

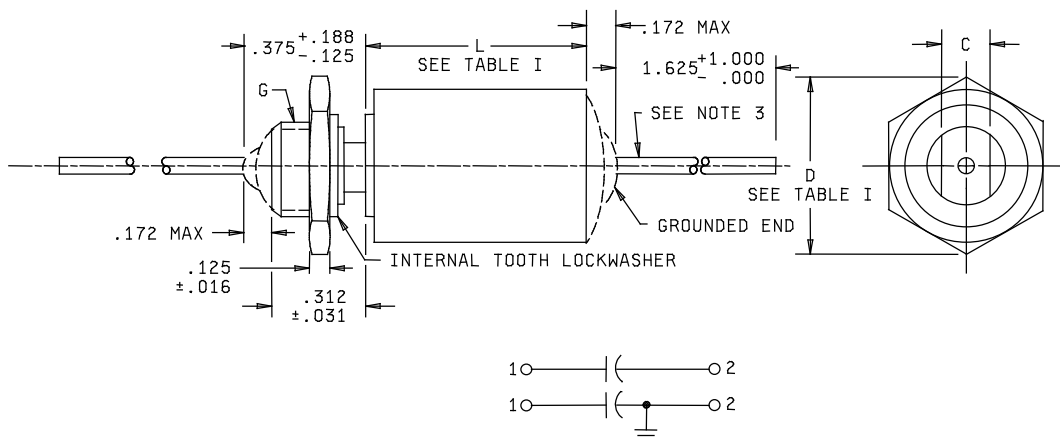
PERFORMANCE SPECIFICATION SHEET

CAPACITOR, FIXED, PLASTIC (OR PAPER-PLASTIC) DIELECTRIC,
AXIAL-WIRE TERMINAL, THREADED-STUD RETAINER, TUBULAR (UNINSULATED),
(HERMETICALLY SEALED IN METAL CASES),
ESTABLISHED RELIABILITY, STYLE CQR43

INACTIVE FOR NEW DESIGN
AFTER 20 OCTOBER 1972

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-19978](#).



NOTES:

1. Dimensions are in inches.
2. Metric equivalents are in millimeters and are given for general information only.
3. Leads shall be of tinned solid wire, .032 inch + .004 inch, -.001 inch (No. 20 AWG).
4. Mounting nuts and lockwashers shall be supplied.

Inches	mm
.001	0.03
.004	0.10
.016	0.41
.031	0.79
.032	0.81
.125	3.18
.172	4.37
.188	4.78
.312	7.92
.375	9.54
1.000	25.40
1.625	41.28

FIGURE 1. Style CQR43 capacitors.



REQUIREMENTS:

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

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

Dielectric material: Paper and polyethelene terephthalate (K).

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

Rated voltage: See [table I](#).

Rated temperature: -65° to +125°C.

Capacitance (nominal): See [table I](#).

Capacitance tolerance: ± 10 percent (symbol K).

Dissipation factor (DF) (max): 1.0 percent.

Failure rate level: M, P, R or S in accordance with [MIL-PRF-19978](#).

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

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

| Seal: [MIL-STD-202-112](#), test condition letter A.

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

Test points (see [figure 1](#), circuit diagram):

Circuit diagram 1: Between terminals and case.

Circuit diagram 3: Between ungrounded terminal and case.

| Vibration, high frequency: [MIL-STD-202-204](#), 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.

Stability at low and high temperature:

Low temperature:

Test temperature: -65°C +0°, -5°C.

Capacitance change (max): -10 percent.

High temperature:

Test temperature: +125°C +5°, -0°C.

Capacitance change (max): +10 percent.

TABLE I. Style CQR43 capacitors.

