 -- E -	20	10	2	20	24	6	8	8	1.5	E
CWR29J - 106 -- F -	20	10	2	20	24	6	8	8	0.8	F
CWR29J - 156 -- F -	20	15	3	30	36	6	8	8	0.8	F
CWR29J - 156 -- G -	20	15	3	30	36	6	8	8	0.275	G
CWR29J - 226 -- G -	20	22	4	40	48	6	8	8	0.625	G
CWR29J - 226 -- H -	20	22	4	40	48	6	8	8	0.18	H
CWR29J - 336 -- H -	20	33	6	60	72	8	10	10	0.18	H
CWR29J - 476 -- H -	20	47	10	100	120	8	10	10	0.18	H
CWR29J - 476 -- X -	20	47	10	100	120	8	10	10	0.11	X
CWR29K - 334 -- A -	25	0.33	1	10	12	6	8	8	7.5	A
CWR29K - 474 -- A -	25	0.47	1	10	12	6	8	8	7.5	A
CWR29K - 684 -- B -	25	0.68	1	10	12	6	8	8	4	B
CWR29K - 105 -- B -	25	1	1	10	12	6	8	8	4	B
CWR29K - 105 -- C -	25	1	1	10	12	6	8	8	2.6	C
CWR29K - 155 -- D -	25	1.5	1	10	12	6	8	8	1.7	D
CWR29K - 225 -- D -	25	2.2	1	10	12	6	8	8	2	D
CWR29K - 225 -- E -	25	2.2	1	10	12	6	8	8	1	E
CWR29K - 335 -- E -	25	3.3	1	10	12	6	8	8	1.2	E
CWR29K - 475 -- F -	25	4.7	2	20	24	6	8	8	0.7	F
CWR29K - 685 -- F -	25	6.8	2	20	24	6	8	8	0.8	F
CWR29K - 685 -- G -	25	6.8	2	20	24	6	8	8	0.3	G
CWR29K - 106 -- G -	25	10	3	30	36	6	8	8	0.35	G
CWR29K - 156 -- G -	25	15	4	40	48	6	8	8	0.35	G
CWR29K - 156 -- H -	25	15	4	40	48	6	8	8	0.2	H
CWR29K - 226 -- G -	25	22	6	60	72	6	8	8	0.35	G
CWR29K - 226 -- H -	25	22	6	60	72	6	8	8	0.18	H
CWR29K - 226 -- X -	25	22	6	60	72	6	8	8	0.16	X
CWR29K - 336 -- H -	25	33	10	100	120	8	10	10	0.18	H
CWR29K - 336 -- X -	25	33	10	100	120	8	10	10	0.13	X
CWR29M - 224 -- A -	35	0.22	1	10	12	6	8	8	12	A
CWR29M - 334 -- A -	35	0.33	1	10	12	6	8	8	12	A
CWR29M - 474 -- B -	35	0.47	1	10	12	6	8	8	6.8	B
CWR29M - 684 -- C -	35	0.68	1	10	12	6	8	8	4	C
CWR29M - 105 -- D -	35	1	1	10	12	6	8	8	2.2	D
CWR29M - 155 -- E -	35	1.5	1	10	12	6	8	8	1.3	E
CWR29M - 335 -- F -	35	3.3	1	10	12	6	8	8	0.7	F
CWR29M - 475 -- G -	35	4.7	2	20	24	6	8	8	0.375	G
CWR29M - 685 -- G -	35	6.8	3	30	36	6	8	8	0.375	G
CWR29M - 685 -- H -	35	6.8	3	30	36	6	8	8	0.5	H
CWR29M - 106 -- H -	35	10	4	40	48	8	10	10	0.5	H
CWR29M - 156 -- X -	35	15	6	60	72	6	8	8	0.19	X

See footnote at end of table.

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TABLE II. Style CWR29 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		
	<u>Volts</u>	<u>µF</u>	<u>µA</u>	<u>µA</u>	<u>µA</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>Ohms</u>	
CWR29N - 104 -- A -	50	0.1	1	10	12	6	8	8	12	A
CWR29N - 154 -- A -	50	0.15	1	10	12	6	8	8	12	A
CWR29N - 224 -- B -	50	0.22	1	10	12	6	8	8	6.8	B
CWR29N - 334 -- B -	50	0.33	1	10	12	6	8	8	4.8	B
CWR29N - 474 -- C -	50	0.47	1	10	12	6	8	8	3.2	C
CWR29N - 684 -- D -	50	0.68	1	10	12	6	8	8	2.3	D
CWR29N - 105 -- E -	50	1	1	10	12	6	8	8	1.7	E
CWR29N - 155 -- F -	50	1.5	1	10	12	6	8	8	1.1	F
CWR29N - 225 -- F -	50	2.2	2	20	24	6	8	8	0.7	F
CWR29N - 335 -- G -	50	3.3	2	20	24	6	8	8	0.5	G
CWR29N - 475 -- H -	50	4.7	3	30	36	6	8	8	0.5	H

1/ Complete PIN shall include additional symbols to indicate termination finish, capacitance tolerance, product level designator, and surge current option letter. If surge current is not required, the last dash shall be replaced with the letter Z.

Amendment notations. The margins of this specification are marked with vertical lines to indicate modifications generated by this amendment. 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.

Custodians:
Army - CR
Navy - EC
Air Force - 85
DLA - CC

Preparing activity:
Army - CR

Agent:
DLA - CC

Review activities:
Army - AR, MI
Navy - AS, MC, OS, SH
Air Force - 19, 99
Other - NA

(Project 5910-2017-003)

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