

INCH-POUND

MIL-PRF-19978/13B

13 October 2006

SUPERSEDING

MIL-PRF-19978/13A

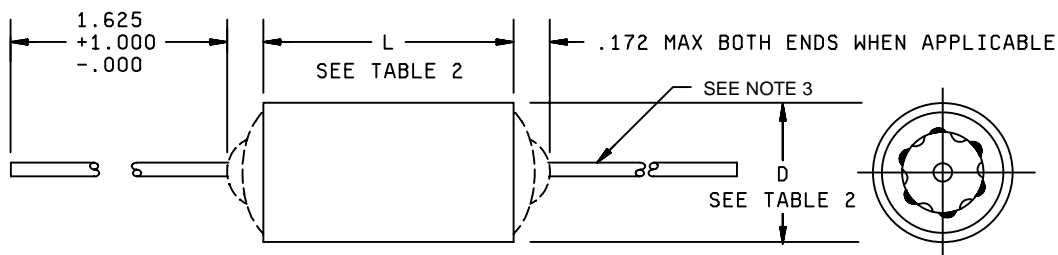
27 May 1999

PERFORMANCE SPECIFICATION SHEET

CAPACITORS, FIXED, PLASTIC DIELECTRIC, AXIAL-WIRE TERMINAL, TUBULAR (INSULATED) (HERMETICALLY SEALED IN METAL CASES), ESTABLISHED RELIABILITY, STYLE CQR29

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

The complete requirements for procuring the capacitors described herein
shall consist of this specification and [MIL-PRF-19978](#).



Inches	mm	Inches	mm
.001	.03	.235	5.97
.004	.10	.312	7.92
.020	.51	.400	10.16
.025	.64	.562	14.27
.032	.81	1.000	25.40
.172	4.37	1.562	39.67
.175	4.45	1.625	41.28
.195	4.95		

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Leads shall be tinned solid wire, .020 (No. 24 AWG) for cases .175 and .195 in diameter; .025 (No. 22 AWG) for cases .235 through .312 diameter; and .032 (No. 20 AWG) for cases .400 diameter and above. Tolerance on all lead wire diameters shall be +.004, -.001.
4. Capacitors with dimension L of 1.562 or D of .562 and larger, are not intended to be supported by their leads. These capacitors shall be supported with a supplementary means of mounting, such as a wrap-around band. The supporting device will not be supplied with the capacitor.
5. Lead length may be a minimum of 1-inch long for use in tape and reel packaging when specified in the ordering data.

FIGURE 1. Style CQR29 capacitors.

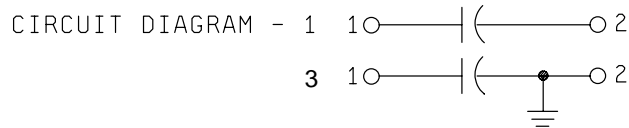
REQUIREMENTS:

Design and construction:

Dimensions and configuration - See [figure 1](#) and [table II](#).

Case material - Nonmagnetic (end seal may be of magnetic material).

Terminals - Axial-wire lead (see [figure 1](#)).



Rated voltage - See [table II](#).

Rated temperature - -65° to +85°C.

Capacitance (Cap.) (nom) - See [table II](#).

Capacitance tolerance - See [table II](#).

Dissipation factor (DF) (max) - 0.6 percent.

Failure rate level - In accordance with [MIL-PRF-19978](#).

Reliability - In accordance with [MIL-PRF-19978](#).

Burn-in: In accordance with [MIL-PRF-19978](#).

Radiographic inspection: In accordance with [MIL-PRF-19978](#).

Seal: [Method 112 of MIL-STD-202](#), test condition letter A or test condition letter B with mineral oil.

Dielectric withstanding voltage (DWV):

Sleeving - In accordance with [MIL-PRF-19978](#).

Barometric pressure: In accordance with [MIL-PRF-19978](#).

Test points:

Circuit diagram 1 - Between terminals and case.

Circuit diagram 3 - Between ungrounded terminal and case.

