



Engineering Bulletin

2310.1 A

MIL Style CQ08, CQ09, CQ12, and CQ13

HERMETICALLY-SEALED DIFILM[®] CAPACITORS

TO MILITARY SPECIFICATION MIL-C-19978

THE MIL STYLE CQ08, CQ09, CQ12, and CQ13 capacitors shown in this bulletin are tubular extended-foil, polyester-film and paper dielectric capacitors in hermetically-sealed corrosion-resistant metal cases. They are similar to Sprague Type 131P capacitors and are manufactured to meet all of the requirements of Military Specification MIL-C-19978, including marking, testing, and inspection.

The dielectric employed is a dual insulation. Because these capacitors combine the advantages of both film and paper capacitors, they have a very high insulation resistance, low dissipation factor, and moderate capacitance change with temperature. Their overall performance and life is superior to that of comparable all-film or all-paper capacitors.

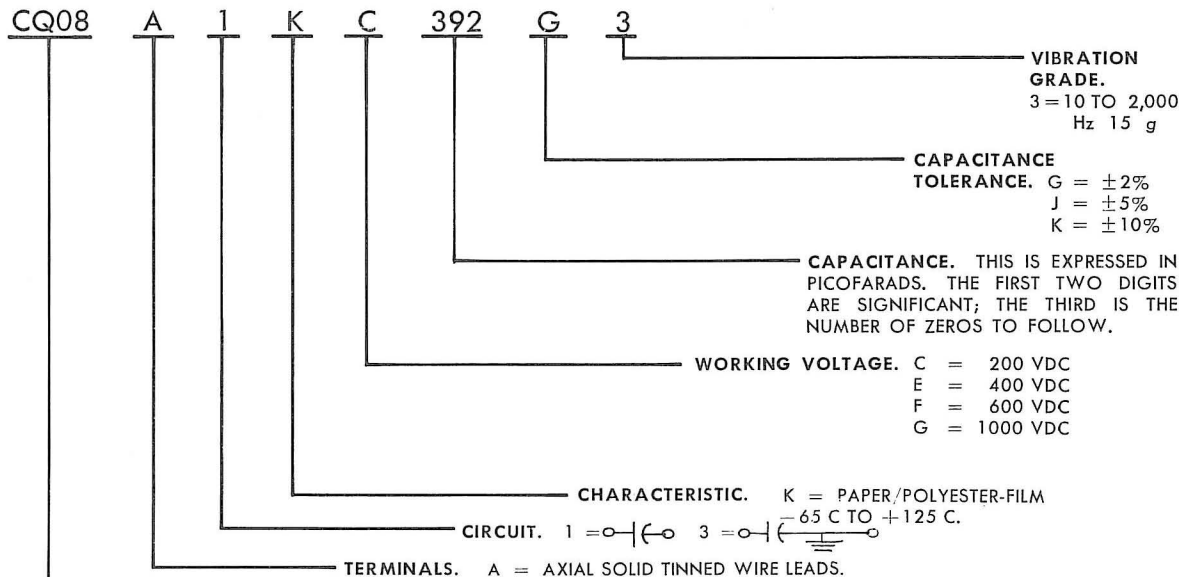
When government inspection is required, the order must state whether inspection is to be at the destination or at the Sprague plant. Orders requiring source inspection at Sprague cannot be shipped until this has been accomplished.

For detailed information on the performance characteristics of these capacitors, please refer to the military specification.

PLEASE NOTE THAT STYLES CQ08, CQ09, CQ12, AND CQ13 ARE NOT FOR NEW DESIGN AND SHOULD BE USED FOR REPLACEMENT ONLY.

For additional information or application engineering for Styles CQ08, CQ09, CQ12, and CQ13 capacitors, please consult the Small Film and Paper Capacitor Operations, Sprague Electric Company, North Adams, Mass., 01247.

MILITARY SPECIFICATION MIL-C-19978 PART NUMBERING SYSTEM



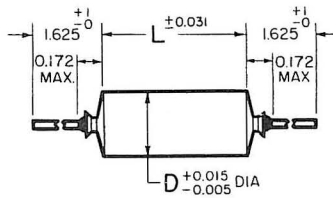
SPRAGUE ELECTRIC COMPANY

SPRAGUE ENGINEERING BULLETIN 2310.1A

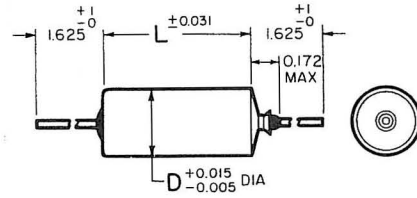
SPRAGUE ENGINEERING BULLETIN No. 2310.1A

