



## MIL Style CQR09, CQR12, and CQR13

# Hermetically-Sealed DIFILM<sup>®</sup> Capacitors TO MILITARY SPECIFICATION MIL-C-19978

ESTABLISHED RELIABILITY DIFILM capacitors to the latest issue of Military Specification MIL-C-19978 are manufactured by Sprague as MIL Styles CQR09, CQR12, and CQR13. These miniature tubular extended-foil, polyester-film and paper dielectric capacitors are furnished to meet all of the requirements of the military specification. They replace and are directly interchangeable with Styles CQ09, CQ12, and CQ13 (characteristic 'K') of the same capacitance, tolerance, and voltage.

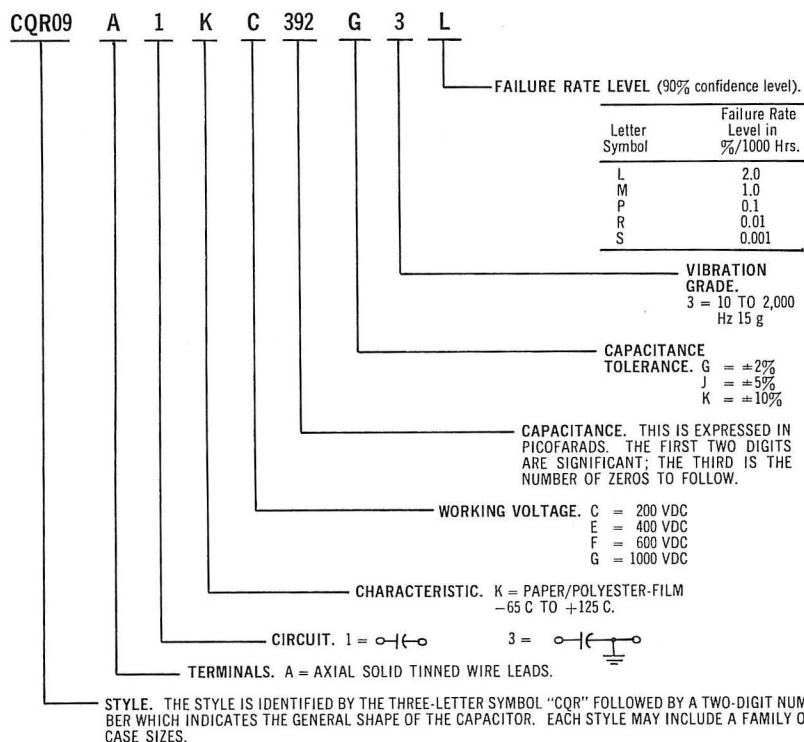
MIL-C-19978 establishes 1,000 hour failure rate levels of 2%, 1%, 0.1%, 0.01%, and 0.001%. Care must be exercised in ordering these parts that the type

designation expressing the appropriate failure rate level is specified.

The Sprague Electric Company manufactures these miniature hermetically-sealed MIL parts to standards of quality and reliability in excess of the military requirements. Tight controls on raw materials, production, and testing assure uniformity of product. The world-wide facilities of Sprague Electric are available for information or assistance in the application of these capacitors.

For detailed information on the minimum performance characteristics of these capacitors, please refer to the latest issue of Military Specification MIL-C-19978.

### MILITARY SPECIFICATION MIL-C-19978 PART NUMBERING SYSTEM



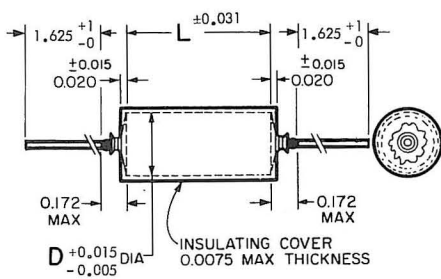
**TABLE OF DIMENSIONS IN INCHES**

Case Code*	Circuit 1		Circuit 3	
	L ±.031 (.79)	D +.015 (.38) -.005 (.13)	L ±.031 (.79)	D +.015 (.38) -.005 (.13)
A	0.750 (19.05)	0.235 ( 5.97)	0.688 (17.48)	0.235 ( 5.97)
B	0.875 (22.23)	0.312 ( 7.92)	0.812 (20.62)	0.312 ( 7.92)
C	0.875 (22.23)	0.400 (10.16)	0.812 (20.62)	0.400 (10.16)
D	1.125 (28.58)	0.400 (10.16)	1.062 (27.08)	0.400 (10.16)
E	1.375 (34.93)	0.400 (10.16)	1.312 (33.32)	0.400 (10.16)
F	1.125 (28.58)	0.562 (14.27)	1.062 (27.08)	0.562 (14.27)
G	1.375 (34.93)	0.562 (14.27)	1.312 (33.32)	0.562 (14.27)
H	1.625 (41.28)	0.562 (14.27)	1.562 (39.67)	0.562 (14.27)
J	1.625 (41.28)	0.670 (17.02)	1.562 (39.67)	0.670 (17.02)
K	1.875 (47.63)	0.670 (17.02)	1.812 (46.02)	0.670 (17.02)
L	2.125 (53.98)	0.750 (19.05)	2.062 (52.48)	0.750 (19.05)
M	2.375 (60.33)	0.750 (19.05)	2.312 (58.72)	0.750 (19.05)
N	2.125 (53.98)	1.000 (25.40)	2.062 (52.48)	1.000 (25.40)
P	2.375 (60.33)	1.000 (25.40)	2.312 (58.72)	1.000 (25.40)
Q	0.750 (19.05)	0.400 (10.16)	0.688 (17.48)	0.400 (10.16)

