

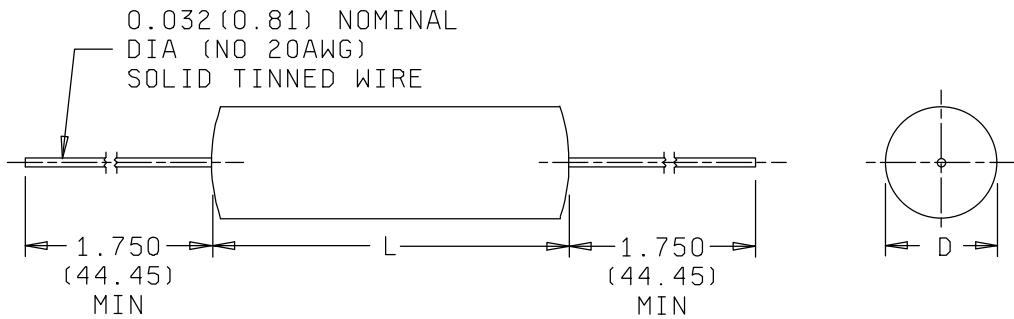
INCH-POUND
MIL-PRF-55514/10C
9 October 1997
SUPERSEDING
MIL-C-55514/10B
6 August 1985

PERFORMANCE SPECIFICATION SHEET

CAPACITORS, FIXED, PLASTIC DIELECTRIC, DC,
IN NONMETAL CASES, ESTABLISHED RELIABILITY,
STYLE CFR15

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

The requirements for acquiring the product described herein shall consist of
this specification and MIL-PRF-55514.



NOTES:

1. Dimensions are in inches.
2. Millimeters are in parentheses.
3. Metric equivalents are given for general information only.

FIGURE 1. Style CFR15 capacitors.

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TABLE I. Capacitor characteristics.