Case Code	Styles CQ08, CQ12 and CQ13				Style CQ09			
	Circuit 1		Circuit 3		Circuit 1		Circuit 3	
	L	D	L	D	L	D	L	D
	$\pm .031$ (.79)	$+.015 (.38)$ $-.005 (.13)$	$\pm .031$ (.79)	$+.015 (.38)$ $-.005 (.13)$	$\pm .062$ (1.57)	$+.015 (.38)$ $-.037 (.94)$	$\pm .062$ (1.57)	$+.015 (.38)$ $-.037 (.94)$
A	0.750 (19.05)	0.235 (5.97)	0.688 (17.48)	0.235 (5.97)	0.812 (20.62)	0.267 (6.77)	0.750 (19.05)	0.267 (6.77)
B	0.875 (22.23)	0.312 (7.92)	0.812 (20.62)	0.312 (7.92)	0.938 (23.83)	0.344 (8.75)	0.875 (22.23)	0.344 (8.75)
C	0.875 (22.23)	0.400 (10.16)	0.812 (20.62)	0.400 (10.16)	0.938 (23.83)	0.432 (10.24)	0.875 (22.23)	0.432 (10.24)
D	1.125 (28.58)	0.400 (10.16)	1.062 (27.08)	0.400 (10.16)	1.188 (30.20)	0.432 (10.24)	1.125 (28.58)	0.432 (10.24)
E	1.375 (34.93)	0.400 (10.16)	1.312 (33.32)	0.400 (10.16)	1.438 (36.53)	0.432 (10.24)	1.375 (34.93)	0.432 (10.24)
F	1.125 (28.58)	0.562 (14.27)	1.062 (27.08)	0.562 (14.27)	1.188 (30.20)	0.594 (15.10)	1.125 (28.58)	0.594 (15.10)
G	1.375 (34.93)	0.562 (14.27)	1.312 (33.32)	0.562 (14.27)	1.438 (36.53)	0.594 (15.10)	1.375 (34.93)	0.594 (15.10)
H	1.625 (41.28)	0.562 (14.27)	1.562 (39.67)	0.562 (14.27)	1.688 (42.88)	0.594 (15.10)	1.625 (41.28)	0.594 (15.10)
J	1.625 (41.28)	0.670 (17.02)	1.562 (39.67)	0.670 (17.02)	1.688 (42.88)	0.702 (17.83)	1.625 (41.28)	0.702 (17.83)
K	1.875 (47.63)	0.670 (17.02)	1.812 (46.02)	0.670 (17.02)	1.938 (49.13)	0.702 (17.83)	1.875 (47.63)	0.702 (17.83)
L	2.125 (53.98)	0.750 (19.05)	2.062 (52.48)	0.750 (19.05)	2.188 (55.60)	0.782 (19.86)	2.125 (53.98)	0.782 (19.86)
M	2.375 (60.33)	0.750 (19.05)	2.312 (58.72)	0.750 (19.05)	2.438 (61.73)	0.782 (19.86)	2.375 (60.33)	0.782 (19.86)
N	2.125 (53.98)	1.000 (25.40)	2.062 (52.48)	1.000 (25.40)	2.188 (55.60)	1.032 (25.48)	2.125 (53.98)	1.032 (25.48)
P	2.375 (60.33)	1.000 (25.40)	2.312 (58.72)	1.000 (25.40)	2.438 (61.73)	1.032 (25.48)	2.375 (60.33)	1.032 (25.48)
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.



DWG. NO. A-6532



DWG. NO. A-6536

D	Lead Size
Less than 0.235	0.020" Dia. (No. 24 AWG)
0.235 to 0.312	0.025" Dia. (No. 22 AWG)
0.400 and over	0.032" Dia. (No. 20 AWG)

CQ08

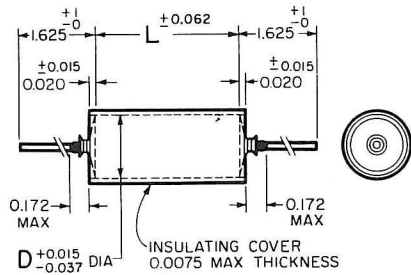
Capacitance μ F	Case Code	SECTION INSULATED FROM CASE Circuit 1	SECTION GROUNDED TO CASE Circuit 3	Capacitance μ F	Case Code	SECTION INSULATED FROM CASE Circuit 1	SECTION GROUNDED TO CASE Circuit 3
		Type Designation*	Type Designation*			Type Designation*	Type Designation*
200 VOLTS D-C WORKING				400 VOLTS D-C WORKING			
.0039	A	CQ08A1KC392-3	CQ08A3KC392-3	.082	F	CQ08A1KE823-3	CQ08A3KE823-3
.0047	A	CQ08A1KC472-3	CQ08A3KC472-3	.10	F	CQ08A1KE104-3	CQ08A3KE104-3
.0056	A	CQ08A1KC562-3	CQ08A3KC562-3	.12	G	CQ08A1KE124-3	CQ08A3KE124-3
.0068	A	CQ08A1KC682-3	CQ08A3KC682-3	.15	G	CQ08A1KE154-3	CQ08A3KE154-3
.018	B	CQ08A1KC183-3	CQ08A3KC183-3	.18	H	CQ08A1KE184-3	CQ08A3KE184-3
.022	B	CQ08A1KC223-3	CQ08A3KC223-3	.22	H	CQ08A1KE224-3	CQ08A3KE224-3
.027	B	CQ08A1KC273-3	CQ08A3KC273-3	.27	J	CQ08A1KE274-3	CQ08A3KE274-3
.033	B	CQ08A1KC333-3	CQ08A3KC333-3	.33	J	CQ08A1KE334-3	CQ08A3KE334-3
.039	C	CQ08A1KC393-3	CQ08A3KC393-3	.39	L	CQ08A1KE394-3	CQ08A3KE394-3
.047	C	CQ08A1KC473-3	CQ08A3KC473-3	.47	L	CQ08A1KE474-3	CQ08A3KE474-3
.056	C	CQ08A1KC563-3	CQ08A3KC563-3	600 VOLTS D-C WORKING			
.068	C	CQ08A1KC683-3	CQ08A3KC683-3	.0010	A	CQ08A1KF 102-3	CQ08A3KF 102-3
.082	D	CQ08A1KC823-3	CQ08A3KC823-3	.0012	A	CQ08A1KF 122-3	CQ08A3KF 122-3
.10	D	CQ08A1KC104-3	CQ08A3KC104-3	.0015	A	CQ08A1KF 152-3	CQ08A3KF 152-3
.12	E	CQ08A1KC124-3	CQ08A3KC124-3	.0018	A	CQ08A1KF 182-3	CQ08A3KF 182-3
.15	E	CQ08A1KC154-3	CQ08A3KC154-3	.0022	A	CQ08A1KF 222-3	CQ08A3KF 222-3
.18	F	CQ08A1KC184-3	CQ08A3KC184-3	.0027	B	CQ08A1KF 272-3	CQ08A3KF 272-3
.22	F	CQ08A1KC224-3	CQ08A3KC224-3	.0033	B	CQ08A1KF 332-3	CQ08A3KF 332-3
.27	G	CQ08A1KC274-3	CQ08A3KC274-3	.0039	B	CQ08A1KF 392-3	CQ08A3KF 392-3
.33	G	CQ08A1KC334-3	CQ08A3KC334-3	.0047	B	CQ08A1KF 472-3	CQ08A3KF 472-3
.39	H	CQ08A1KC394-3	CQ08A3KC394-3	.0056	B	CQ08A1KF 562-3	CQ08A3KF 562-3
.47	H	CQ08A1KC474-3	CQ08A3KC474-3	.0068	B	CQ08A1KF 682-3	CQ08A3KF 682-3
.56	J	CQ08A1KC564-3	CQ08A3KC564-3	.0082	B	CQ08A1KF 822-3	CQ08A3KF 822-3
.68	J	CQ08A1KC684-3	CQ08A3KC684-3	.010	B	CQ08A1KF 103-3	CQ08A3KF 103-3
.82	L	CQ08A1KC824-3	CQ08A3KC824-3	.012	C	CQ08A1KF 123-3	CQ08A3KF 123-3
1.0	L	CQ08A1KC105-3	CQ08A3KC105-3	.015	C	CQ08A1KF 153-3	CQ08A3KF 153-3
400 VOLTS D-C WORKING				.018	C	CQ08A1KF 183-3	CQ08A3KF 183-3
.0027	A	CQ08A1KE272-3	CQ08A3KE272-3	.022	C	CQ08A1KF 223-3	CQ08A3KF 223-3
.0033	A	CQ08A1KE332-3	CQ08A3KE332-3	.027	D	CQ08A1KF 273-3	CQ08A3KF 273-3
.012	B	CQ08A1KE123-3	CQ08A3KE123-3	.033	D	CQ08A1KF 333-3	CQ08A3KF 333-3
.015	B	CQ08A1KE153-3	CQ08A3KE153-3	.039	E	CQ08A1KF 393-3	CQ08A3KF 393-3
.027	C	CQ08A1KE273-3	CQ08A3KE273-3	.047	E	CQ08A1KF 473-3	CQ08A3KF 473-3
.033	C	CQ08A1KE333-3	CQ08A3KE333-3	.056	F	CQ08A1KF 563-3	CQ08A3KF 563-3
.039	D	CQ08A1KE393-3	CQ08A3KE393-3	.068	F	CQ08A1KF 683-3	CQ08A3KF 683-3
.047	D	CQ08A1KE473-3	CQ08A3KE473-3	.082	G	CQ08A1KF 823-3	CQ08A3KF 823-3
.056	E	CQ08A1KE563-3	CQ08A3KE563-3	.10	G	CQ08A1KF 104-3	CQ08A3KF 104-3
.068	E	CQ08A1KE683-3	CQ08A3KE683-3				