Metric dimensions are shown in parenthesis and are based on 1.000 inch = 25.4 mm.

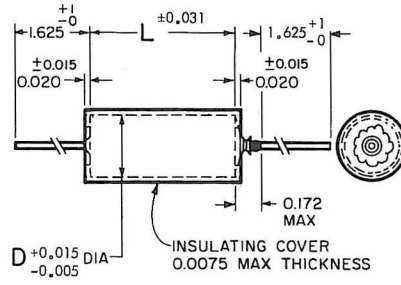
\*The case code is adopted by Sprague to simplify the bulletin format, and is not a part of the military specification.

**SPRAGUE ENGINEERING BULLETIN No. 2310.7**



DWG. No. A-9597A

**CIRCUIT 1**



DWG. No. A-9598A

**CIRCUIT 3**

D	Lead Size
0.235 to 0.312	0.025" Dia. (No. 22 AWG)
0.400 and over	0.032" Dia. (No. 20 AWG)

**STYLE CQR09**

Capacitance $\mu$ F	Case Code**	SECTION INSULATED FROM CASE Circuit 1 Type Designation*	SECTION GROUNDED TO CASE Circuit 3 Type Designation*	Capacitance $\mu$ F	Case Code**	SECTION INSULATED FROM CASE Circuit 1 Type Designation*	SECTION GROUNDED TO CASE Circuit 3 Type Designation*
		200 VOLTS D-C WORKING				400 VOLTS D-C WORKING	
.0039	A	CQR09A1KC392-3-	CQR09A3KC392-3-	.0027	A	CQR09A1KE272-3-	CQR09A3KE272-3-
.0047	A	CQR09A1KC472-3-	CQR09A3KC472-3-	.0033	A	CQR09A1KE332-3-	CQR09A3KE332-3-
.0056	A	CQR09A1KC562-3-	CQR09A3KC562-3-	.012	B	CQR09A1KE123-3-	CQR09A3KE123-3-
.0068	A	CQR09A1KC682-3-	CQR09A3KC682-3-	.015	B	CQR09A1KE153-3-	CQR09A3KE153-3-
.018	B	CQR09A1KC183-3-	CQR09A3KC183-3-	.027	C	CQR09A1KE273-3-	CQR09A3KE273-3-
.022	B	CQR09A1KC223-3-	CQR09A3KC223-3-	.033	C	CQR09A1KE333-3-	CQR09A3KE333-3-
.027	B	CQR09A1KC273-3-	CQR09A3KC273-3-	.039	D	CQR09A1KE393-3-	CQR09A3KE393-3-
.033	B	CQR09A1KC333-3-	CQR09A3KC333-3-	.047	D	CQR09A1KE473-3-	CQR09A3KE473-3-
.039	C	CQR09A1KC393-3-	CQR09A3KC393-3-	.056	E	CQR09A1KE563-3-	CQR09A3KE563-3-
.047	C	CQR09A1KC473-3-	CQR09A3KC473-3-	.068	E	CQR09A1KE683-3-	CQR09A3KE683-3-
.056	C	CQR09A1KC563-3-	CQR09A3KC563-3-	.082	F	CQR09A1KE823-3-	CQR09A3KE823-3-
.068	C	CQR09A1KC683-3-	CQR09A3KC683-3-	.10	F	CQR09A1KE104-3-	CQR09A3KE104-3-
.082	D	CQR09A1KC823-3-	CQR09A3KC823-3-	.12	G	CQR09A1KE124-3-	CQR09A3KE124-3-
.10	D	CQR09A1KC104-3-	CQR09A3KC104-3-	.15	G	CQR09A1KE154-3-	CQR09A3KE154-3-
.12	E	CQR09A1KC124-3-	CQR09A3KC124-3-	.18	H	CQR09A1KE184-3-	CQR09A3KE184-3-
.15	E	CQR09A1KC154-3-	CQR09A3KC154-3-	.22	H	CQR09A1KE224-3-	CQR09A3KE224-3-
.18	F	CQR09A1KC184-3-	CQR09A3KC184-3-	.27	J	CQR09A1KE274-3-	CQR09A3KE274-3-
.22	F	CQR09A1KC224-3-	CQR09A3KC224-3-	.33	J	CQR09A1KE334-3-	CQR09A3KE334-3-
.27	G	CQR09A1KC274-3-	CQR09A3KC274-3-	.39	L	CQR09A1KE394-3-	CQR09A3KE394-3-
.33	G	CQR09A1KC334-3-	CQR09A3KC334-3-	.47	L	CQR09A1KE474-3-	CQR09A3KE474-3-
.39	H	CQR09A1KC394-3-	CQR09A3KC394-3-				
.47	H	CQR09A1KC474-3-	CQR09A3KC474-3-				
.56	J	CQR09A1KC564-3-	CQR09A3KC564-3-				
.68	J	CQR09A1KC684-3-	CQR09A3KC684-3-				
.82	L	CQR09A1KC824-3-	CQR09A3KC824-3-				
1.0	L	CQR09A1KC105-3-	CQR09A3KC105-3-				