Characteristic K, style CFR15 capacitors							
Type designation 1/	Capacitance (μ F)	Capacitance tolerance available	Voltage dc at 105°C (volts)	Voltage at 85°C at 20 kHz (volts)	dv/dt volt/ μ s (volts)	D	L ± .062
CFR15AKC123--	.012	J, K, M	200	60	300	.179 (4.55) ± .047 (1.19)	.750 (19.05)
CFR15AKC153--	.015	J, K, M	200	60	300	.197 (5.00) ± .047 (1.19)	.750 (19.05)
CFR15AKC183--	.018	J, K, M	200	60	300	.212 (5.39) ± .047 (1.19)	.750 (19.05)
CFR15AKC223--	.022	J, K, M	200	60	300	.232 (5.89) ± .047 (1.19)	.750 (19.05)
CFR15AKC273--	.027	J, K, M	200	60	300	.251 (6.38) ± .062 (1.57)	.750 (19.05)
CFR15AKC333--	.033	J, K, M	200	60	300	.263 (6.68) ± .062 (1.57)	.750 (19.05)
CFR15AKC393--	.039	J, K, M	200	60	300	.242 (6.15) ± .062 (1.57)	.938 (23.83)
CFR15AKC473--	.047	J, K, M	200	60	300	.261 (6.63) ± .062 (1.57)	.938 (23.83)
CFR15AKC563--	.056	J, K, M	200	60	300	.270 (6.86) ± .062 (1.57)	.938 (23.83)
CFR15AKC683--	.068	J, K, M	200	60	300	.297 (7.54) ± .062 (1.57)	.938 (23.83)
CFR15AKC823--	.082	J, K, M	200	40	300	.259 (6.58) ± .062 (1.57)	1.250 (31.75)
CFR15AKC104--	.10	J, K, M	200	40	300	.284 (7.21) ± .062 (1.57)	1.250 (31.75)
CFR15AKC124--	.12	J, K, M	200	40	300	.310 (7.87) ± .062 (1.57)	1.250 (31.75)
CFR15AKC154--	.15	J, K, M	200	40	300	.345 (8.76) ± .062 (1.57)	1.250 (31.75)
CFR15AKC184--	.18	J, K, M	200	40	300	.377 (9.58) ± .062 (1.57)	1.250 (31.75)
CFR15AKC224--	.22	J, K, M	200	40	300	.416 (10.57) ± .062 (1.57)	1.250 (31.75)
CFR15AKC274--	.27	J, K, M	200	40	300	.389 (9.88) ± .062 (1.57)	1.688 (42.88)
CFR15AKC334--	.33	J, K, M	200	40	300	.427 (10.85) ± .062 (1.57)	1.688 (42.88)
CFR15AKC394--	.39	J, K, M	200	40	300	.462 (11.74) ± .062 (1.57)	1.688 (42.88)
CFR15AKC474--	.47	J, K, M	200	40	300	.501 (12.73) ± .093 (2.36)	1.688 (42.88)
CFR15AKC564--	.56	J, K, M	200	40	300	.635 (16.13) ± .093 (2.36)	1.688 (42.88)
CFR15AKC684--	.68	J, K, M	200	40	300	.706 (17.93) ± .093 (2.36)	1.688 (42.88)
CFR15AKC324--	.82	J, K, M	200	40	300	.675 (17.15) ± .093 (2.36)	2.063 (52.40)
CFR15AKC105--	1.00	J, K, M	200	40	300	.748 (19.00) ± .093 (2.36)	2.063 (52.40)
CFR15AKE682--	.0068	J, K, M	400	95	400	.217 (5.51) ± .047 (1.19)	.750 (19.05)
CFR15AKE822--	.0082	J, K, M	400	95	400	.230 (5.84) ± .047 (1.19)	.750 (19.05)
CFR15AKE103--	.01	J, K, M	400	95	400	.232 (5.89) ± .047 (1.19)	.750 (19.05)
CFR15AKE123--	.012	J, K, M	400	95	400	.250 (6.35) ± .047 (1.19)	.750 (19.05)
CFR15AKE153--	.015	J, K, M	400	95	400	.260 (6.60) ± .062 (1.57)	.750 (19.05)
CFR15AKE183--	.018	J, K, M	400	95	400	.243 (6.17) ± .047 (1.19)	.938 (23.83)
CFR15AKE223--	.022	J, K, M	400	95	400	.262 (6.66) ± .062 (1.57)	.938 (23.83)
CFR15AKE273--	.027	J, K, M	400	95	400	.275 (6.98) ± .062 (1.57)	.938 (23.83)
CFR15AKE333--	.033	J, K, M	400	95	400	.301 (7.65) ± .062 (1.57)	.938 (23.83)
CFR15AKE393--	.039	J, K, M	400	50	400	.261 (6.63) ± .062 (1.57)	1.250 (31.75)
CFR15AKE473--	.047	J, K, M	400	50	400	.284 (7.21) ± .062 (1.57)	1.250 (31.75)
CFR15AKE563--	.056	J, K, M	400	50	400	.307 (7.80) ± .062 (1.57)	1.250 (31.75)
CFR15AKE683--	.068	J, K, M	400	50	400	.336 (8.53) ± .062 (1.57)	1.250 (31.75)
CFR15AKE823--	.082	J, K, M	400	50	400	.367 (9.32) ± .062 (1.57)	1.250 (31.75)
CFR15AKE104--	.1	J, K, M	400	50	400	.404 (10.26) ± .062 (1.57)	1.250 (31.75)
CFR15AKE124--	.12	J, K, M	400	50	400	.441 (11.20) ± .062 (1.57)	1.250 (31.75)
CFR15AKE154--	.15	J, K, M	400	50	400	.491 (12.47) ± .062 (1.57)	1.250 (31.75)
CFR15AKE184--	.18	J, K, M	400	50	400	.456 (11.58) ± .062 (1.57)	1.688 (42.88)
CFR15AKE224--	.22	J, K, M	400	50	400	.500 (12.73) ± .062 (1.57)	1.688 (42.88)
CFR15AKE274--	.27	J, K, M	400	50	400	.533 (13.54) ± .093 (2.36)	1.688 (42.88)

See footnote at end of table.

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TABLE I. Capacitor characteristics - Continued.