*Complete type designation will include an additional symbol, as the twelfth digit, to indicate capacitance tolerance. G = $\pm 2\%$, J = $\pm 5\%$, K = $\pm 10\%$.

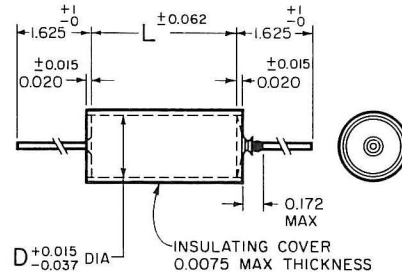
SPRAGUE ENGINEERING BULLETIN No. 2310.1A

Capacitance μ F	SECTION INSULATED FROM CASE		SECTION GROUNDED TO CASE		Capacitance μ F	SECTION INSULATED FROM CASE		SECTION GROUNDED TO CASE	
	Case Code	Circuit 1 Type Designation*	Circuit 3 Type Designation*	Case Code		Circuit 1 Type Designation*	Circuit 3 Type Designation*		
600 VOLTS D-C WORKING					1000 VOLTS D-C WORKING				
.12	H	CQ08A1KF 124-3	CQ08A3KF 124-3	.0068	C	CQ08A1KG682-3	CQ08A1KG682-3		
.15	H	CQ08A1KF 154-3	CQ08A3KF 154-3	.0082	C	CQ08A1KG822-3	CQ08A3KG822-3		
.18	J	CQ08A1KF 184-3	CQ08A3KF 184-3	.010	C	CQ08A1KG103-3	CQ08A3KG103-3		
.22	J	CQ08A1KF 224-3	CQ08A3KF 224-3	.012	D	CQ08A1KG123-3	CQ08A3KG123-3		
.27	L	CQ08A1KF 274-3	CQ08A3KF 274-3	.015	D	CQ08A1KG153-3	CQ08A3KG153-3		
.33	L	CQ08A1KF 334-3	CQ08A3KF 334-3	.018	E	CQ08A1KG183-3	CQ08A3KG183-3		
.39	M	CQ08A1KF 394-3	CQ08A3KF 394-3	.022	E	CQ08A1KG223-3	CQ08A3KG223-3		
.47	M	CQ08A1KF 474-3	CQ08A3KF 474-3	.027	F	CQ08A1KG273-3	CQ08A3KG273-3		
1000 VOLTS D-C WORKING					.033	F	CQ08A1KG333-3	CQ08A3KG333-3	
.0010	C	CQ08A1KG102-3	CQ08A3KG102-3	.039	G	CQ08A1KG393-3	CQ08A3KG393-3		
.0012	C	CQ08A1KG122-3	CQ08A3KG122-3	.047	G	CQ08A1KG473-3	CQ08A3KG473-3		
.0015	C	CQ08A1KG152-3	CQ08A3KG152-3	.056	H	CQ08A1KG563-3	CQ08A3KG563-3		
.0018	C	CQ08A1KG182-3	CQ08A3KG182-3	.068	H	CQ08A1KG683-3	CQ08A3KG683-3		
.0022	C	CQ08A1KG222-3	CQ08A3KG222-3	.082	J	CQ08A1KG823-3	CQ08A3KG823-3		
.0027	C	CQ08A1KG272-3	CQ08A3KG272-3	.10	J	CQ08A1KG104-3	CQ08A3KG104-3		
.0033	C	CQ08A1KG332-3	CQ08A3KG332-3	.12	K	CQ08A1KG124-3	CQ08A3KG124-3		
.0039	C	CQ08A1KG392-3	CQ08A3KG392-3	.15	K	CQ08A1KG154-3	CQ08A3KG154-3		
.0047	C	CQ08A1KG472-3	CQ08A3KG472-3	.18	L	CQ08A1KG184-3	CQ08A3KG184-3		
.0056	C	CQ08A1KG562-3	CQ08A3KG562-3	.22	L	CQ08A1KG224-3	CQ08A3KG224-3		
				.27	N	CQ08A1KG274-3	CQ08A3KG274-3		
				.33	N	CQ08A1KG334-3	CQ08A3KG334-3		
				.39	P	CQ08A1KG394-3	CQ08A3KG394-3		
				.47	P	CQ08A1KG474-3	CQ08A3KG474-3		

*Complete type designation will include an additional symbol, as the twelfth digit, to indicate capacitance tolerance. **G** = $\pm 2\%$,
J = $\pm 5\%$, **K** = $\pm 10\%$.