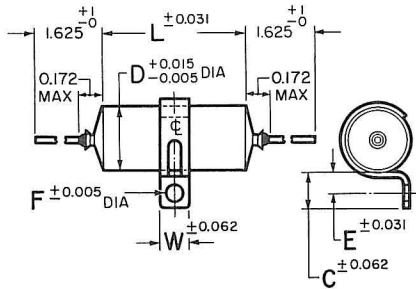
\*Complete type designation will include additional symbols to indicate capacitance tolerance and failure rate level.  
 \*\*The case code is adopted by Sprague to simplify the bulletin format, and is not a part of the military specification.

**SPRAGUE ENGINEERING BULLETIN No. 2310.7**

Capacitance $\mu$ F	Case Code**	SECTION INSULATED	SECTION GROUNDED	Capacitance $\mu$ F	Case Code**	SECTION INSULATED	SECTION GROUNDED
		FROM CASE Circuit 1 Type Designation*	TO CASE Circuit 3 Type Designation*			FROM CASE Circuit 1 Type Designation*	TO CASE Circuit 3 Type Designation*
<b>600 VOLTS D-C WORKING</b>				<b>1000 VOLTS D-C WORKING</b>			
.0010	A	CQR09A1KF102-3-	CQR09A3KF102-3-	.0010	C	CQR09A1KG102-3-	CQR09A3KG102-3-
.0012	A	CQR09A1KF122-3-	CQR09A3KF122-3-	.0012	C	CQR09A1KG122-3-	CQR09A3KG122-3-
.0015	A	CQR09A1KF152-3-	CQR09A3KF152-3-	.0015	C	CQR09A1KG152-3-	CQR09A3KG152-3-
.0018	A	CQR09A1KF182-3-	CQR09A3KF182-3-	.0018	C	CQR09A1KG182-3-	CQR09A3KG182-3-
.0022	A	CQR09A1KF222-3-	CQR09A3KF222-3-	.0022	C	CQR09A1KG222-3-	CQR09A3KG222-3-
.0027	B	CQR09A1KF272-3-	CQR09A3KF272-3-	.0027	C	CQR09A1KG272-3-	CQR09A3KG272-3-
.0033	B	CQR09A1KF332-3-	CQR09A3KF332-3-	.0033	C	CQR09A1KG332-3-	CQR09A3KG332-3-
.0039	B	CQR09A1KF392-3-	CQR09A3KF392-3-	.0039	C	CQR09A1KG392-3-	CQR09A3KG392-3-
.0047	B	CQR09A1KF472-3-	CQR09A3KF472-3-	.0047	C	CQR09A1KG472-3-	CQR09A3KG472-3-
.0056	B	CQR09A1KF562-3-	CQR09A3KF562-3-	.0056	C	CQR09A1KG562-3-	CQR09A3KG562-3-
.0068	B	CQR09A1KF682-3-	CQR09A3KF682-3-	.0068	C	CQR09A1KG682-3-	CQR09A3KG682-3-
.0082	B	CQR09A1KF822-3-	CQR09A3KF822-3-	.0082	C	CQR09A1KG822-3-	CQR09A3KG822-3-