Part or identifying number (PIN) 1/	DC voltage rating (volts)	Capacitance rating (μ F)	Failure rate level	Case dimensions 2/			
				Circuit 1		Circuit 3	
				L $\pm$.031	D+.015 -.005	L $\pm$.031	D+.015 -.005
CQR43A-KB822K3-	100	.0082	M, P, R, S	.771	.400	.708	.400
CQR43A-KB103K3-	100	.010	M, P, R, S	.771	.400	.708	.400
CQR43A-KB123K3-	100	.012	M, P, R, S	.771	.400	.708	.400
CQR43A-KB153K3-	100	.015	M, P, R, S	.771	.400	.708	.400
CQR43A-KB393K3-	100	.039	M, P, R, S	.896	.400	.833	.400
CQR43A-KB473K3-	100	.047	M, P, R, S	.896	.400	.833	.400
CQR43A-KB823K3-	100	.082	M, P, R, S	.896	.400	.833	.400
CQR43A-KB104K3-	100	.10	M, P, R, S	.896	.400	.833	.400
CQR43A-KB124K3-	100	.12	M, P, R, S	1.146	.400	1.083	.400
CQR43A-KB154K3-	100	.15	M, P, R, S	1.146	.400	1.083	.400
CQR43A-KB184K3-	100	.18	M, P, R, S	1.396	.400	1.333	.400
CQR43A-KB224K3-	100	.22	M, P, R, S	1.396	.400	1.333	.400
CQR43A-KB274K3-	100	.27	M, P, R, S	1.146	.562	1.083	.562
CQR43A-KB334K3-	100	.33	M, P, R, S	1.146	.562	1.083	.562
CQR43A-KB394K3-	100	.39	M, P, R, S	1.406	.562	1.344	.562
CQR43A-KB474K3-	100	.47	M, P, R, S	1.406	.562	1.344	.562
CQR43A-KB564K3-	100	.56	M, P, R, S	1.656	.562	1.594	.562
CQR43A-KB684K3-	100	.68	M, P, R, S	1.656	.562	1.594	.562
CQR43A-KB824K3-	100	.82	M, P, R, S	1.656	.670	1.594	.670
CQR43A-KB105K3-	100	1.0	M, P, R, S	1.656	.670	1.594	.670
CQR43A-KC392K3-	200	.0039	M, P, R, S	.771	.400	.708	.400
CQR43A-KC472K3-	200	.0047	M, P, R, S	.771	.400	.708	.400
CQR43A-KC562K3-	200	.0056	M, P, R, S	.771	.400	.708	.400
CQR43A-KC682K3-	200	.0068	M, P, R, S	.771	.400	.708	.400
CQR43A-KC183K3-	200	.018	M, P, R, S	.896	.400	.833	.400
CQR43A-KC223K3-	200	.022	M, P, R, S	.896	.400	.833	.400
CQR43A-KC273K3-	200	.027	M, P, R, S	.896	.400	.833	.400
CQR43A-KC333K3-	200	.033	M, P, R, S	.896	.400	.833	.400
CQR43A-KC393K3-	200	.039	M, P, R, S	.896	.400	.833	.400
CQR43A-KC473K3-	200	.047	M, P, R, S	.896	.400	.833	.400
CQR43A-KC563K3-	200	.056	M, P, R, S	.896	.400	.833	.400
CQR43A-KC683K3-	200	.068	M, P, R, S	.896	.400	.833	.400
CQR43A-KC823K3-	200	.082	M, P, R, S	1.146	.400	1.083	.400
CQR43A-KC104K3-	200	.10	M, P, R, S	1.146	.400	1.083	.400
CQR43A-KC124K3-	200	.12	M, P, R, S	1.396	.400	1.333	.400
CQR43A-KC154K3-	200	.15	M, P, R, S	1.396	.400	1.333	.400
CQR43A-KC184K3-	200	.18	M, P, R, S	1.146	.562	1.083	.562
CQR43A-KC224K3-	200	.22	M, P, R, S	1.146	.562	1.083	.562
CQR43A-KC274K3-	200	.27	M, P, R, S	1.406	.562	1.344	.562
CQR43A-KC334K3-	200	.33	M, P, R, S	1.406	.562	1.344	.562
CQR43A-KC394K3-	200	.39	M, P, R, S	1.656	.562	1.594	.562
CQR43A-KC474K3-	200	.47	M, P, R, S	1.656	.562	1.594	.562
CQR43A-KC564K3-	200	.56	M, P, R, S	1.656	.670	1.594	.670
CQR43A-KC684K3-	200	.68	M, P, R, S	1.656	.670	1.594	.670

See footnotes at end of table.

TABLE I. Style CQR43 capacitors - Continued.