DWG. NO. A-6533



DWG. NO. A-6534

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 CQ09

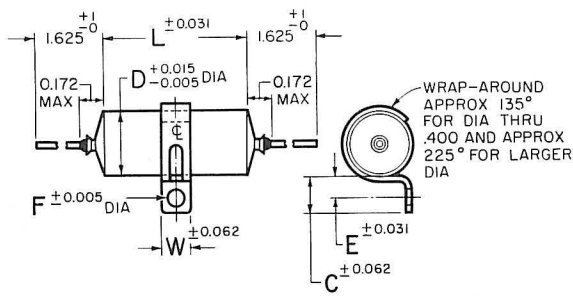
Capacitance μ F	SECTION INSULATED FROM CASE		SECTION GROUNDED TO CASE		Capacitance μ F	SECTION INSULATED FROM CASE		SECTION GROUNDED TO CASE	
	Case Code	Type Designation*	Circuit 1 Type Designation*	Circuit 3 Type Designation*		Case Code	Type Designation*	Circuit 1 Type Designation*	Circuit 3 Type Designation*
200 VOLTS D-C WORKING									
.0039	A	CQ09A1KC392-3	CQ09A3KC392-3		.0027	A	CQ09A1KE272-3	CQ09A3KE272-3	
.0047	A	CQ09A1KC472-3	CQ09A3KC472-3		.0033	A	CQ09A1KE332-3	CQ09A3KE332-3	
.0056	A	CQ09A1KC562-3	CQ09A3KC562-3		.012	B	CQ09A1KE123-3	CQ09A3KE123-3	
.0068	A	CQ09A1KC682-3	CQ09A3KC682-3		.015	B	CQ09A1KE153-3	CQ09A3KE153-3	
.018	B	CQ09A1KC183-3	CQ09A3KC183-3		.027	C	CQ09A1KE273-3	CQ09A3KE273-3	
.022	B	CQ09A1KC223-3	CQ09A3KC223-3		.033	C	CQ09A1KE333-3	CQ09A3KE333-3	
.027	B	CQ09A1KC273-3	CQ09A3KC273-3		.039	D	CQ09A1KE393-3	CQ09A3KE393-3	
.033	B	CQ09A1KC333-3	CQ09A3KC333-3		.047	D	CQ09A1KE473-3	CQ09A3KE473-3	
.039	C	CQ09A1KC393-3	CQ09A3KC393-3		.056	E	CQ09A1KE563-3	CQ09A3KE563-3	
.047	C	CQ09A1KC473-3	CQ09A3KC473-3		.068	E	CQ09A1KE683-3	CQ09A3KE683-3	
.056	C	CQ09A1KC563-3	CQ09A3KC563-3		.082	F	CQ09A1KE823-3	CQ09A3KE823-3	
.068	C	CQ09A1KC683-3	CQ09A3KC683-3		.10	F	CQ09A1KE104-3	CQ09A3KE104-3	
.082	D	CQ09A1KC823-3	CQ09A3KC823-3		.12	G	CQ09A1KE124-3	CQ09A3KE124-3	
.10	D	CQ09A1KC104-3	CQ09A3KC104-3		.15	G	CQ09A1KE154-3	CQ09A3KE154-3	
.12	E	CQ09A1KC124-3	CQ09A3KC124-3		.18	H	CQ09A1KE184-3	CQ09A3KE184-3	
.15	E	CQ09A1KC154-3	CQ09A3KC154-3		.22	H	CQ09A1KE224-3	CQ09A3KE224-3	
.18	F	CQ09A1KC184-3	CQ09A3KC184-3		.27	J	CQ09A1KE274-3	CQ09A3KE274-3	
.22	F	CQ09A1KC224-3	CQ09A3KC224-3		.33	J	CQ09A1KE334-3	CQ09A3KE334-3	
.27	G	CQ09A1KC274-3	CQ09A3KC274-3		.39	L	CQ09A1KE394-3	CQ09A3KE394-3	
.33	G	CQ09A1KC334-3	CQ09A3KC334-3		.47	L	CQ09A1KE474-3	CQ09A3KE474-3	
.39	H	CQ09A1KC394-3	CQ09A3KC394-3						
.47	H	CQ09A1KC474-3	CQ09A3KC474-3						
.56	J	CQ09A1KC564-3	CQ09A3KC564-3						
.68	J	CQ09A1KC684-3	CQ09A3KC684-3						
.82	L	CQ09A1KC824-3	CQ09A3KC824-3						
1.0	L	CQ09A1KC105-3	CQ09A3KC105-3						

*Complete type designation will include an additional symbol, as the twelfth digit, to indicate capacitance tolerance. G = $\pm 2\%$, J = $\pm 5\%$, K = $\pm 10\%$.

