

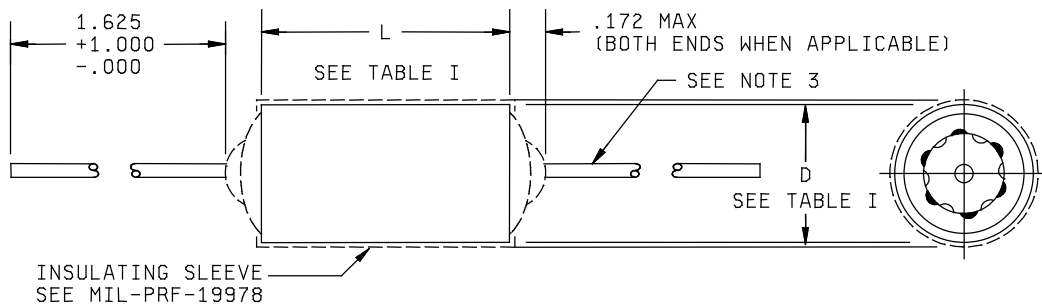
PERFORMANCE SPECIFICATION SHEET

CAPACITOR, FIXED, PLASTIC (OR PAPER-PLASTIC) DIELECTRIC,
AXIAL-WIRE TERMINAL, TUBULAR (INSULATED),
(HERMETICALLY SEALED IN METAL CASES),
STYLE CQ05

INACTIVE FOR NEW DESIGN
AFTER 30 AUGUST 1974

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:

- Dimensions are in inches.
- Metric equivalents are in millimeters and are given for general information only.
- Leads shall be of tinned solid wire, .025 inch (No. 22 AWG) for cases .235 inch and .312 inch in diameter; and .032 inch (No. 20 AWG) for cases .400 inch diameter and above. Tolerance on all lead wire diameters shall be + .004 inch, -.001 inch.
- Capacitors with dimension L. of 1.438 inches or D of .562 inch 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.
- Lead length may be a minimum of 1 inch long for use in tape and reel packaging when specified in the ordering data.

Inches	mm	Inches	mm
.001	0.03	.312	7.92
.004	0.10	.400	10.16
.025	0.64	.562	14.27
.032	0.81	1.000	25.40
.172	4.37	1.438	36.53
.235	5.97	1.625	41.28

FIGURE 1. Style CQ05 capacitors.



REQUIREMENTS:

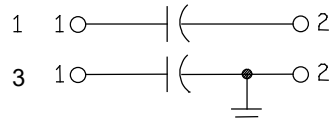
Dimensions and configuration: See [figure 1](#) and [table I](#).

Part or Identifying Number (PIN): See [table I](#).

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

Dielectric material: Paper and polyethelene terephthalate (K).

Circuit diagram:



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.

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

Dielectric withstanding voltage (DWV):

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

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

Test points:

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.

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

TABLE I. Style CQ05 capacitors.