(PIN) <u>1/</u>	DC voltage rating (volts)	Capacitance rating (μ F)	Failure rate level	Case dimensions <u>2/</u>			
				Circuit 1		Circuit 3	
				L $\pm$.031	D+.015 -.005	L $\pm$.031	D+.015 -.005
CQR43A-KC824K3-	200	.82	M, P, R, S	2.156	.750	2.094	.750
CQR43A-KC105K3-	200	1.0	M, P, R, S	2.156	.750	2.094	.750
CQR43A-KE272K3-	400	.0027	M, P, R, S	.771	.400	.708	.400
CQR43A-KE332K3-	400	.0033	M, P, R, S	.771	.400	.708	.400
CQR43A-KE123K3-	400	.012	M, P, R, S	.896	.400	.833	.400
CQR43A-KE153K3-	400	.015	M, P, R, S	.896	.400	.833	.400
CQR43A-KE273K3-	400	.027	M, P, R, S	.896	.400	.833	.400
CQR43A-KE333K3-	400	.033	M, P, R, S	.896	.400	.833	.400
CQR43A-KE393K3-	400	.039	M, P, R, S	1.146	.400	1.083	.400
CQR43A-KE473K3-	400	.047	M, P, R, S	1.146	.400	1.083	.400
CQR43A-KE563K3-	400	.056	M, P, R, S	1.396	.400	1.333	.400
CQR43A-KE683K3-	400	.068	M, P, R, S	1.396	.400	1.333	.400
CQR43A-KE823K3-	400	.082	M, P, R, S	1.146	.562	1.083	.562
CQR43A-KE104K3-	400	.10	M, P, R, S	1.146	.562	1.083	.562
CQR43A-KE124K3-	400	.12	M, P, R, S	1.406	.562	1.344	.562
CQR43A-KE154K3-	400	.15	M, P, R, S	1.406	.562	1.344	.562
CQR43A-KE184K3-	400	.18	M, P, R, S	1.656	.562	1.594	.562
CQR43A-KE224K3-	400	.22	M, P, R, S	1.656	.562	1.594	.562
CQR43A-KE274K3-	400	.27	M, P, R, S	1.656	.670	1.594	.670
CQR43A-KE334K3-	400	.33	M, P, R, S	1.656	.670	1.594	.670
CQR43A-KE394K3-	400	.39	M, P, R, S	2.156	.750	2.094	.750
CQR43A-KE474K3-	400	.47	M, P, R, S	2.156	.750	2.094	.750
CQR43A-KF102K3-	600	.0010	M, P, R, S	.771	.400	.708	.400
CQR43A-KF122K3-	600	.0012	M, P, R, S	.771	.400	.708	.400
CQR43A-KF152K3-	600	.0015	M, P, R, S	.771	.400	.708	.400
CQR43A-KF182K3-	600	.0018	M, P, R, S	.771	.400	.708	.400
CQR43A-KF222K3-	600	.0022	M, P, R, S	.771	.400	.708	.400
CQR43A-KF272K3-	600	.0027	M, P, R, S	.896	.400	.833	.400
CQR43A-KF332K3-	600	.0033	M, P, R, S	.896	.400	.833	.400
CQR43A-KF392K3-	600	.0039	M, P, R, S	.896	.400	.833	.400
CQR43A-KF472K3-	600	.0047	M, P, R, S	.896	.400	.833	.400
CQR43A-KF562K3-	600	.0056	M, P, R, S	.896	.400	.833	.400
CQR43A-KF682K3-	600	.0068	M, P, R, S	.896	.400	.833	.400
CQR43A-KF822K3-	600	.0082	M, P, R, S	.896	.400	.833	.400
CQR43A-KF103K3-	600	.010	M, P, R, S	.896	.400	.833	.400
CQR43A-KF123K3-	600	.012	M, P, R, S	.896	.400	.833	.400
CQR43A-KF153K3-	600	.015	M, P, R, S	.896	.400	.833	.400
CQR43A-KF183K3-	600	.018	M, P, R, S	.896	.400	.833	.400
CQR43A-KF223K3-	600	.022	M, P, R, S	.896	.400	.833	.400
CQR43A-KF273K3-	600	.027	M, P, R, S	1.146	.400	1.083	.400
CQR43A-KF333K3-	600	.033	M, P, R, S	1.146	.400	1.083	.400
CQR43A-KF393K3-	600	.039	M, P, R, S	1.396	.400	1.333	.400
CQR43A-KF473K3-	600	.047	M, P, R, S	1.396	.400	1.333	.400
CQR43A-KF563K3-	600	.056	M, P, R, S	1.146	.562	1.083	.562
CQR43A-KF683K3-	600	.068	M, P, R, S	1.146	.562	1.083	.562
CQR43A-KF823K3-	600	.082	M, P, R, S	1.406	.562	1.344	.562
CQR43A-KF104K3-	600	.010	M, P, R, S	1.406	.562	1.344	.562

See footnotes at end of table.

TABLE I. Style CQR43 capacitors - Continued.