.010	B	CQR09A1KF103-3-	CQR09A3KF103-3-	.010	C	CQR09A1KG103-3-	CQR09A3KG103-3-
.012	C	CQR09A1KF123-3-	CQR09A3KF123-3-	.012	D	CQR09A1KG123-3-	CQR09A3KG123-3-
.015	C	CQR09A1KF153-3-	CQR09A3KF153-3-	.015	D	CQR09A1KG153-3-	CQR09A3KG153-3-
.018	C	CQR09A1KF183-3-	CQR09A3KF183-3-	.018	E	CQR09A1KG183-3-	CQR09A3KG183-3-
.022	C	CQR09A1KF223-3-	CQR09A3KF223-3-	.022	E	CQR09A1KG223-3-	CQR09A3KG223-3-
.027	D	CQR09A1KF273-3-	CQR09A3KF273-3-	.027	F	CQR09A1KG273-3-	CQR09A3KG273-3-
.033	D	CQR09A1KF333-3-	CQR09A3KF333-3-	.033	F	CQR09A1KG333-3-	CQR09A3KG333-3-
.039	E	CQR09A1KF393-3-	CQR09A3KF393-3-	.039	G	CQR09A1KG393-3-	CQR09A3KG393-3-
.047	E	CQR09A1KF473-3-	CQR09A3KF473-3-	.047	G	CQR09A1KG473-3-	CQR09A3KG473-3-
.056	F	CQR09A1KF563-3-	CQR09A3KF563-3-	.056	H	CQR09A1KG563-3-	CQR09A3KG563-3-
.068	F	CQR09A1KF683-3-	CQR09A3KF683-3-	.068	H	CQR09A1KG683-3-	CQR09A3KG683-3-
.082	G	CQR09A1KF823-3-	CQR09A3KF823-3-	.082	J	CQR09A1KG823-3-	CQR09A3KG823-3-
.10	G	CQR09A1KF104-3-	CQR09A3KF104-3-	.10	J	CQR09A1KG104-3-	CQR09A3KG104-3-
.12	H	CQR09A1KF124-3-	CQR09A3KF124-3-	.12	K	CQR09A1KG124-3-	CQR09A3KG124-3-
.15	H	CQR09A1KF154-3-	CQR09A3KF154-3-	.15	K	CQR09A1KG154-3-	CQR09A3KG154-3-
.18	J	CQR09A1KF184-3-	CQR09A3KF184-3-	.18	L	CQR09A1KG184-3-	CQR09A3KG184-3-
.22	J	CQR09A1KF224-3-	CQR09A3KF224-3-	.22	L	CQR09A1KG224-3-	CQR09A3KG224-3-
.27	L	CQR09A1KF274-3-	CQR09A3KF274-3-	.27	N	CQR09A1KG274-3-	CQR09A3KG274-3-
.33	L	CQR09A1KF334-3-	CQR09A3KF334-3-	.33	N	CQR09A1KG334-3-	CQR09A3KG334-3-
.39	M	CQR09A1KF394-3-	CQR09A3KF394-3-	.39	P	CQR09A1KG394-3-	CQR09A3KG394-3-
.47	M	CQR09A1KF474-3-	CQR09A3KF474-3-	.47	P	CQR09A1KG474-3-	CQR09A3KG474-3-