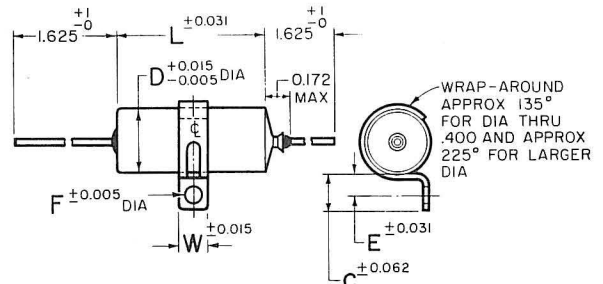
SPRAGUE ENGINEERING BULLETIN No. 2310.1

Capacitance μ F	SECTION INSULATED FROM CASE		SECTION GROUNDED TO CASE		Capacitance μ F	SECTION INSULATED FROM CASE		SECTION GROUNDED TO CASE	
	Case Code	Circuit 1 Type Designation*	Circuit 3 Type Designation*	Case Code		Circuit 1 Type Designation*	Circuit 3 Type Designation*		
600 VOLTS D-C WORKING					1000 VOLTS D-C WORKING				
.0010	A	CQ09A1KF102-3	CQ09A3KF102-3	.0010	C	CQ09A1KG102-3	CQ09A3KG102-3		
.0012	A	CQ09A1KF122-3	CQ09A3KF122-3	.0012	C	CQ09A1KG122-3	CQ09A3KG122-3		
.0015	A	CQ09A1KF152-3	CQ09A3KF152-3	.0015	C	CQ09A1KG152-3	CQ09A3KG152-3		
.0018	A	CQ09A1KF182-3	CQ09A3KF182-3	.0018	C	CQ09A1KG182-3	CQ09A3KG182-3		
.0022	A	CQ09A1KF222-3	CQ09A3KF222-3	.0022	C	CQ09A1KG222-3	CQ09A3KG222-3		
.0027	B	CQ09A1KF272-3	CQ09A3KF272-3	.0027	C	CQ09A1KG272-3	CQ09A3KG272-3		
.0033	B	CQ09A1KF332-3	CQ09A3KF332-3	.0033	C	CQ09A1KG332-3	CQ09A3KG332-3		
.0039	B	CQ09A1KF392-3	CQ09A3KF392-3	.0039	C	CQ09A1KG392-3	CQ09A3KG392-3		
.0047	B	CQ09A1KF472-3	CQ09A3KF472-3	.0047	C	CQ09A1KG472-3	CQ09A3KG472-3		
.0056	B	CQ09A1KF562-3	CQ09A3KF562-3	.0056	C	CQ09A1KG562-3	CQ09A3KG562-3		
.0068	B	CQ09A1KF682-3	CQ09A3KF682-3	.0068	C	CQ09A1KG682-3	CQ09A3KG682-3		
.0082	B	CQ09A1KF822-3	CQ09A3KF822-3	.0082	C	CQ09A1KG822-3	CQ09A3KG822-3		
.010	B	CQ09A1KF103-3	CQ09A3KF103-3	.010	C	CQ09A1KG103-3	CQ09A3KG103-3		
.012	C	CQ09A1KF123-3	CQ09A3KF123-3	.012	D	CQ09A1KG123-3	CQ09A3KG123-3		
.015	C	CQ09A1KF153-3	CQ09A3KF153-3	.015	D	CQ09A1KG153-3	CQ09A3KG153-3		
.018	C	CQ09A1KF183-3	CQ09A3KF183-3	.018	E	CQ09A1KG183-3	CQ09A3KG183-3		
.022	C	CQ09A1KF223-3	CQ09A3KF223-3	.022	E	CQ09A1KG223-3	CQ09A3KG223-3		
.027	D	CQ09A1KF273-3	CQ09A3KF273-3	.027	F	CQ09A1KG273-3	CQ09A3KG273-3		
.033	D	CQ09A1KF333-3	CQ09A3KF333-3	.033	F	CQ09A1KG333-3	CQ09A3KG333-3		
.039	E	CQ09A1KF393-3	CQ09A3KF393-3	.039	G	CQ09A1KG393-3	CQ09A3KG393-3		
.047	E	CQ09A1KF473-3	CQ09A3KF473-3	.047	G	CQ09A1KG473-3	CQ09A3KG473-3		
.056	F	CQ09A1KF563-3	CQ09A3KF563-3	.056	H	CQ09A1KG563-3	CQ09A3KG563-3		
.068	F	CQ09A1KF683-3	CQ09A3KF683-3	.068	H	CQ09A1KG683-3	CQ09A3KG683-3		
.082	G	CQ09A1KF823-3	CQ09A3KF823-3	.082	J	CQ09A1KG823-3	CQ09A3KG823-3		
.10	G	CQ09A1KF104-3	CQ09A3KF104-3	.10	J	CQ09A1KG104-3	CQ09A3KG104-3		
.12	H	CQ09A1KF124-3	CQ09A3KF124-3	.12	K	CQ09A1KG124-3	CQ09A3KG124-3		
.15	H	CQ09A1KF154-3	CQ09A3KF154-3	.15	K	CQ09A1KG154-3	CQ09A3KG154-3		
.18	J	CQ09A1KF184-3	CQ09A3KF184-3	.18	L	CQ09A1KG184-3	CQ09A3KG184-3		
.22	J	CQ09A1KF224-3	CQ09A3KF224-3	.22	L	CQ09A1KG224-3	CQ09A3KG224-3		
.27	L	CQ09A3KF274-3	CQ09A3KF274-3	.27	N	CQ09A1KG274-3	CQ09A3KG274-3		
.33	L	CQ09A1KF334-3	CQ09A3KF334-3	.33	N	CQ09A1KG334-3	CQ09A3KG334-3		
.39	M	CQ09A1KF394-3	CQ09A3KF394-3	.39	P	CQ09A1KG394-3	CQ09A3KG394-3		
.47	M	CQ09A1KF474-3	CQ09A3KF474-3	.47	P	CQ09A1KG474-3	CQ09A3KG474-3		

*Complete type designation will include an additional symbol, as the twelfth digit, to indicate capacitance tolerance. G = $\pm 2\%$, J = $\pm 5\%$, K = $\pm 10\%$.