Part or identifying number (PIN) 1/	DC voltage rating (volts)	Capacitance (μ F)	Case dimensions (inches) 2/		
			D+.010, -.020	Circuit 1 L $\pm$.031	Circuit 3 L $\pm$.031
CQ05A-KB273K3-	100	.027	0.235	0.812	0.750
CQ05A-KB333K3-	100	.033	0.235	0.812	0.750
CQ05A-KB823K3-	100	.082	0.312	0.938	0.875
CQ05A-KB104K3-	100	.10	0.312	0.938	0.875
CQ05A-KB124K3-	100	.12	0.400	0.938	0.875
CQ05A-KB154K3-	100	.15	0.400	0.938	0.875
CQ05A-KB184K3-	100	.18	0.400	1.188	1.125
CQ05A-KB224K3-	100	.22	0.400	1.188	1.125
CQ05A-KB274K3-	100	.27	0.400	1.438	1.375
CQ05A-KB334K3-	100	.33	0.400	1.438	1.375
CQ05A-KB394K3-	100	.39	0.562	1.188	1.125
CQ05A-KB474K3-	100	.47	0.562	1.188	1.125
CQ05A-KB564K3-	100	.56	0.562	1.438	1.375
CQ05A-KB684K3-	100	.68	0.562	1.438	1.375
CQ05A-KB824K3-	100	.82	0.562	1.938	1.875
CQ05A-KB105K3-	100	1.00	0.562	1.938	1.875
CQ05A-KC123K3-	200	.012	0.235	0.812	0.750
CQ05A-KC153K3-	200	.015	0.235	0.812	0.750
CQ05A-KC183K3-	200	.018	0.235	0.812	0.750
CQ05A-KC223K3-	200	.022	0.235	0.812	0.750
CQ05A-KC393K3-	200	.039	0.312	0.938	0.875
CQ05A-KC473K3-	200	.047	0.312	0.938	0.875
CQ05A-KC563K3-	200	.056	0.312	0.938	0.875
CQ05A-KC683K3-	200	.068	0.312	0.938	0.875
CQ05A-KC823K3-	200	.082	0.400	0.938	0.875
CQ05A-KC104K3-	200	.10	0.400	0.938	0.875
CQ05A-KC124K3-	200	.12	0.400	1.188	1.125
CQ05A-KC154K3-	200	.15	0.400	1.188	1.125
CQ05A-KC184K3-	200	.18	0.400	1.438	1.375
CQ05A-KC224K3-	200	.22	0.400	1.438	1.375
CQ05A-KC274K3-	200	.27	0.562	1.188	1.125
CQ05A-KC334K3-	200	.33	0.562	1.188	1.125
CQ05A-KC394K3-	200	.39	0.562	1.438	1.375
CQ05A-KC474K3-	200	.47	0.562	1.438	1.375
CQ05A-KC564K3-	200	.56	0.562	1.938	1.875
CQ05A-KC684K3-	200	.68	0.562	1.938	1.875
CQ05A-KC824K3-	200	.82	0.670	1.938	1.875
CQ05A-KC105K3-	200	1.00	0.670	1.938	1.875
CQ05A-KE822K3-	400	.0082	0.235	0.812	0.750
CQ05A-KE103K3-	400	.010	0.235	0.812	0.750
CQ05A-KE273K3-	400	.027	0.312	0.938	0.875
CQ05A-KE333K3-	400	.033	0.312	0.938	0.875
CQ05A-KE393K3-	400	.039	0.400	0.938	0.875
CQ05A-KE473K3-	400	.047	0.400	0.938	0.875
CQ05A-KE563K3-	400	.056	0.400	1.188	1.125
CQ05A-KE683K3-	400	.068	0.400	1.188	1.125

See footnotes at end of table.

MIL-PRF-19978/19D

TABLE I. Style CQ05 capacitors. - Continued.