Insulation resistance (IR):

Sleeving - In accordance with [MIL-PRF-19978](#).

Terminal to terminal - See [table I](#).

Vibration, high frequency: [Method 204 of MIL-STD-202](#), test condition B, with the following exception:

Direction and duration of motion - 4 hours in each of two mutually perpendicular directions (total of 8 hours), one parallel and the other perpendicular to the cylindrical axis.

TABLE I. Terminal-to-terminal insulation resistance.

Capacitance rating <u>Characteristic M</u>	Minimum insulation resistance
0 to 0.68 microfarad Greater than 0.68 microfarad	<p style="text-align: center;"><u>At 25°C</u></p> 100,000 megohms 68,000 megohm-microfarads <u>1/</u>
0 to 0.2 microfarad Greater than 0.2 microfarad	<p style="text-align: center;"><u>At 85°C</u></p> 25,000 megohms 5,000 megohm-microfarads <u>1/</u>

1/ Product obtained by multiplying the capacitance in microfarads by the insulation resistance in megohms.

Salt spray: In accordance with [MIL-PRF-19978](#).

Immersion:

DWV:

Sleeving - In accordance with [MIL-PRF-19978](#).

IR:

Sleeving - In accordance with [MIL-PRF-19978](#).

Solderability: In accordance with [MIL-PRF-19978](#).

Terminal strength: [Method 211 of MIL-STD-202](#), test condition letter D.

Moisture resistance:

DWV:

Sleeving - In accordance with [MIL-PRF-19978](#).

IR:

Sleeving - In accordance with [MIL-PRF-19978](#).

Dielectric absorption (not applicable to values of 0.01 μ F or less): 0.60 percent, maximum.

Stability at low and high temperature:

Low temperature:

Test temperature -65°C +0°C, -5°C.

Capacitance change (max) - -7 percent.

High temperature:

Test temperature - +85°C +5°C, -0°C.

Capacitance change (max) - +5 percent.

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Life:

Capacitance change (max) - ± 5 of initial measured value percent.

Resistance to soldering heat: In accordance with MIL-PRF-19978.

TABLE II. STYLES CQR29 capacitors.