(PIN) <u>1/</u>	DC voltage rating (volts)	Capacitance rating (μ F)	Failure rate level	Case dimensions <u>2/</u>			
				Circuit 1		Circuit 3	
				L $\pm$.031	D+.015 -.005	L $\pm$.031	D+.015 -.005
CQR43A-KF124K3-	600	.12	M, P, R, S	1.656	.562	1.594	.562
CQR43A-KF154K3-	600	.15	M, P, R, S	1.656	.562	1.594	.562
CQR43A-KF184K3-	600	.18	M, P, R, S	1.656	.670	1.594	.670
CQR43A-KF224K3-	600	.22	M, P, R, S	1.656	.670	1.594	.670
CQR43A-KF274K3-	600	.27	M, P, R, S	2.156	.750	2.094	.750
CQR43A-KF334K3-	600	.33	M, P, R, S	2.156	.750	2.094	.750
CQR43A-KF394K3-	600	.39	M, P, R, S	2.406	.750	2.344	.750
CQR43A-KF474K3-	600	.47	M, P, R, S	2.406	.750	2.344	.750

1/ Complete PIN shall include additional symbols to indicate circuit and failure rate level, as applicable. The term Part or Identifying Number (PIN) is equivalent to the term part number which was previously used in the specification.

2/ Dimensions are in inches. See [table II](#) for metric equivalents.

TABLE II. Millimeter equivalent of decimal inches.

Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
.005	0.13	.670	17.02	.896	22.76	1.396	35.46	2.156	54.76
.015	0.38	.708	17.98	1.083	27.51	1.406	35.71	2.344	59.54
.031	0.79	.750	19.05	1.146	29.11	1.594	40.49	2.406	61.11
.400	10.16	.771	19.58	1.333	33.86	1.656	42.06		
.562	14.27	.833	21.16	1.344	34.14	2.094	53.19		

Insulation resistance (IR):

Terminal to terminal: See [table III](#).

Terminal to case: Greater than 10,000 megohms.

TABLE III. Terminal-to-terminal insulation resistance.

Capacitance rating	Minimum insulation resistance
0 to 0.6 microfarad Greater than 0.6 microfarad	<u>At +25°C</u> 25,000 megohms
	15,000 megohm-microfarads <u>1/</u>
0 to 0.08 microfarad Greater than 0.08 microfarad	<u>At +125°C</u> 250 megohms
	20 megohm-microfarads <u>1/</u>

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

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

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

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

MIL-PRF-19978/18C

Life:

Capacitance change (max): ± 5 percent.

Resistance to soldering heat: In accordance with [MIL-PRF-19978](#).

NOTE: Style CQR43 capacitors are substitutable for style CP13 capacitors formerly covered in [MIL-C-25/1K](#) as shown in [table IV](#).

TABLE IV. Substitutability data.