(PIN) 1/	DC voltage rating (volts)	Capacitance (μ F)	Case dimensions (inches) 2/		
			D+.010, -.020	Circuit 1 L $\pm$.031	Circuit 3 L $\pm$.031
CQ05A-KE823K3-	400	.082	0.400	1.438	1.375
CQ05A-KE104K3-	400	.100	0.400	1.438	1.375
CQ05A-KE124K3-	400	.120	0.562	1.188	1.125
CQ05A-KE154K3-	400	.150	0.562	1.188	1.125
CQ05A-KE184K3-	400	.180	0.562	1.438	1.375
CQ05A-KE224K3-	400	.220	0.562	1.438	1.375
CQ05A-KE274K3-	400	.270	0.562	1.938	1.875
CQ05A-KE334K3-	400	.330	0.562	1.938	1.875
CQ05A-KE394K3-	400	.390	0.670	1.938	1.875
CQ05A-KE474K3-	400	.470	0.670	1.938	1.875
CQ05A-KE564K3-	400	.560	0.750	2.188	2.125
CQ05A-KE684K3-	400	.680	0.750	2.188	2.125
CQ05A-KE824K3-	400	.820	1.000	1.938	1.875
CQ05A-KE105K3-	400	1.000	1.000	1.938	1.875
CQ05A-KF102K3-	600	.001	0.235	0.812	0.750
CQ05A-KF122K3-	600	.0012	0.235	0.812	0.750
CQ05A-KF152K3-	600	.0015	0.235	0.812	0.750
CQ05A-KF182K3-	600	.0018	0.235	0.812	0.750
CQ05A-KF222K3-	600	.0022	0.235	0.812	0.750
CQ05A-KF272K3-	600	.0027	0.235	0.812	0.750
CQ05A-KF332K3-	600	.0033	0.235	0.812	0.750
CQ05A-KF392K3-	600	.0039	0.235	0.812	0.750
CQ05A-KF472K3-	600	.0047	0.235	0.812	0.750
CQ05A-KF562K3-	600	.0056	0.235	0.812	0.750
CQ05A-KF682K3-	600	.0068	0.235	0.812	0.750
CQ05A-KF822K3-	600	.0082	0.312	0.938	0.875
CQ05A-KF103K3-	600	.010	0.312	0.938	0.875
CQ05A-KF123K3-	600	.012	0.312	0.938	0.875
CQ05A-KF153K3-	600	.015	0.312	0.938	0.875
CQ05A-KF183K3-	600	.018	0.312	0.938	0.875
CQ05A-KF223K3-	600	.022	0.312	0.938	0.875
CQ05A-KF273K3-	600	.027	0.400	0.938	0.875
CQ05A-KF333K3-	600	.033	0.400	0.938	0.875
CQ05A-KF393K3-	600	.039	0.400	1.188	1.125
CQ05A-KF473K3-	600	.047	0.400	1.188	1.125
CQ05A-KF563K3-	600	.056	0.400	1.438	1.375
CQ05A-KF683K3-	600	.068	0.400	1.438	1.375
CQ05A-KF823K3-	600	.082	0.562	1.188	1.125
CQ05A-KF104K3-	600	.10	0.562	1.188	1.125
CQ05A-KF124K3-	600	.12	0.562	1.438	1.375
CQ05A-KF154K3-	600	.15	0.562	1.438	1.375
CQ05A-KF184K3-	600	.18	0.562	1.938	1.875
CQ05A-KF224K3-	600	.22	0.562	1.938	1.875
CQ05A-KF274K3-	600	.27	0.562	1.938	1.875
CQ05A-KF334K3-	600	.33	0.562	1.938	1.875
CQ05A-KF394K3-	600	.39	0.750	2.188	2.125
CQ05A-KF474K3-	600	.47	0.750	2.188	2.125
CQ05A-KF564K3-	600	.56	1.000	1.938	1.875
CQ05A-KF684K3-	600	.68	1.000	1.938	1.875

See footnotes at end of table.

MIL-PRF-19978/19D

TABLE I. Style CQ05 capacitors. - Continued.

(PIN) <u>1/</u>	DC voltage rating (volts)	Capacitance (μ F)	Case dimensions (inches) <u>2/</u>		
			D+.010, -.020	Circuit 1 L $\pm$.031	Circuit 3 L $\pm$.031
CQ05A-KG153K3-	1000	.015	0.400	0.938	0.875
CQ05A-KG223K3-	1000	0.022	0.400	1.188	1.125
CQ05A-KG273K3-	1000	0.027	0.400	1.438	1.375
CQ05A-KG333K3-	1000	0.033	0.400	1.438	1.375
CQ05A-KG473K3-	1000	0.047	0.562	1.188	1.125
CQ05A-KG563K3-	1000	0.056	0.562	1.438	1.375
CQ05A-KG683K3-	1000	0.068	0.562	1.438	1.375
CQ05A-KG823K3-	1000	0.082	0.562	1.688	1.625
CQ05A-KG104K3-	1000	0.10	0.562	1.688	1.625
CQ05A-KG124K3-	1000	0.12	0.670	1.688	1.625
CQ05A-KG154K3-	1000	0.15	0.670	1.688	1.625
CQ05A-KG224K3-	1000	0.22	0.750	2.188	2.125
CQ05A-KG274K3-	1000	0.27	0.750	2.688	2.625
CQ05A-KG334K3-	1000	0.33	0.750	2.688	2.625
CQ05A-KG474K3-	1000	0.47	1.000	2.188	2.125

1/ Complete PIN shall include additional symbol to indicate circuit.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
0.010	0.25	0.400	10.16	0.875	22.23	1.375	34.93	1.938	49.23
0.020	0.51	0.562	14.27	0.938	23.83	1.438	36.53	2.125	53.98
0.031	0.79	0.670	17.02	1.000	25.40	1.625	41.28	2.188	55.58
0.235	5.97	0.750	19.05	1.125	28.58	1.688	42.88	2.625	66.68
0.312	7.92	0.812	20.62	1.188	30.18	1.875	47.63	2.688	68.28

Insulation resistance (IR):

Sleeving: In accordance with [MIL-PRF-19978](#).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	<u>At 25°C</u> 25,000 megohms
Greater than 0.6 microfarad	15,000 megohm-microfarads <u>1/</u>
0 to 0.08 microfarad	<u>At 125°C</u> 250 megohms
Greater than 0.08 microfarad	20 megohm-microfarads <u>1/</u>

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

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

Moisture resistance:

DWV:

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

IR:

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

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.