Part number <u>1/</u>	DC voltage rating	Capacitance rating	Capacitance tolerance	Failure rate level	Case dimensions <u>2/</u>			
					Circuit 1		Circuit 3	
					L $\pm .031$	D $+ .015, - .005$	L $\pm .031$	D $+ .015, - .005$
	<u>Volts</u>	μ F			<u>Inches</u>	<u>Inches</u>	<u>Inches</u>	<u>Inches</u>
CQR29A-MZ155-3-	30	1.5	G, J, K	M, P, R, S	1.625	.562	1.531	.562
CQR29A-MZ225-3-	30	2.2	G, J, K	M, P, R, S	1.875	.670	1.781	.670
CQR29A-MZ335-3-	30	3.3	G, J, K	M, P, R, S	1.875	.750	1.781	.750
CQR29A-MZ475-3-	30	4.7	G, J, K	M, P, R, S	2.625	.750	2.531	.750
CQR29A-MZ685-3-	30	6.8	G, J, K	M, P, R, S	2.125	1.000	2.031	1.000
CQR29A-MZ106-3-	30	10.0	G, J, K	M, P, R, S	2.375	1.000	2.281	1.000
CQR29A-MA102-3-	50	.0010	G, J, K	M, P, R, S	.500	.175	.406	.175
CQR29A-MA122-3-	50	.0012	G, J, K	M, P, R, S	.500	.175	.406	.175
CQR29A-MA152-3-	50	.0015	G, J, K	M, P, R, S	.500	.175	.406	.175
CQR29A-MA182-3-	50	.0018	G, J, K	M, P, R, S	.500	.175	.406	.175
CQR29A-MA222-3-	50	.0022	G, J, K	M, P, R, S	.500	.175	.406	.175
CQR29A-MA272-3-	50	.0027	G, J, K	M, P, R, S	.500	.175	.406	.175
CQR29A-MA332-3-	50	.0033	G, J, K	M, P, R, S	.500	.175	.406	.175
CQR29A-MA392-3-	50	.0039	G, J, K	M, P, R, S	.500	.175	.406	.175
CQR29A-MA472-3-	50	.0047	G, J, K	M, P, R, S	.500	.175	.406	.175
CQR29A-MA562-3-	50	.0056	G, J, K	M, P, R, S	.500	.175	.406	.175
CQR29A-MA682-3-	50	.0068	G, J, K	M, P, R, S	.500	.175	.406	.175
CQR29A-MA822-3-	50	.0082	G, J, K	M, P, R, S	.500	.175	.406	.175
CQR29A-MA103-3-	50	.010	G, J, K	M, P, R, S	.500	.175	.406	.175
CQR29A-MA123-3-	50	.012	G, J, K	M, P, R, S	.500	.235	.406	.235
CQR29A-MA153-3-	50	.015	G, J, K	M, P, R, S	.500	.235	.406	.235
CQR29A-MA183-3-	50	.018	G, J, K	M, P, R, S	.500	.235	.406	.235
CQR29A-MA223-3-	50	.022	G, J, K	M, P, R, S	.500	.235	.406	.235
CQR29A-MA273-3-	50	.027	G, J, K	M, P, R, S	.500	.312	.406	.312
CQR29A-MA333-3-	50	.033	G, J, K	M, P, R, S	.500	.312	.406	.312
CQR29A-MA393-3-	50	.039	G, J, K	M, P, R, S	.500	.312	.406	.312
CQR29A-MA473-3-	50	.047	G, J, K	M, P, R, S	.500	.312	.406	.312
CQR29A-MA563-3-	50	.056	G, J, K	M, P, R, S	.562	.312	.468	.312
CQR29A-MA683-3-	50	.068	G, J, K	M, P, R, S	.562	.312	.468	.312
CQR29A-MA124-3-	50	.12	G, J, K	M, P, R, S	.875	.312	.781	.312
CQR29A-MA154-3-	50	.15	G, J, K	M, P, R, S	.875	.312	.781	.312
CQR29A-MA184-3-	50	.18	G, J, K	M, P, R, S	.875	.400	.781	.400
CQR29A-MA224-3-	50	.22	G, J, K	M, P, R, S	.875	.400	.781	.400
CQR29A-MA274-3-	50	.27	G, J, K	M, P, R, S	.875	.400	.781	.400
CQR29A-MA334-3-	50	.33	G, J, K	M, P, R, S	1.000	.400	.906	.400
CQR29A-MA394-3-	50	.39	G, J, K	M, P, R, S	1.125	.400	1.031	.400
CQR29A-MA474-3-	50	.47	G, J, K	M, P, R, S	1.125	.400	1.031	.400
CQR29A-MA564-3-	50	.56	G, J, K	M, P, R, S	1.375	.400	1.281	.400
CQR29A-MA684-3-	50	.68	G, J, K	M, P, R, S	1.375	.400	1.281	.400
CQR29A-MA824-3-	50	.82	G, J, K	M, P, R, S	1.125	.562	1.031	.562
CQR29A-MA105-3-	50	1.0	G, J, K	M, P, R, S	1.125	.562	1.031	.562
CQR29A-MA125-3-	50	1.2	G, J, K	M, P, R, S	1.375	.562	1.281	.562

See footnotes at end of table.

TABLE II. STYLES CQR29 capacitors - Continued.