DWG. NO. A-6535A



DWG. NO. A-6537A

D	H	G	E	F	Lead Size
Less than 0.400	0.312	0.250	0.188	0.144	0.020" Dia. (No. 24 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 CQ12

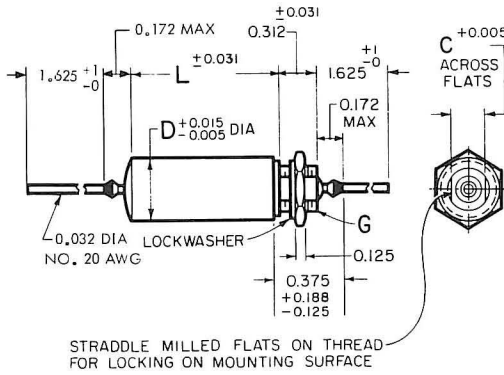
Capacitance μ F	Case Code	SECTION INSULATED FROM CASE	SECTION GROUNDED TO CASE	Capacitance μ F	Case Code	SECTION INSULATED FROM CASE	SECTION GROUNDED TO CASE
		Circuit 1 Type Designation*	Circuit 3 Type Designation*			Circuit 1 Type Designation*	Circuit 3 Type Designation*
200 VOLTS D-C WORKING				400 VOLTS D-C WORKING			
.0039	A	CQ12A1KC392-3	CQ12A3KC392-3	.0027	A	CQ12A1KE272-3	CQ12A3KE272-3
.0047	A	CQ12A1KC472-3	CQ12A3KC472-3	.0033	A	CQ12A1KE332-3	CQ12A3KE332-3
.0056	A	CQ12A1KC562-3	CQ12A3KC562-3	.012	B	CQ12A1KE123-3	CQ12A3KE123-3
.0068	A	CQ12A1KC682-3	CQ12A3KC682-3	.015	B	CQ12A1KE153-3	CQ12A3KE153-3
.018	B	CQ12A1KC183-3	CQ12A3KC183-3	.027	C	CQ12A1KE273-3	CQ12A3KE273-3
.022	B	CQ12A1KC223-3	CQ12A3KC223-3	.033	C	CQ12A1KE333-3	CQ12A3KE333-3
.027	B	CQ12A1KC273-3	CQ12A3KC273-3	.039	D	CQ12A1KE393-3	CQ12A3KE393-3
.033	B	CQ12A1KC333-3	CQ12A3KC333-3	.047	D	CQ12A1KE473-3	CQ12A3KE473-3
.039	C	CQ12A1KC393-3	CQ12A3KC393-3	.056	E	CQ12A1KE563-3	CQ12A3KE563-3
.047	C	CQ12A1KC473-3	CQ12A3KC473-3	.068	E	CQ12A1KE683-3	CQ12A3KE683-3
.056	C	CQ12A1KC563-3	CQ12A3KC563-3	.082	F	CQ12A1KE823-3	CQ12A3KE823-3
.068	C	CQ12A1KC683-3	CQ12A3KC683-3	.10	F	CQ12A1KE104-3	CQ12A3KE104-3
.082	D	CQ12A1KC823-3	CQ12A3KC823-3	.12	G	CQ12A1KE124-3	CQ12A3KE124-3
.10	D	CQ12A1KC104-3	CQ12A3KC104-3	.15	G	CQ12A1KE154-3	CQ12A3KE154-3
.12	E	CQ12A1KC124-3	CQ12A3KC124-3	.18	H	CQ12A1KE184-3	CQ12A3KE184-3
.15	E	CQ12A1KC154-3	CQ12A3KC154-3	.22	H	CQ12A1KE224-3	CQ12A3KE224-3
.18	F	CQ12A1KC184-3	CQ12A3KC184-3	.27	J	CQ12A1KE274-3	CQ12A3KE274-3
.22	F	CQ12A1KC224-3	CQ12A3KC224-3	.33	J	CQ12A1KE334-3	CQ12A3KE334-3
.27	G	CQ12A1KC274-3	CQ12A3KC274-3	.39	L	CQ12A1KE394-3	CQ12A3KE394-3
.33	G	CQ12A1KC334-3	CQ12A3KC334-3	.47	L	CQ12A1KE474-3	CQ12A3KE474-3
.39	H	CQ12A1KC394-3	CQ12A3KC394-3				
.47	H	CQ12A1KC474-3	CQ12A3KC474-3				
.56	J	CQ12A1KC564-3	CQ12A3KC564-3				
.68	J	CQ12A1KC684-3	CQ12A3KC684-3				
.82	L	CQ12A1KC824-3	CQ12A3KC824-3				
1.0	L	CQ12A1KC105-3	CQ12A3KC105-3				

*Complete type designation will include an additional symbol, as the twelfth digit, to indicate capacitance tolerance. G = $\pm 2\%$, J = $\pm 5\%$, K = $\pm 10\%$.

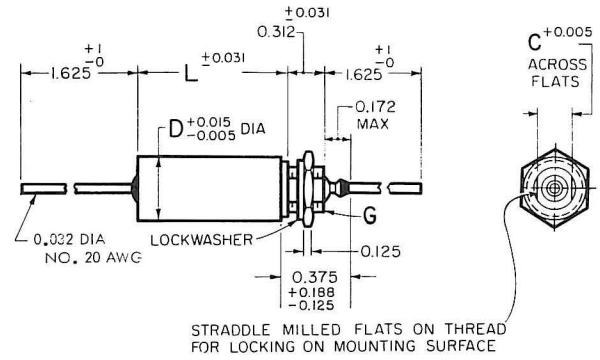
SPRAGUE ENGINEERING BULLETIN No. 2310.1A