Life:

Capacitance change (max): ± 5 percent.

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

Substitution data: See [table IV](#). Style CQ05 capacitors are substitutable for styles CP04 and CP05 capacitors formerly covered in [MIL-C-25/1K](#).

MIL-PRF-19978/19D

TABLE IV. Substitutability data.

From MIL-C-25/1K (CP04 and CP05)	To MIL-PRF-19978/19 (CQ05)	From MIL-C-25/1K (CP04 and CP05)	To MIL-PRF-19978/19 (CQ05)
CP0-A-KB273K-	CQ05A-KB273K3-	CP0-A-KC223K-	CQ05A-KC223K3-
CP0-A-KB333K-	CQ05A-KB333K3-	CP0-A-KC393K-	CQ05A-KC393K3-
CP0-A-KB823K-	CQ05A-KB823K3-	CP0-A-KC473K-	CQ05A-KC473K3-
CP0-A-KB104K-	CQ05A-KB104K3-	CP0-A-KC563K-	CQ05A-KC563K3-
CP0-A-KB124K-	CQ05A-KB124K3-	CP0-A-KC683K-	CQ05A-KC683K3-
CP0-A-KB154K-	CQ05A-KB154K3-	CP0-A-KC823K-	CQ05A-KC823K3-
CP0-A-KB184K-	CQ05A-KB184K3-	CP0-A-KC104K-	CQ05A-KC104K3-
CP0-A-KB224K-	CQ05A-KB224K3-	CP0-A-KC124K-	CQ05A-KC124K3-
CP0-A-KB274K-	CQ05A-KB274K3-	CP0-A-KC154K-	CQ05A-KC154K3-
CP0-A-KB334K-	CQ05A-KB334K3-	CP0-A-KC184K-	CQ05A-KC184K3-
CP0-A-KB394K-	CQ05A-KB394K3-	CP0-A-KC224K-	CQ05A-KC224K3-
CP0-A-KB474K-	CQ05A-KB474K3-	CP0-A-KC274K-	CQ05A-KC274K3-
CP0-A-KB564K-	CQ05A-KB564K3-	CP0-A-KC334K-	CQ05A-KC334K3-
CP0-A-KB684K-	CQ05A-KB684K3-	CP0-A-KC394K-	CQ05A-KC394K3-
CP0-A-KB824K-	CQ05A-KB824K3-	CP0-A-KC474K-	CQ05A-KC474K3-
CP0-A-KB105K-	CQ05A-KB105K3-	CP0-A-KC564K-	CQ05A-KC564K3-
CP0-A-KC123K-	CQ05A-KC123K3-	CP0-A-KC684K-	CQ05A-KC684K3-
CP0-A-KC153K-	CQ05A-KC153K3-	CP0-A-KC824K-	CQ05A-KC824K3-
CP0-A-KC183K-	CQ05A-KC183K3-	CP0-A-KC105K-	CQ05A-KC105K3-
CP0-A-KE822K-	CQ05A-KE822K3-	CP0-A-KF153K-	CQ05A-KF153K3-
CP0-A-KE103K-	CQ05A-KE103K3-	CP0-A-KF183K-	CQ05A-KF183K3-
CP0-A-KE273K-	CQ05A-KE273K3-	CP0-A-KF223K-	CQ05A-KF223K3-
CP0-A-KE333K-	CQ05A-KE333K3-	CP0-A-KF273K-	CQ05A-KF273K3-
CP0-A-KE393K-	CQ05A-KE393K3-	CP0-A-KF333K-	CQ05A-KF333K3-
CP0-A-KE473K-	CQ05A-KE473K3-	CP0-A-KF393K-	CQ05A-KF393K3-
CP0-A-KE563K-	CQ05A-KE563K3-	CP0-A-KF473K-	CQ05A-KF473K3-
CP0-A-KE683K-	CQ05A-KE683K3-	CP0-A-KF563K-	CQ05A-KF563K3-