Part number <u>1/</u>	DC voltage rating	Capacitance rating	Capacitance tolerance	Failure rate level	Case dimensions <u>2/</u>			
					Circuit 1		Circuit 3	
					L \pm .031	D +.015, -.005	L \pm .031	D +.015, -.005
	<u>Volts</u>	μ F			<u>Inches</u>	<u>Inches</u>	<u>Inches</u>	<u>Inches</u>
CQR29A-MB125-3-	100	1.2	G, J, K	M, P, R, S	1.625	.670	1.531	.670
CQR29A-MB155-3-	100	1.5	G, J, K	M, P, R, S	1.625	.670	1.531	.670
CQR29A-MB185-3-	100	1.8	G, J, K	M, P, R, S	1.625	.670	1.531	.670
CQR29A-MB225-3-	100	2.2	G, J, K	M, P, R, S	1.875	.750	1.781	.750
CQR29A-MB275-3-	100	2.7	G, J, K	M, P, R, S	2.125	.750	2.031	.750
CQR29A-MB335-3-	100	3.3	G, J, K	M, P, R, S	2.375	.750	2.281	.750
CQR29A-MB395-3-	100	3.9	G, J, K	M, P, R, S	1.875	1.000	1.781	1.000
CQR29A-MB475-3-	100	4.7	G, J, K	M, P, R, S	2.125	1.000	2.031	1.000
CQR29A-MB565-3-	100	5.6	G, J, K	M, P, R, S	2.375	1.000	2.281	1.000
CQR29A-MB685-3-	100	6.8	G, J, K	M, P, R, S	2.625	1.000	2.531	1.000
CQR29A-MC102-3-	200	.0010	G, J, K	M, P, R, S	.750	.175	.656	.175
CQR29A-MC122-3-	200	.0012	G, J, K	M, P, R, S	.750	.175	.656	.175
CQR29A-MC152-3-	200	.0015	G, J, K	M, P, R, S	.750	.175	.656	.175
CQR29A-MC182-3-	200	.0018	G, J, K	M, P, R, S	.750	.175	.656	.175
CQR29A-MC222-3-	200	.0022	G, J, K	M, P, R, S	.750	.175	.656	.175
CQR29A-MC272-3-	200	.0027	G, J, K	M, P, R, S	.750	.175	.656	.175
CQR29A-MC332-3-	200	.0033	G, J, K	M, P, R, S	.750	.175	.656	.175
CQR29A-MC392-3-	200	.0039	G, J, K	M, P, R, S	.750	.175	.656	.175
CQR29A-MC472-3-	200	.0047	G, J, K	M, P, R, S	.750	.175	.656	.175
CQR29A-MC562-3-	200	.0056	G, J, K	M, P, R, S	.750	.175	.656	.175
CQR29A-MC682-3-	200	.0068	G, J, K	M, P, R, S	.750	.175	.656	.175
CQR29A-MC822-3-	200	.0082	G, J, K	M, P, R, S	.750	.175	.656	.175
CQR29A-MC103-3-	200	.010	G, J, K	M, P, R, S	.750	.175	.656	.175
CQR29A-MC123-3-	200	.012	G, J, K	M, P, R, S	.719	.195	.625	.195
CQR29A-MC153-3-	200	.015	G, J, K	M, P, R, S	.719	.195	.625	.195
CQR29A-MC183-3-	200	.018	G, J, K	M, P, R, S	.719	.235	.625	.235
CQR29A-MC223-3-	200	.022	G, J, K	M, P, R, S	.719	.235	.625	.235
CQR29A-MC273-3-	200	.027	G, J, K	M, P, R, S	.719	.235	.625	.235
CQR29A-MC333-3-	200	.033	G, J, K	M, P, R, S	.719	.235	.625	.235
CQR29A-MC393-3-	200	.039	G, J, K	M, P, R, S	.719	.312	.625	.312
CQR29A-MC473-3-	200	.047	G, J, K	M, P, R, S	.719	.312	.625	.312
CQR29A-MC563-3-	200	.056	G, J, K	M, P, R, S	.844	.312	.750	.312
CQR29A-MC683-3-	200	.068	G, J, K	M, P, R, S	.844	.312	.750	.312
CQR29A-MC823-3-	200	.082	G, J, K	M, P, R, S	.844	.312	.750	.312
CQR29A-MC104-3-	200	.10	G, J, K	M, P, R, S	.844	.312	.750	.312
CQR29A-MC124-3-	200	.12	G, J, K	M, P, R, S	.812	.400	.718	.400
CQR29A-MC154-3-	200	.15	G, J, K	M, P, R, S	.812	.400	.718	.400
CQR29A-MC184-3-	200	.18	G, J, K	M, P, R, S	1.062	.400	.969	.400
CQR29A-MC224-3-	200	.22	G, J, K	M, P, R, S	1.062	.400	.969	.400
CQR29A-MC274-3-	200	.27	G, J, K	M, P, R, S	1.250	.400	1.156	.400
CQR29A-MC334-3-	200	.33	G, J, K	M, P, R, S	1.250	.400	1.156	.400
CQR29A-MC394-3-	200	.39	G, J, K	M, P, R, S	1.188	.500	1.094	.500
CQR29A-MC474-3-	200	.47	G, J, K	M, P, R, S	1.188	.500	1.094	.500
CQR29A-MC564-3-	200	.56	G, J, K	M, P, R, S	1.375	.562	1.281	.562
CQR29A-MC684-3-	200	.68	G, J, K	M, P, R, S	1.375	.562	1.281	.562
CQR29A-MC824-3-	200	.82	G, J, K	M, P, R, S	1.875	.562	1.781	.562
CQR29A-MC105-3-	200	1.0	G, J, K	M, P, R, S	1.875	.562	1.781	.562