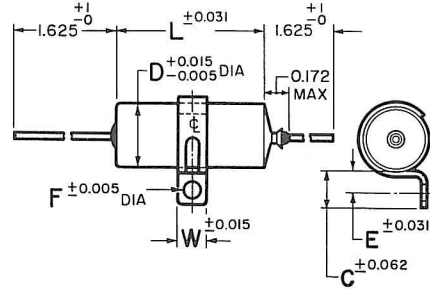
\*Complete type designation will include additional symbols to indicate capacitance tolerance and failure rate level.

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DWG. No. A-6535B

CIRCUIT 1



DWG. No. A-6537B

CIRCUIT 3

D	H	G	E	F	Lead Size
Less than 0.400	0.312	0.250	0.188	0.144	0.025" Dia. (No. 22 AWG)
0.400	0.312	0.250	0.188	0.144	0.032" Dia. (No. 20 AWG)
0.562 and up	0.438	0.500	0.250	0.156	0.032" Dia. (No. 20 AWG)

## STYLE CQR12

Capacitance μF	Case Code**	SECTION INSULATED FROM CASE Circuit 1 Type Designation*	SECTION GROUNDED TO CASE Circuit 3 Type Designation*	Capacitance μF	Case Code**	SECTION INSULATED FROM CASE Circuit 1 Type Designation*	SECTION GROUNDED TO CASE Circuit 3 Type Designation*
		200 VOLTS D-C WORKING				400 VOLTS D-C WORKING	
.0039	A	CQR12A1KC392-3-	CQR12A3KC392-3-	.0027	A	CQR12A1KE272-3-	CQR12A3KE272-3-
.0047	A	CQR12A1KC472-3-	CQR12A3KC472-3-	.0033	A	CQR12A1KE332-3-	CQR12A3KE332-3-
.0056	A	CQR12A1KC562-3-	CQR12A3KC562-3-	.012	B	CQR12A1KE123-3-	CQR12A3KE123-3-
.0068	A	CQR12A1KC682-3-	CQR12A3KC682-3-	.015	B	CQR12A1KE153-3-	CQR12A3KE153-3-
.018	B	CQR12A1KC183-3-	CQR12A3KC183-3-	.027	C	CQR12A1KE273-3-	CQR12A3KE273-3-
.022	B	CQR12A1KC223-3-	CQR12A3KC223-3-	.033	C	CQR12A1KE333-3-	CQR12A3KE333-3-
.027	B	CQR12A1KC273-3-	CQR12A3KC273-3-	.039	D	CQR12A1KE393-3-	CQR12A3KE393-3-
.033	B	CQR12A1KC333-3-	CQR12A3KC333-3-	.047	D	CQR12A1KE473-3-	CQR12A3KE473-3-
.039	C	CQR12A1KC393-3-	CQR12A3KC393-3-	.056	E	CQR12A1KE563-3-	CQR12A3KE563-3-
.047	C	CQR12A1KC473-3-	CQR12A3KC473-3-	.068	E	CQR12A1KE683-3-	CQR12A3KE683-3-
.056	C	CQR12A1KC563-3-	CQR12A3KC563-3-	.082	F	CQR12A1KE823-3-	CQR12A3KE823-3-
.068	C	CQR12A1KC683-3-	CQR12A3KC683-3-	.10	F	CQR12A1KE104-3-	CQR12A3KE104-3-
.082	D	CQR12A1KC823-3-	CQR12A3KC823-3-	.12	G	CQR12A1KE124-3-	CQR12A3KE124-3-
.10	D	CQR12A1KC104-3-	CQR12A3KC104-3-	.15	G	CQR12A1KE154-3-	CQR12A3KE154-3-
.12	E	CQR12A1KC124-3-	CQR12A3KC124-3-	.18	H	CQR12A1KE184-3-	CQR12A3KE184-3-
.15	E	CQR12A1KC154-3-	CQR12A3KC154-3-	.22	H	CQR12A1KE224-3-	CQR12A3KE224-3-
.18	F	CQR12A1KC184-3-	CQR12A3KC184-3-	.27	J	CQR12A1KE274-3-	CQR12A3KE274-3-
.22	F	CQR12A1KC224-3-	CQR12A3KC224-3-	.33	J	CQR12A1KE334-3-	CQR12A3KE334-3-
.27	G	CQR12A1KC274-3-	CQR12A3KC274-3-	.39	L	CQR12A1KE394-3-	CQR12A3KE394-3-
.33	G	CQR12A1KC334-3-	CQR12A3KC334-3-	.47	L	CQR12A1KE474-3-	CQR12A3KE474-3-
.39	H	CQR12A1KC394-3-	CQR12A3KC394-3-				
.47	H	CQR12A1KC474-3-	CQR12A3KC474-3-				
.56	J	CQR12A1KC564-3-	CQR12A3KC564-3-				
.68	J	CQR12A1KC684-3-	CQR12A3KC684-3-				
.82	L	CQR12A1KC824-3-	CQR12A3KC824-3-				
1.0	L	CQR12A1KC105-3-	CQR12A3KC105-3-				

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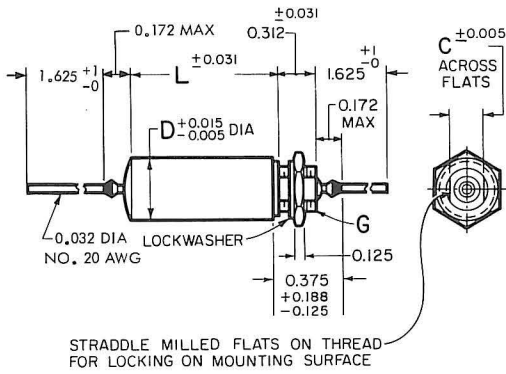
**SPRAGUE ENGINEERING BULLETIN No. 2310.7**