Characteristic K, style CFR15 capacitors							
Type designation 1/	Capacitance (μ F)	Capacitance tolerance available	Voltage dc at 105°C (volts)	Voltage at 85°C at 20 kHz (volts)	dv/dt volt/ μ s (volts)	D	L \pm .062
CFR15AKE334--	.33	J, K, M	400	50	400	.591 (15.01) \pm .093 (2.36)	1.688 (42.88)
CFR15AKE394--	.39	J, K, M	400	50	400	.643 (16.33) \pm .093 (2.36)	1.688 (42.88)
CFR15AKE474--	.47	J, K, M	400	50	400	.708 (17.98) \pm .093 (2.36)	1.688 (42.88)
CFR15AKE564--	.56	J, K, M	400	50	400	.749 (19.02) \pm .093 (2.36)	2.438 (61.93)
CFR15AKE684--	.68	J, K, M	400	50	400	.818 (20.78) \pm .093 (2.36)	2.438 (61.93)
CFR15AKE824--	.82	J, K, M	400	50	400	.901 (22.89) \pm .093 (2.36)	2.438 (61.93)
CFR15AKE105--	1.00	J, K, M	400	50	400	.998 (25.35) \pm .093 (2.36)	2.438 (61.93)
CFR15AKF102--	.001	J, K, M	600	110	500	.243 (6.17) \pm .047 (1.19)	.750 (19.05)
CFR15AKF122--	.0012	J, K, M	600	110	500	.253 (6.53) \pm .062 (1.57)	.750 (19.05)
CFR15AKF152--	.0015	J, K, M	600	110	500	.261 (6.63) \pm .062 (1.57)	.750 (19.05)
CFR15AKF182--	.0018	J, K, M	600	110	500	.299 (7.60) \pm .062 (1.57)	.750 (19.05)
CFR15AKF222--	.0022	J, K, M	600	110	500	.257 (6.53) \pm .062 (1.57)	.750 (19.05)
CFR15AKF272--	.0027	J, K, M	600	110	500	.265 (6.73) \pm .062 (1.57)	.750 (19.05)
CFR15AKF332--	.0033	J, K, M	600	110	500	.240 (6.10) \pm .047 (1.19)	.750 (19.05)
CFR15AKF392--	.0039	J, K, M	600	110	500	.253 (6.43) \pm .062 (1.57)	.750 (19.05)
CFR15AKF472--	.0047	J, K, M	600	110	500	.258 (6.55) \pm .062 (1.57)	.750 (19.05)
CFR15AKF562--	.0056	J, K, M	600	110	500	.265 (6.73) \pm .062 (1.57)	.750 (19.05)
CFR15AKF682--	.0068	J, K, M	600	110	500	.268 (6.81) \pm .062 (1.57)	.750 (19.05)
CFR15AKF822--	.0082	J, K, M	600	110	500	.257 (6.53) \pm .062 (1.57)	.938 (23.83)
CFR15AKF103--	.01	J, K, M	600	110	500	.267 (6.78) \pm .062 (1.57)	.938 (23.83)
CFR15AKF123--	.012	J, K, M	600	110	500	.290 (7.37) \pm .062 (1.57)	.938 (23.83)
CFR15AKF153--	.015	J, K, M	600	110	500	.320 (8.13) \pm .062 (1.57)	.938 (23.83)
CFR15AKF183--	.018	J, K, M	600	110	500	.347 (8.81) \pm .062 (1.57)	.938 (23.83)
CFR15AKF223--	.022	J, K, M	600	110	500	.381 (9.68) \pm .062 (1.57)	.938 (23.83)
CFR15AKF273--	.027	J, K, M	600	110	500	.328 (8.33) \pm .062 (1.57)	1.250 (31.75)
CFR15AKF333--	.033	J, K, M	600	110	500	.358 (9.09) \pm .062 (1.57)	1.250 (31.75)
CFR15AKF393--	.039	J, K, M	600	65	500	.387 (9.83) \pm .062 (1.57)	1.250 (31.75)
CFR15AKF473--	.047	J, K, M	600	65	500	.421 (10.69) \pm .062 (1.57)	1.250 (31.75)
CFR15AKF563--	.056	J, K, M	600	65	500	.457 (11.61) \pm .062 (1.57)	1.250 (31.75)
CFR15AKF683--	.068	J, K, M	600	65	500	.501 (12.73) \pm .093 (2.36)	1.250 (31.75)
CFR15AKF823--	.082	J, K, M	600	65	500	.516 (13.11) \pm .093 (2.36)	1.250 (31.75)
CFR15AKF104--	.1	J, K, M	600	65	500	.571 (14.50) \pm .093 (2.36)	1.250 (31.75)
CFR15AKF124--	.12	J, K, M	600	65	500	.501 (12.73) \pm .093 (2.36)	1.688 (42.88)
CFR15AKF154--	.15	J, K, M	600	65	500	.559 (14.20) \pm .093 (2.36)	1.688 (42.88)
CFR15AKF184--	.18	J, K, M	600	65	500	.613 (15.57) \pm .093 (2.36)	1.688 (42.88)
CFR15AKF224--	.22	J, K, M	600	65	500	.677 (17.20) \pm .093 (2.36)	1.688 (42.88)
CFR15AKF274--	.27	J, K, M	600	60	500	.706 (17.93) \pm .093 (2.36)	2.063 (52.40)
CFR15AKF334--	.33	J, K, M	600	60	500	.783 (19.89) \pm .093 (2.36)	2.063 (52.40)
CFR15AKF394--	.39	J, K, M	600	60	500	.854 (21.69) \pm .093 (2.36)	2.063 (52.40)
CFR15AKF474--	.47	J, K, M	600	60	500	.939 (23.85) \pm .093 (2.36)	2.063 (52.40)
CFR15AKF564--	.56	J, K, M	600	60	500	.908 (23.06) \pm .093 (2.36)	2.438 (61.93)
CFR15AKF684--	.68	J, K, M	600	60	500	1.003 (25.48) \pm .093 (2.36)	2.438 (61.93)
CFR15AKF824--	.82	J, K, M	600	60	500	1.005 (28.07) \pm .093 (2.36)	2.438 (61.93)
CFR15AKF105--	1.00	J, K, M	600	60	500	1.223 (31.06) \pm .093 (2.36)	2.438 (61.93)