See footnotes at end of table.

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TABLE II. STYLES CQR29 capacitors - Continued.

Part number <u>1/</u>	DC voltage rating	Capacitance rating	Capacitance tolerance	Failure rate level	Case dimensions <u>2/</u>			
					Circuit 1		Circuit 3	
					L ±.031	D +.015, -.005	L ±.031	D +.015, -.005
	<u>Volts</u>	<u>μF</u>			<u>Inches</u>	<u>Inches</u>	<u>Inches</u>	<u>Inches</u>
CQR29A-ME102-3-	400	.0010	G, J, K	M, P, R, S	.812	.235	.718	.235
CQR29A-ME122-3-	400	.0012	G, J, K	M, P, R, S	.812	.235	.718	.235
CQR29A-ME152-3-	400	.0015	G, J, K	M, P, R, S	.812	.235	.718	.235
CQR29A-ME182-3-	400	.0018	G, J, K	M, P, R, S	.812	.235	.718	.235
CQR29A-ME222-3-	400	.0022	G, J, K	M, P, R, S	.812	.235	.718	.235
CQR29A-ME272-3-	400	.0027	G, J, K	M, P, R, S	.812	.235	.718	.235
CQR29A-ME332-3-	400	.0033	G, J, K	M, P, R, S	.812	.235	.718	.235
CQR29A-ME392-3-	400	.0039	G, J, K	M, P, R, S	.812	.235	.718	.235
CQR29A-ME472-3-	400	.0047	G, J, K	M, P, R, S	.812	.235	.718	.235
CQR29A-ME562-3-	400	.0056	G, J, K	M, P, R, S	.938	.312	.844	.312
CQR29A-ME682-3-	400	.0068	G, J, K	M, P, R, S	.938	.312	.844	.312
CQR29A-ME822-3-	400	.0082	G, J, K	M, P, R, S	.938	.312	.844	.312
CQR29A-ME103-3-	400	.010	G, J, K	M, P, R, S	.938	.312	.844	.312
CQR29A-ME123-3-	400	.012	G, J, K	M, P, R, S	.938	.312	.844	.312
CQR29A-ME153-3-	400	.015	G, J, K	M, P, R, S	.938	.312	.844	.312
CQR29A-ME183-3-	400	.018	G, J, K	M, P, R, S	1.062	.312	.969	.312
CQR29A-ME223-3-	400	.022	G, J, K	M, P, R, S	1.062	.312	.969	.312
CQR29A-ME273-3-	400	.027	G, J, K	M, P, R, S	.938	.400	.844	.400
CQR29A-ME333-3-	400	.033	G, J, K	M, P, R, S	.938	.400	.844	.400
CQR29A-ME393-3-	400	.039	G, J, K	M, P, R, S	1.062	.400	.969	.400
CQR29A-ME473-3-	400	.047	G, J, K	M, P, R, S	1.062	.400	.969	.400
CQR29A-ME563-3-	400	.056	G, J, K	M, P, R, S	1.250	.400	1.156	.400
CQR29A-ME683-3-	400	.068	G, J, K	M, P, R, S	1.250	.400	1.156	.400
CQR29A-ME823-3-	400	.082	G, J, K	M, P, R, S	1.562	.400	1.469	.400
CQR29A-ME104-3-	400	.10	G, J, K	M, P, R, S	1.562	.400	1.469	.400
CQR29A-ME124-3-	400	.12	G, J, K	M, P, R, S	1.281	.562	1.188	.562
CQR29A-ME154-3-	400	.15	G, J, K	M, P, R, S	1.281	.562	1.188	.562
CQR29A-ME184-3-	400	.18	G, J, K	M, P, R, S	1.531	.562	1.438	.562
CQR29A-ME224-3-	400	.22	G, J, K	M, P, R, S	1.531	.562	1.438	.562
CQR29A-ME274-3-	400	.27	G, J, K	M, P, R, S	1.906	.562	1.812	.562
CQR29A-ME334-3-	400	.33	G, J, K	M, P, R, S	1.906	.562	1.812	.562
CQR29A-ME394-3-	400	.39	G, J, K	M, P, R, S	1.906	.670	1.812	.670
CQR29A-ME474-3-	400	.47	G, J, K	M, P, R, S	1.906	.670	1.812	.670
CQR29A-ME564-3-	400	.56	G, J, K	M, P, R, S	2.156	.750	2.062	.750
CQR29A-ME684-3-	400	.68	G, J, K	M, P, R, S	2.156	.750	2.062	.750
CQR29A-ME824-3-	400	.82	G, J, K	M, P, R, S	2.656	.750	2.562	.750
CQR29A-ME105-3-	400	1.0	G, J, K	M, P, R, S	2.656	.750	2.562	.750
CQR29A-MF102-3-	600	.0010	G, J, K	M, P, R, S	.812	.235	.718	.235
CQR29A-MF122-3-	600	.0012	G, J, K	M, P, R, S	.812	.235	.718	.235
CQR29A-MF152-3-	600	.0015	G, J, K	M, P, R, S	.812	.235	.718	.235
CQR29A-MF182-3-	600	.0018	G, J, K	M, P, R, S	.812	.235	.718	.235
CQR29A-MF222-3-	600	.0022	G, J, K	M, P, R, S	.812	.235	.718	.235
CQR29A-MF272-3-	600	.0027	G, J, K	M, P, R, S	.812	.235	.718	.235
CQR29A-MF332-3-	600	.0033	G, J, K	M, P, R, S	.938	.312	.844	.312
CQR29A-MF392-3-	600	.0039	G, J, K	M, P, R, S	.938	.312	.844	.312
CQR29A-MF472-3-	600	.0047	G, J, K	M, P, R, S	.938	.312	.844	.312
CQR29A-MF562-3-	600	.0056	G, J, K	M, P, R, S	.938	.312	.844	.312
CQR29A-MF682-3-	600	.0068	G, J, K	M, P, R, S	.938	.312	.844	.312
CQR29A-MF822-3-	600	.0082	G, J, K	M, P, R, S	1.062	.312	.969	.312

See footnotes at end of table.

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TABLE II. STYLES CQR29 capacitors - Continued.