Capacitance $\mu$ F	Case Code**	SECTION INSULATED	SECTION GROUNDED	Capacitance $\mu$ F	Case Code**	SECTION INSULATED	SECTION GROUNDED
		FROM CASE Circuit 1 Type Designation*	TO CASE Circuit 3 Type Designation*			FROM CASE Circuit 1 Type Designation*	TO CASE Circuit 3 Type Designation*
<b>600 VOLTS D-C WORKING†</b>				<b>1000 VOLTS D-C WORKING†</b>			
.0010	A	CQR12A1KF102-3-	CQR12A3KF102-3-	.0010	C	CQR12A1KG102-3-	CQR12A3KG102-3-
.0012	A	CQR12A1KF122-3-	CQR12A3KF122-3-	.0012	C	CQR12A1KG122-3-	CQR12A3KG122-3-
.0015	A	CQR12A1KF152-3-	CQR12A3KF152-3-	.0015	C	CQR12A1KG152-3-	CQR12A3KG152-3-
.0018	A	CQR12A1KF182-3-	CQR12A3KF182-3-	.0018	C	CQR12A1KG182-3-	CQR12A3KG182-3-
.0022	A	CQR12A1KF222-3-	CQR12A3KF222-3-	.0022	C	CQR12A1KG222-3-	CQR12A3KG222-3-
.0027	B	CQR12A1KF272-3-	CQR12A3KF272-3-	.0027	C	CQR12A1KG272-3-	CQR12A3KG272-3-
.0033	B	CQR12A1KF332-3-	CQR12A3KF332-3-	.0033	C	CQR12A1KG332-3-	CQR12A3KG332-3-
.0039	B	CQR12A1KF392-3-	CQR12A3KF392-3-	.0039	C	CQR12A1KG392-3-	CQR12A3KG392-3-
.0047	B	CQR12A1KF472-3-	CQR12A3KF472-3-	.0047	C	CQR12A1KG472-3-	CQR12A3KG472-3-
.0056	B	CQR12A1KF562-3-	CQR12A3KF562-3-	.0056	C	CQR12A1KG562-3-	CQR12A3KG562-3-
.0068	B	CQR12A1KF682-3-	CQR12A3KF682-3-	.0068	C	CQR12A1KG682-3-	CQR12A3KG682-3-
.0082	B	CQR12A1KF822-3-	CQR12A3KF822-3-	.0082	C	CQR12A1KG822-3-	CQR12A3KG822-3-
.010	B	CQR12A1KF103-3-	CQR12A3KF103-3-	.010	C	CQR12A1KG103-3-	CQR12A3KG103-3-
.012	C	CQR12A1KF123-3-	CQR12A3KF123-3-	.012	D	CQR12A1KG123-3-	CQR12A3KG123-3-
.015	C	CQR12A1KF153-3-	CQR12A3KF153-3-	.015	D	CQR12A1KG153-3-	CQR12A3KG153-3-
.018	C	CQR12A1KF183-3-	CQR12A3KF183-3-	.018	E	CQR12A1KG183-3-	CQR12A3KG183-3-
.022	C	CQR12A1KF223-3-	CQR12A3KF223-3-	.022	E	CQR12A1KG223-3-	CQR12A3KG223-3-
.027	D	CQR12A1KF273-3-	CQR12A3KF273-3-	.027	F	CQR12A1KG273-3-	CQR12A3KG273-3-
.033	D	CQR12A1KF333-3-	CQR12A3KF333-3-	.033	F	CQR12A1KG333-3-	CQR12A3KG333-3-
.039	E	CQR12A1KF393-3-	CQR12A3KF393-3-	.039	G	CQR12A1KG393-3-	CQR12A3KG393-3-
.047	E	CQR12A1KF473-3-	CQR12A3KF473-3-	.047	G	CQR12A1KG473-3-	CQR12A3KG473-3-
.056	F	CQR12A1KF563-3-	CQR12A3KF563-3-	.056	H	CQR12A1KG563-3-	CQR12A3KG563-3-
.068	F	CQR12A1KF683-3-	CQR12A3KF683-3-	.068	H	CQR12A1KG683-3-	CQR12A3KG683-3-
.082	G	CQR12A1KF823-3-	CQR12A3KF823-3-	.082	J	CQR12A1KG823-3-	CQR12A3KG823-3-
.10	G	CQR12A1KF104-3-	CQR12A3KF104-3-	.10	J	CQR12A1KG104-3-	CQR12A3KG104-3-
.12	H	CQR12A1KF124-3-	CQR12A3KF124-3-	.12	K	CQR12A1KG124-3-	CQR12A3KG124-3-
.15	H	CQR12A1KF154-3-	CQR12A3KF154-3-	.15	K	CQR12A1KG154-3-	CQR12A3KG154-3-
.18	J	CQR12A1KF184-3-	CQR12A3KF184-3-	.18	L	CQR12A1KG184-3-	CQR12A3KG184-3-
.22	J	CQR12A1KF224-3-	CQR12A3KF224-3-	.22	L	CQR12A1KG224-3-	CQR12A3KG224-3-
.27	L	CQR12A1KF274-3-	CQR12A3KF274-3-	.27	N	CQR12A1KG274-3-	CQR12A3KG274-3-
.33	L	CQR12A1KF334-3-	CQR12A3KF334-3-	.33	N	CQR12A1KG334-3-	CQR12A3KG334-3-
.39	M	CQR12A1KF394-3-	CQR12A3KF394-3-	.39	P	CQR12A1KG394-3-	CQR12A3KG394-3-
.47	M	CQR12A1KF474-3-	CQR12A3KF474-3-	.47	P	CQR12A1KG474-3-	CQR12A3KG474-3-

\*Complete type designation will include additional symbols to indicate capacitance tolerance and failure rate level.