Capacitance μF	SECTION INSULATED FROM CASE			SECTION GROUNDED TO CASE			Capacitance μF	SECTION INSULATED FROM CASE			SECTION GROUNDED TO CASE																												
	Case Code	Circuit 1 Type Designation*	Circuit 3 Type Designation*	Case Code	Circuit 1 Type Designation*	Circuit 3 Type Designation*		Case Code	Circuit 1 Type Designation*	Circuit 3 Type Designation*	Case Code	Circuit 1 Type Designation*	Circuit 3 Type Designation*																										
600 VOLTS D-C WORKING						1000 VOLTS D-C WORKING																																	
.0010	A	CQ12A1KF102-3	CQ12A3KF102-3	.0010	C	CQ12A1KG102-3	CQ12A3KG102-3	.0012	A	CQ12A1KF122-3	CQ12A3KF122-3	.0012	C	CQ12A1KG122-3	CQ12A3KG122-3	.0015	A	CQ12A1KF152-3	CQ12A3KF152-3	.0015	C	CQ12A1KG152-3	CQ12A3KG152-3	.0018	A	CQ12A1KF182-3	CQ12A3KF182-3	.0018	C	CQ12A1KG182-3	CQ12A3KG182-3	.0022	A	CQ12A1KF222-3	CQ12A3KF222-3	.0022	C	CQ12A1KG222-3	CQ12A3KG222-3
.0027	B	CQ12A1KF272-3	CQ12A3KF272-3	.0027	C	CQ12A1KG272-3	CQ12A3KG272-3	.0033	B	CQ12A1KF332-3	CQ12A3KF332-3	.0033	C	CQ12A1KG332-3	CQ12A3KG332-3	.0039	B	CQ12A1KF392-3	CQ12A3KF392-3	.0039	C	CQ12A1KG392-3	CQ12A3KG392-3	.0047	B	CQ12A1KF472-3	CQ12A3KF472-3	.0047	C	CQ12A1KG472-3	CQ12A3KG472-3	.0056	B	CQ12A1KF562-3	CQ12A3KF562-3	.0056	C	CQ12A1KG562-3	CQ12A3KG562-3
.0068	B	CQ12A1KF682-3	CQ12A3KF682-3	.0068	C	CQ12A1KG682-3	CQ12A3KG682-3	.0082	B	CQ12A1KF822-3	CQ12A3KF822-3	.0082	C	CQ12A1KG822-3	CQ12A3KG822-3	.010	B	CQ12A1KF103-3	CQ12A3KF103-3	.010	C	CQ12A1KG103-3	CQ12A3KG103-3	.012	C	CQ12A1KF123-3	CQ12A3KF123-3	.012	D	CQ12A1KG123-3	CQ12A3KG123-3	.015	C	CQ12A1KF153-3	CQ12A3KF153-3	.015	D	CQ12A1KG153-3	CQ12A3KG153-3
.018	C	CQ12A1KF183-3	CQ12A3KF183-3	.018	E	CQ12A1KG183-3	CQ12A3KG183-3	.022	C	CQ12A1KF223-3	CQ12A3KF223-3	.022	E	CQ12A1KG223-3	CQ12A3KG223-3	.027	D	CQ12A1KF273-3	CQ12A3KF273-3	.027	F	CQ12A1KG273-3	CQ12A3KG273-3	.033	D	CQ12A1KF333-3	CQ12A3KF333-3	.033	F	CQ12A1KG333-3	CQ12A3KG333-3	.039	E	CQ12A1KF393-3	CQ12A3KF393-3	.039	G	CQ12A1KG393-3	CQ12A3KG393-3
.047	E	CQ12A1KF473-3	CQ12A3KF473-3	.047	G	CQ12A1KG473-3	CQ12A3KG473-3	.056	F	CQ12A1KF563-3	CQ12A3KF563-3	.056	H	CQ12A1KG563-3	CQ12A3KG563-3	.068	F	CQ12A1KF683-3	CQ12A3KF683-3	.068	H	CQ12A1KG683-3	CQ12A3KG683-3	.082	G	CQ12A1KF823-3	CQ12A3KF823-3	.082	J	CQ12A1KG823-3	CQ12A3KG823-3	.10	G	CQ12A1KF104-3	CQ12A3KF104-3	.10	J	CQ12A1KG104-3	CQ12A3KG104-3
.12	H	CQ12A1KF124-3	CQ12A3KF124-3	.12	K	CQ12A1KG124-3	CQ12A3KG124-3	.15	H	CQ12A1KF154-3	CQ12A3KF154-3	.15	K	CQ12A1KG154-3	CQ12A3KG154-3	.18	J	CQ12A1KF184-3	CQ12A3KF184-3	.18	L	CQ12A1KG184-3	CQ12A3KG184-3	.22	J	CQ12A1KF224-3	CQ12A3KF224-3	.22	L	CQ12A1KG224-3	CQ12A3KG224-3	.27	L	CQ12A1KF274-3	CQ12A3KF274-3	.27	N	CQ12A1KG274-3	CQ12A3KG274-3
.33	L	CQ12A1KF334-3	CQ12A3KF334-3	.33	N	CQ12A1KG334-3	CQ12A3KG334-3	.39	M	CQ12A1KF394-3	CQ12A3KF394-3	.39	P	CQ12A1KG394-3	CQ12A3KG394-3	.47	M	CQ12A1KF474-3	CQ12A3KF474-3	.47	P	CQ12A1KG474-3	CQ12A3KG474-3																

*Complete type designation will include an additional symbol, as the twelfth digit, to indicate capacitance tolerance. G = ±2%, J = ±5%, K = ±10%.