Part number <u>1/</u>	DC voltage rating	Capacitance rating	Capacitance tolerance	Failure rate level	Case dimensions <u>2/</u>			
					Circuit 1		Circuit 3	
					L ±.031	D +.015, -.005	L ±.031	D +.015, -.005
	<u>Volts</u>	<u>μF</u>			<u>Inches</u>	<u>Inches</u>	<u>Inches</u>	<u>Inches</u>
CQR29A-MF103-3-	600	.010	G, J, K	M, P, R, S	1.062	.312	.969	.312
CQR29A-MF123-3-	600	.012	G, J, K	M, P, R, S	.938	.400	.844	.400
CQR29A-MF153-3-	600	.015	G, J, K	M, P, R, S	.938	.400	.844	.400
CQR29A-MF183-3-	600	.018	G, J, K	M, P, R, S	1.062	.400	.969	.400
CQR29A-MF223-3-	600	.022	G, J, K	M, P, R, S	1.062	.400	.969	.400
CQR29A-MF273-3-	600	.027	G, J, K	M, P, R, S	1.312	.400	1.219	.400
CQR29A-MF333-3-	600	.033	G, J, K	M, P, R, S	1.312	.400	1.219	.400
CQR29A-MF393-3-	600	.039	G, J, K	M, P, R, S	1.562	.400	1.469	.400
CQR29A-MF473-3-	600	.047	G, J, K	M, P, R, S	1.562	.400	1.469	.400
CQR29A-MF563-3-	600	.056	G, J, K	M, P, R, S	1.250	.562	1.156	.562
CQR29A-MF683-3-	600	.068	G, J, K	M, P, R, S	1.250	.562	1.156	.562
CQR29A-MF823-3-	600	.082	G, J, K	M, P, R, S	1.500	.562	1.406	.562
CQR29A-MF104-3-	600	.10	G, J, K	M, P, R, S	1.500	.562	1.406	.562
CQR29A-MF124-3-	600	.12	G, J, K	M, P, R, S	1.875	.562	1.781	.562
CQR29A-MF154-3-	600	.15	G, J, K	M, P, R, S	1.875	.562	1.781	.562
CQR29A-MF184-3-	600	.18	G, J, K	M, P, R, S	1.875	.670	1.781	.670
CQR29A-MF224-3-	600	.22	G, J, K	M, P, R, S	1.875	.670	1.781	.670
CQR29A-MF274-3-	600	.27	G, J, K	M, P, R, S	2.125	.750	2.031	.750
CQR29A-MF334-3-	600	.33	G, J, K	M, P, R, S	2.125	.750	2.031	.750
CQR29A-MF394-3-	600	.39	G, J, K	M, P, R, S	2.625	.750	2.531	.750
CQR29A-MF474-3-	600	.47	G, J, K	M, P, R, S	2.625	.750	2.531	.750
CQR29A-MF564-3-	600	.56	G, J, K	M, P, R, S	2.125	1.000	2.031	1.000
CQR29A-MF684-3-	600	.68	G, J, K	M, P, R, S	2.125	1.000	2.031	1.000
CQR29A-MG102-3-	1000	.0010	G, J, K	M, P, R, S	.938	.312	.844	.312