CP0-A-KE823K-	CQ05A-KE823K3-	CP0-A-KF683K-	CQ05A-KF683K3-
CP0-A-KE104K-	CQ05A-KE104K3-	CP0-A-KF823K-	CQ05A-KF823K3-
CP0-A-KE124K-	CQ05A-KE124K3-	CP0-A-KF104K-	CQ05A-KF104K3-
CP0-A-KE154K-	CQ05A-KE154K3-	CP0-A-KF124K-	CQ05A-KF124K3-
CP0-A-KE184K-	CQ05A-KE184K3-	CP0-A-KF154K-	CQ05A-KF154K3-
CP0-A-KE224K-	CQ05A-KE224K3-	CP0-A-KF184K-	CQ05A-KF184K3-
CP0-A-KE274K-	CQ05A-KE274K3-	CP0-A-KF224K-	CQ05A-KF224K3-
CP0-A-KE334K-	CQ05A-KE334K3-	CP0-A-KF274K-	CQ05A-KF274K3-
CP0-A-KE394K-	CQ05A-KE394K3-	CP0-A-KF334K-	CQ05A-KF334K3-
CP0-A-KE474K-	CQ05A-KE474K3-	CP0-A-KF394K-	CQ05A-KF394K3-
CP0-A-KE564K-	CQ05A-KE564K3-	CP0-A-KF474K-	CQ05A-KF474K3-
CP0-A-KE684K-	CQ05A-KE684K3-	CP0-A-KF564K-	CQ05A-KF564K3-
CP0-A-KE824K-	CQ05A-KE824K3-	CP0-A-KF684K-	CQ05A-KF684K3-
CP0-A-KE105K-	CQ05A-KE105K3-	CP0-A-KG153K-	CQ05A-KG153K3-
CP0-A-KF102K-	CQ05A-KF102K3-	CP0-A-KG223K-	CQ05A-KG223K3-
CP0-A-KF122K-	CQ05A-KF122K3-	CP0-A-KG273K-	CQ05A-KG273K3-
CP0-A-KF152K-	CQ05A-KF152K3-	CP0-A-KG333K-	CQ05A-KG333K3-
CP0-A-KF182K-	CQ05A-KF182K3-	CP0-A-KG473K-	CQ05A-KG473K3-
CP0-A-KF222K-	CQ05A-KF222K3-	CP0-A-KG563K-	CQ05A-KG563K3-
CP0-A-KF272K-	CQ05A-KF272K3-	CP0-A-KG683K-	CQ05A-KG683K3-
CP0-A-KF332K-	CQ05A-KF332K3-	CP0-A-KG823K-	CQ05A-KG823K3-
CP0-A-KF392K-	CQ05A-KF392K3-	CP0-A-KG104K-	CQ05A-KG104K3-
CP0-A-KF472K-	CQ05A-KF472K3-	CP0-A-KG124K-	CQ05A-KG124K3-

MIL-PRF-19978/19D

TABLE IV. Substitutability data - Continued.

From	To	From	To
MIL-C-25/1K (CP04 and CP05)	MIL-PRF-19978/19 (CQ05)	MIL-C-25/1K (CP04 and CP05)	MIL-PRF-19978/19 (CQ05)
CP0-A-KF562K-	CQ05A-KF562K3-	CP0-A-KG154K-	CQ05A-KG154K3-
CP0-A-KF682K-	CQ05A-KF682K3-	CP0-A-KG224K-	CQ05A-KG224K3-
CP0-A-KF822K-	CQ05A-KF822K3-	CP0-A-KG274K-	CQ05A-KG274K3-
CP0-A-KF103K-	CQ05A-KF103K3-	CP0-A-KG334K-	CQ05A-KG334K3-
CP0-A-KF123K-	CQ05A-KF123K3-	CP0-A-KG474K-	CQ05A-KG474K3-

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 5910-2022-005)

Review activities:

Army - AR, AT, AV, MI
Navy - AS, MC, OS, SH
Air Force - 19

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/>.