DWG. NO. A-6539A



DWG. NO. A-6538A

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

CQ13

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*
200 VOLTS D-C WORKING				400 VOLTS D-C WORKING			
.0039	Q	CQ13A1KC392-3	CQ13A3KC392-3	.0027	Q	CQ13A1KE272-3	CQ13A3KE272-3
.0047	Q	CQ13A1KC472-3	CQ13A3KC472-3	.0033	Q	CQ13A1KE332-3	CQ13A3KE332-3
.0056	Q	CQ13A1KC562-3	CQ13A3KC562-3	.012	C	CQ13A1KE123-3	CQ13A3KE123-3
.0068	Q	CQ13A1KC682-3	CQ13A3KC682-3	.015	C	CQ13A1KE153-3	CQ13A3KE153-3
.018	C	CQ13A1KC183-3	CQ13A3KC183-3	.027	C	CQ13A1KE273-3	CQ13A3KE273-3
.022	C	CQ13A1KC223-3	CQ13A3KC223-3	.033	C	CQ13A1KE333-3	CQ13A3KE333-3
.027	C	CQ13A1KC273-3	CQ13A3KC273-3	.039	D	CQ13A1KE393-3	CQ13A3KE393-3
.033	C	CQ13A1KC333-3	CQ13A3KC333-3	.047	D	CQ13A1KE473-3	CQ13A3KE473-3
.039	C	CQ13A1KC393-3	CQ13A3KC393-3	.056	E	CQ13A1KE563-3	CQ13A3KE563-3
.047	C	CQ13A1KC473-3	CQ13A3KC473-3	.068	E	CQ13A1KE683-3	CQ13A3KE683-3
.056	C	CQ13A1KC563-3	CQ13A3KC563-3	.082	F	CQ13A1KE823-3	CQ13A3KE823-3
.068	C	CQ13A1KC683-3	CQ13A3KC683-3	.10	F	CQ13A1KE104-3	CQ13A3KE104-3
.082	D	CQ13A1KC823-3	CQ13A3KC823-3	.12	G	CQ13A1KE124-3	CQ13A3KE124-3
.10	D	CQ13A1KC104-3	CQ13A3KC104-3	.15	G	CQ13A1KE154-3	CQ13A3KE154-3
.12	E	CQ13A1KC124-3	CQ13A3KC124-3	.18	H	CQ13A1KE184-3	CQ13A3KE184-3
.15	E	CQ13A1KC154-3	CQ13A3KC154-3	.22	H	CQ13A1KE224-3	CQ13A3KE224-3
.18	F	CQ13A1KC184-3	CQ13A3KC184-3	.27	J	CQ13A1KE274-3	CQ13A3KE274-3
.22	F	CQ13A1KC224-3	CQ13A3KC224-3	.33	J	CQ13A1KE334-3	CQ13A3KE334-3
.27	G	CQ13A1KC274-3	CQ13A3KC274-3	.39	L	CQ13A1KE394-3	CQ13A3KE394-3
.33	G	CQ13A1KC334-3	CQ13A3KC334-3	.47	L	CQ13A1KE474-3	CQ13A3KE474-3
.39	H	CQ13A1KC394-3	CQ13A3KC394-3				
.47	H	CQ13A1KC474-3	CQ13A3KC474-3				
.56	J	CQ13A1KC564-3	CQ13A3KC564-3				
.68	J	CQ13A1KC684-3	CQ13A3KC684-3				
.82	L	CQ13A1KC824-3	CQ13A3KC824-3				
1.0	L	CQ13A1KC105-3	CQ13A3KC105-3				

*Complete type designation will include an additional symbol, as the twelfth digit, to indicate capacitance tolerance. G = ±2%, J = ±5%, K = ±10%.

SPRAGUE ENGINEERING BULLETIN No. 2310.1A

Capacitance μ F	Case Code	SECTION INSULATED	SECTION GROUNDED	Capacitance μ 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*
600 VOLTS D-C WORKING				600 VOLTS D-C WORKING			
.0010	Q	CQ13A1KF102-3	CQ13A3KF102-3	.047	E	CQ13A1KF473-3	CQ13A3KF473-3
.0012	Q	CQ13A1KF122-3	CQ13A3KF122-3	.056	F	CQ13A1KF563-3	CQ13A3KF563-3
.0015	Q	CQ13A1KF152-3	CQ13A3KF152-3	.068	F	CQ13A1KF683-3	CQ13A3KF683-3
.0018	Q	CQ13A1KF182-3	CQ13A3KF182-3	.082	G	CQ13A1KF823-3	CQ13A3KF823-3
.0022	Q	CQ13A1KF222-3	CQ13A3KF222-3	.10	G	CQ13A1KF104-3	CQ13A3KF104-3
.0027	C	CQ13A1KF272-3	CQ13A3KF272-3	.12	H	CQ13A1KF124-3	CQ13A3KF124-3
.0033	C	CQ13A1KF332-3	CQ13A3KF332-3	.15	H	CQ13A1KF154-3	CQ13A3KF154-3
.0039	C	CQ13A1KF392-3	CQ13A3KF392-3	.18	J	CQ13A1KF184-3	CQ13A3KF184-3
.0047	C	CQ13A1KF472-3	CQ13A3KF472-3	.22	J	CQ13A1KF224-3	CQ13A3KF224-3
.0056	C	CQ13A1KF562-3	CQ13A3KF562-3	.27	L	CQ13A1KF274-3	CQ13A3KF274-3
.0068	C	CQ13A1KF682-3	CQ13A3KF682-3	.33	L	CQ13A1KF334-3	CQ13A3KF334-3
.0082	C	CQ13A1KF822-3	CQ13A3KF822-3	.39	M	CQ13A1KF394-3	CQ13A3KF394-3
.010	C	CQ13A1KF103-3	CQ13A3KF103-3	.47	M	CQ13A1KF474-3	CQ13A3KF474-3
.012	C	CQ13A1KF123-3	CQ13A3KF123-3	1000 VOLTS D-C WORKING			
.015	C	CQ13A1KF153-3	CQ13A3KF153-3	.18	L	CQ13A1KG184-3	CQ13A3KG184-3
.018	C	CQ13A1KF183-3	CQ13A3KF183-3	.22	L	CQ13A1KG224-3	CQ13A3KG224-3
.022	C	CQ13A1KF223-3	CQ13A3KF223-3	.27	N	CQ13A1KG274-3	CQ13A3KG274-3
.027	D	CQ13A1KF273-3	CQ13A3KF273-3	.33	N	CQ13A1KG334-3	CQ13A3KG334-3
.033	D	CQ13A1KF333-3	CQ13A3KF333-3	.39	P	CQ13A1KG394-3	CQ13A3KG394-3
.039	E	CQ13A1KF393-3	CQ13A3KF393-3	.47	P	CQ13A1KG474-3	CQ13A3KG474-3

*Complete type designation will include an additional symbol, as the twelfth digit, to indicate capacitance tolerance. G = $\pm 2\%$, J = $\pm 5\%$, K = $\pm 10\%$.

The material in this engineering bulletin has been abstracted from Military Specification MIL-C-19978D and Amendment 2, Specification Sheet 1C and Amendment 1.