CQR29A-MG122-3-	1000	.0012	G, J, K	M, P, R, S	.938	.312	.844	.312
CQR29A-MG152-3-	1000	.0015	G, J, K	M, P, R, S	.938	.312	.844	.312
CQR29A-MG182-3-	1000	.0018	G, J, K	M, P, R, S	.938	.312	.844	.312
CQR29A-MG222-3-	1000	.0022	G, J, K	M, P, R, S	.938	.312	.844	.312
CQR29A-MG272-3-	1000	.0027	G, J, K	M, P, R, S	.938	.312	.844	.312
CQR29A-MG332-3-	1000	.0033	G, J, K	M, P, R, S	.938	.312	.844	.312
CQR29A-MG392-3-	1000	.0039	G, J, K	M, P, R, S	.938	.400	.844	.400
CQR29A-MG472-3-	1000	.0047	G, J, K	M, P, R, S	.938	.400	.844	.400
CQR29A-MG562-3-	1000	.0056	G, J, K	M, P, R, S	1.062	.400	.969	.400
CQR29A-MG682-3-	1000	.0068	G, J, K	M, P, R, S	1.062	.400	.969	.400
CQR29A-MG822-3-	1000	.0082	G, J, K	M, P, R, S	1.312	.400	1.219	.400
CQR29A-MG103-3-	1000	.010	G, J, K	M, P, R, S	1.312	.400	1.219	.400
CQR29A-MG123-3-	1000	.012	G, J, K	M, P, R, S	1.562	.400	1.469	.400
CQR29A-MG183-3-	1000	.018	G, J, K	M, P, R, S	1.250	.562	1.156	.562
CQR29A-MG223-3-	1000	.022	G, J, K	M, P, R, S	1.250	.562	1.156	.562
CQR29A-MG273-3-	1000	.027	G, J, K	M, P, R, S	1.250	.562	1.156	.562
CQR29A-MG333-3-	1000	.033	G, J, K	M, P, R, S	1.500	.562	1.406	.562
CQR29A-MG393-3-	1000	.039	G, J, K	M, P, R, S	1.875	.562	1.781	.562
CQR29A-MG473-3-	1000	.047	G, J, K	M, P, R, S	1.875	.562	1.781	.562
CQR29A-MG563-3-	1000	.056	G, J, K	M, P, R, S	1.875	.670	1.781	.670
CQR29A-MG683-3-	1000	.068	G, J, K	M, P, R, S	1.875	.670	1.781	.670
CQR29A-MG823-3-	1000	.082	G, J, K	M, P, R, S	2.125	.750	2.031	.750
CQR29A-MG104-3-	1000	.10	G, J, K	M, P, R, S	2.125	.750	2.031	.750
CQR29A-MG124-3-	1000	.12	G, J, K	M, P, R, S	1.875	1.000	1.781	1.000
CQR29A-MG154-3-	1000	.15	G, J, K	M, P, R, S	1.875	1.000	1.781	1.000
CQR29A-MG184-3-	1000	.18	G, J, K	M, P, R, S	2.375	1.000	2.281	1.000
CQR29A-MG224-3-	1000	.22	G, J, K	M, P, R, S	2.375	1.000	2.281	1.000