From	To	From	To
MIL-C-25/1K (CP13)	MIL-PRF-19978/18 (CQR43)	MIL-C-25/1K (CP13)	MIL-PRF-19978/18 (CQR43)
CP13A-KB822K-	CQR43A-KB822K3-	CP13A-KE273K-	CQR43A-KE273K3-
CP13A-KB103K-	CQR43A-KB103K3-	CP13A-KE333K-	CQR43A-KE333K3-
CP13A-KB123K-	CQR43A-KB123K3-	CP13A-KE393K-	CQR43A-KE393K3-
CP13A-KB153K-	CQR43A-KB153K3-	CP13A-KE473K-	CQR43A-KE473K3-
CP13A-KB393K-	CQR43A-KB393K3-	CP13A-KE563K-	CQR43A-KE563K3-
CP13A-KB473K-	CQR43A-KB473K3-	CP13A-KE683K-	CQR43A-KE683K3-
CP13A-KB823K-	CQR43A-KB823K3-	CP13A-KE823K-	CQR43A-KE823K3-
CP13A-KB104K-	CQR43A-KB104K3-	CP13A-KE104K-	CQR43A-KE104K3-
CP13A-KB124K-	CQR43A-KB124K3-	CP13A-KE124K-	CQR43A-KE124K3-
CP13A-KB154K-	CQR43A-KB154K3-	CP13A-KE154K-	CQR43A-KE154K3-
CP13A-KB184K-	CQR43A-KB184K3-	CP13A-KE184K-	CQR43A-KE184K3-
CP13A-KB224K-	CQR43A-KB224K3-	CP13A-KE224K-	CQR43A-KE224K3-
CP13A-KB274K-	CQR43A-KB274K3-	CP13A-KE274K-	CQR43A-KE274K3-
CP13A-KB334K-	CQR43A-KB334K3-	CP13A-KE334K-	CQR43A-KE334K3-
CP13A-KB394K-	CQR43A-KB394K3-	CP13A-KE394K-	CQR43A-KE394K3-
CP13A-KB474K-	CQR43A-KB474K3-	CP13A-KE474K-	CQR43A-KE474K3-
CP13A-KB564K-	CQR43A-KB564K3-	CP13A-KF102K-	CQR43A-KF102K3-
CP13A-KB684K-	CQR43A-KB684K3-	CP13A-KF122K-	CQR43A-KF122K3-
CP13A-KB824K-	CQR43A-KB824K3-	CP13A-KF152K-	CQR43A-KF152K3-
CP13A-KB105K-	CQR43A-KB105K3-	CP13A-KF182K-	CQR43A-KF182K3-
CP13A-KC392K-	CQR43A-KC392K3-	CP13A-KF222K-	CQR43A-KF222K3-
CP13A-KC472K-	CQR43A-KC472K3-	CP13A-KF272K-	CQR43A-KF272K3-
CP13A-KC562K-	CQR43A-KC562K3-	CP13A-KF332K-	CQR43A-KF332K3-
CP13A-KC682K-	CQR43A-KC682K3-	CP13A-KF392K-	CQR43A-KF392K3-
CP13A-KC183K-	CQR43A-KC183K3-	CP13A-KF472K-	CQR43A-KF472K3-
CP13A-KC223K-	CQR43A-KC223K3-	CP13A-KF562K-	CQR43A-KF562K3-
CP13A-KC273K-	CQR43A-KC273K3-	CP13A-KF682K-	CQR43A-KF682K3-
CP13A-KC333K-	CQR43A-KC333K3-	CP13A-KF822K-	CQR43A-KF822K3-
CP13A-KC393K-	CQR43A-KC393K3-	CP13A-KF103K-	CQR43A-KF103K3-
CP13A-KC473K-	CQR43A-KC473K3-	CP13A-KF123K-	CQR43A-KF123K3-
CP13A-KC563K-	CQR43A-KC563K3-	CP13A-KF153K-	CQR43A-KF153K3-
CP13A-KC683K-	CQR43A-KC683K3-	CP13A-KF183K-	CQR43A-KF183K3-
CP13A-KC823K-	CQR43A-KC823K3-	CP13A-KF223K-	CQR43A-KF223K3-
CP13A-KC104K-	CQR43A-KC104K3-	CP13A-KF273K-	CQR43A-KF273K3-
CP13A-KC124K-	CQR43A-KC124K3-	CP13A-KF333K-	CQR43A-KF333K3-
CP13A-KC154K-	CQR43A-KC154K3-	CP13A-KF393K-	CQR43A-KF393K3-
CP13A-KC184K-	CQR43A-KC184K3-	CP13A-KF473K-	CQR43A-KF473K3-
CP13A-KC224K-	CQR43A-KC224K3-	CP13A-KF563K-	CQR43A-KF563K3-
CP13A-KC274K-	CQR43A-KC274K3-	CP13A-KF683K-	CQR43A-KF683K3-
CP13A-KC334K-	CQR43A-KC334K3-	CP13A-KF823K-	CQR43A-KF823K3-
CP13A-KC394K-	CQR43A-KC394K3-	CP13A-KF104K-	CQR43A-KF104K3-

MIL-PRF-19978/18C

TABLE IV. Substitutability data - Continued.

From	To	From	To
MIL-C-25/1K (CP13)	MIL-PRF-19978/18 (CQR43)	MIL-C-25/1K (CP13)	MIL-PRF-19978/18 (CQR43)
CP13A-KC474K-	CQR43A-KC474K3-	CP13A-KF124K-	CQR43A-KF124K3-
CP13A-KC564K-	CQR43A-KC564K3-	CP13A-KF154K-	CQR43A-KF154K3-
CP13A-KC684K-	CQR43A-KC684K3-	CP13A-KF184K-	CQR43A-KF184K3-
CP13A-KC824K-	CQR43A-KC824K3-	CP13A-KF224K-	CQR43A-KF224K3-
CP13A-KC105K-	CQR43A-KC105K3-	CP13A-KF274K-	CQR43A-KF274K3-
CP13A-KE272K-	CQR43A-KE272K3-	CP13A-KF334K-	CQR43A-KF334K3-
CP13A-KE332K-	CQR43A-KE332K3-	CP13A-KF394K-	CQR43A-KF394K3-
CP13A-KE123K-	CQR43A-KE123K3-	CP13A-KF474K-	CQR43A-KF474K3-
CP13A-KE153K-	CQR43A-KE153K3-		

Referenced documents: In addition to [MIL-PRF-19978](#), this document references the following:

[MIL-STD-202-112](#)
[MIL-STD-202-204](#)
[MIL-STD-202-211](#)

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.

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

Preparing activity:
 DLA - CC
 (Project 5910-2022-004)

Review activities:
 Army - AR, AT, AV, MI
 Navy - AS, MC, OS, SH

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.dla.mil/>.