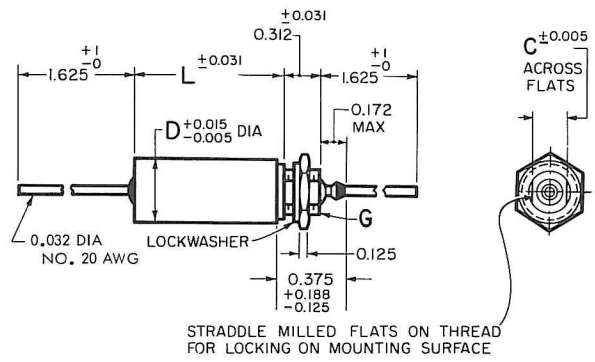
\*\*The case code is adopted by Sprague to simplify the bulletin format, and is not a part of the military specification.

†Failure rate level "L" is not available for these ratings.



DWG. NO. A-6539A

CIRCUIT 1



DWG. NO. A-6538A

CIRCUIT 3

D	C	G
0.562 or less	0.250	5/16-24 UNF-2A
0.670	0.375	7/16-28 UNEF-2A
0.750 and up	0.437	1/2-28 UNEF-2A

## CQR13

Capacitance μF	Case Code**	SECTION INSULATED FROM CASE Circuit 1	SECTION GROUNDED TO CASE Circuit 3	Capacitance μF	Case Code**	SECTION INSULATED FROM CASE Circuit 1	SECTION GROUNDED TO CASE Circuit 3
		Type Designation*	Type Designation*			Type Designation*	Type Designation*
<b>200 VOLTS D-C WORKING</b>				<b>400 VOLTS D-C WORKING</b>			
.0039	Q	CQR13A1KC392-3-	CQR13A3KC392-3-	.0027	Q	CQR13A1KE272-3-	CQR13A3KE272-3-
.0047	Q	CQR13A1KC472-3-	CQR13A3KC472-3-	.0033	Q	CQR13A1KE332-3-	CQR13A3KE332-3-
.0056	Q	CQR13A1KC562-3-	CQR13A3KC562-3-	.012	C	CQR13A1KE123-3-	CQR13A3KE123-3-
.0068	Q	CQR13A1KC682-3-	CQR13A3KC682-3-	.015	C	CQR13A1KE153-3-	CQR13A3KE153-3-
.018	C	CQR13A1KC183-3-	CQR13A3KC183-3-	.027	C	CQR13A1KE273-3-	CQR13A3KE273-3-
.022	C	CQR13A1KC223-3-	CQR13A3KC223-3-	.033	C	CQR13A1KE333-3-	CQR13A3KE333-3-
.027	C	CQR13A1KC273-3-	CQR13A3KC273-3-	.039	D	CQR13A1KE393-3-	CQR13A3KE393-3-
.033	C	CQR13A1KC333-3-	CQR13A3KC333-3-	.047	D	CQR13A1KE473-3-	CQR13A3KE473-3-
.039	C	CQR13A1KC393-3-	CQR13A3KC393-3-	.056	E	CQR13A1KE563-3-	CQR13A3KE563-3-
.047	C	CQR13A1KC473-3-	CQR13A3KC473-3-	.068	E	CQR13A1KE683-3-	CQR13A3KE683-3-
.056	C	CQR13A1KC563-3-	CQR13A3KC563-3-	.082	F	CQR13A1KE823-3-	CQR13A3KE823-3-
.068	C	CQR13A1KC683-3-	CQR13A3KC683-3-	.10	F	CQR13A1KE104-3-	CQR13A3KE104-3-
.082	D	CQR13A1KC823-3-	CQR13A3KC823-3-	.12	G	CQR13A1KE124-3-	CQR13A3KE124-3-
.10	D	CQR13A1KC104-3-	CQR13A3KC104-3-	.15	G	CQR13A1KE154-3-	CQR13A3KE154-3-
.12	E	CQR13A1KC124-3-	CQR13A3KC124-3-	.18	H	CQR13A1KE184-3-	CQR13A3KE184-3-
.15	E	CQR13A1KC154-3-	CQR13A3KC154-3-	.22	H	CQR13A1KE224-3-	CQR13A3KE224-3-
.18	F	CQR13A1KC184-3-	CQR13A3KC184-3-	.27	J	CQR13A1KE274-3-	CQR13A3KE274-3-
.22	F	CQR13A1KC224-3-	CQR13A3KC224-3-	.33	J	CQR13A1KE334-3-	CQR13A3KE334-3-
.27	G	CQR13A1KC274-3-	CQR13A3KC274-3-	.39	L	CQR13A1KE394-3-	CQR13A3KE394-3-
.33	G	CQR13A1KC334-3-	CQR13A3KC334-3-	.47	L	CQR13A1KE474-3-	CQR13A3KE474-3-
.39	H	CQR13A1KC394-3-	CQR13A3KC394-3-				
.47	H	CQR13A1KC474-3-	CQR13A3KC474-3-				
.56	J	CQR13A1KC564-3-	CQR13A3KC564-3-				
.68	J	CQR13A1KC684-3-	CQR13A3KC684-3-				
.82	L	CQR13A1KC824-3-	CQR13A3KC824-3-				
1.0	L	CQR13A1KC105-3-	CQR13A3KC105-3-				