TABLE II. STYLES CQR29 capacitors - Continued.

- 1/ Complete part number shall include additional symbols to indicate circuit symbol, capacitance tolerance, and failure rate level, as applicable.
- 2/ Dimensions are for basic case; sleeving shall extend .016 inch minimum and .062 inch maximum, beyond each end of the capacitor body; however, if a shrink-fitted insulation is used for the sleeving, it shall lap over the ends of the capacitor body. Add .047 inch maximum to the nominal for capacitance diameter.

TABLE III. Millimeter equivalent of inches.

Inches	mm	Inches	mm	Inches	mm	Inches	mm
0.005	0.13	0.625	15.88	1.094	27.79	1.625	41.28
0.015	0.38	0.656	16.66	1.125	28.58	1.781	45.24
0.016	0.41	0.670	17.02	1.156	29.36	1.812	46.02
0.031	0.79	0.719	18.26	1.188	30.17	1.875	47.63
0.047	1.19	0.750	19.05	1.219	30.96	1.906	48.41
0.062	1.57	0.781	19.84	1.250	31.75	2.031	51.59
0.175	4.45	0.812	20.62	1.281	32.54	2.062	52.37
0.195	4.95	0.844	21.44	1.312	33.32	2.125	53.98
0.235	5.97	0.875	22.23	1.375	34.93	2.156	54.76
0.312	7.92	0.906	23.01	1.406	35.71	2.281	57.94
0.400	10.16	0.938	23.72	1.438	36.53	2.375	60.33
0.406	10.31	0.969	24.61	1.469	37.31	2.531	64.29
0.468	11.89	1.000	25.40	1.500	38.10	2.562	65.07
0.500	12.70	1.031	26.19	1.531	38.89	2.625	66.68
0.562	14.27	1.062	26.97	1.562	39.67	2.656	67.46

* NOTES:

Reference documents. In addition to [MIL-PRF-19978](#), this specification sheet references the following documents.

MIL-STD-202

Changes from previous issues. The margins of this specification are marked with asterisks to indicate where changes from 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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Army - CR
Navy - EC
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