\*Complete type designation will include additional symbols to indicate capacitance tolerance and failure rate level.  
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**SPRAGUE ENGINEERING BULLETIN No. 2310.7**

Capacitance $\mu$ F	Case Code**	SECTION INSULATED	SECTION GROUNDED	Capacitance $\mu$ F	Case Code**	SECTION INSULATED	SECTION GROUNDED
		FROM CASE Circuit 1 Type Designation*	TO CASE Circuit 3 Type Designation*			FROM CASE Circuit 1 Type Designation*	TO CASE Circuit 3 Type Designation*
<b>600 VOLTS D-C WORKING†</b>				<b>600 VOLTS D-C WORKING†</b>			
.0010	Q	CQR13A1KF102-3-	CQR13A3KF102-3-	.047	E	CQR13A1KF473-3-	CQR13A3KF473-3-
.0012	Q	CQR13A1KF122-3-	CQR13A3KF122-3-	.056	F	CQR13A1KF563-3-	CQR13A3KF563-3-
.0015	Q	CQR13A1KF152-3-	CQR13A3KF152-3-	.068	F	CQR13A1KF683-3-	CQR13A3KF683-3-
.0018	Q	CQR13A1KF182-3-	CQR13A3KF182-3-	.082	G	CQR13A1KF823-3-	CQR13A3KF823-3-
.0022	Q	CQR13A1KF222-3-	CQR13A3KF222-3-	.10	G	CQR13A1KF104-3-	CQR13A3KF104-3-
.0027	C	CQR13A1KF272-3-	CQR13A3KF272-3-	.12	H	CQR13A1KF124-3-	CQR13A3KF124-3-
.0033	C	CQR13A1KF332-3-	CQR13A3KF332-3-	.15	H	CQR13A1KF154-3-	CQR13A3KF154-3-
.0039	C	CQR13A1KF392-3-	CQR13A3KF392-3-	.18	J	CQR13A1KF184-3-	CQR13A3KF184-3-
.0047	C	CQR13A1KF472-3-	CQR13A3KF472-3-	.22	J	CQR13A1KF224-3-	CQR13A3KF224-3-
.0056	C	CQR13A1KF562-3-	CQR13A3KF562-3-	.27	L	CQR13A1KF274-3-	CQR13A3KF274-3-
.0068	C	CQR13A1KF682-3-	CQR13A3KF682-3-	.33	L	CQR13A1KF334-3-	CQR13A3KF334-3-
.0082	C	CQR13A1KF822-3-	CQR13A3KF822-3-	.39	M	CQR13A1KF394-3-	CQR13A3KF394-3-
.010	C	CQR13A1KF103-3-	CQR13A3KF103-3-	.47	M	CQR13A1KF474-3-	CQR13A3KF474-3-
.012	C	CQR13A1KF123-3-	CQR13A3KF123-3-	<b>1000 VOLTS D-C WORKING†</b>			
.015	C	CQR13A1KF153-3-	CQR13A3KF153-3-	.18	L	CQR13A1KG184-3-	CQR13A3KG184-3-
.018	C	CQR13A1KF183-3-	CQR13A3KF183-3-	.22	L	CQR13A1KG224-3-	CQR13A3KG224-3-
.022	C	CQR13A1KF223-3-	CQR13A3KF223-3-	.27	N	CQR13A1KG274-3-	CQR13A3KG274-3-
.027	D	CQR13A1KF273-3-	CQR13A3KF273-3-	.33	N	CQR13A1KG334-3-	CQR13A3KG334-3-
.033	D	CQR13A1KF333-3-	CQR13A3KF333-3-	.39	P	CQR13A1KG394-3-	CQR13A3KG394-3-
.039	E	CQR13A1KF393-3-	CQR13A3KF393-3-	.47	P	CQR13A1KG474-3-	CQR13A3KG474-3-

\*Complete type designation will include additional symbols to indicate capacitance tolerance and failure rate level.  
 \*\*The case code is adopted by Sprague to simplify the bulletin format, and is not a part of the military specification.  
 †Failure rate level "L" is not available for these ratings.

The material in this engineering bulletin has been abstracted from Military Specification MIL-C-19978D, Amendment 1, Specification Sheets 9A, 10 and 11.