See footnote at end of table.

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TABLE I. Capacitor characteristics- Continued.

Characteristic K, style CFR15 capacitors							
Type designation 1/	Capacitance (μ F)	Capacitance tolerance available	Voltage dc at 105°C (volts)	Voltage at 85°C at 20 kHz (volts)	dv/dt volt/ μ s (volts)	D	L \pm .062
CFR15AKL562--	.0056	J, K, M	800	405	600	.201 (5.10) \pm .047 (1.19)	1.250 (31.75)
CFR15AKL682--	.0068	J, K, M	800	405	600	.217 (5.51) \pm .047 (1.19)	1.250 (31.75)
CFR15AKL822--	.0082	J, K, M	800	405	600	.236 (5.99) \pm .047 (1.19)	1.250 (31.75)
CFR15AKL103--	.01	J, K, M	800	405	600	.251 (6.38) \pm .062 (1.57)	1.250 (31.75)
CFR15AKL123--	.012	J, K, M	800	405	600	.264 (6.71) \pm .062 (1.57)	1.250 (31.75)
CFR15AKL153--	.015	J, K, M	800	405	600	.294 (7.47) \pm .062 (1.57)	1.250 (31.75)
CFR15AKL183--	.018	J, K, M	800	405	600	.321 (8.15) \pm .062 (1.57)	1.250 (31.75)
CFR15AKL223--	.022	J, K, M	800	405	600	.354 (8.99) \pm .062 (1.57)	1.250 (31.75)
CFR15AKL273--	.027	J, K, M	800	405	600	.392 (9.96) \pm .062 (1.57)	1.250 (31.75)
CFR15AKL333--	.033	J, K, M	800	405	600	.433 (11.00) \pm .062 (1.57)	1.250 (31.75)
CFR15AKL393--	.039	J, K, M	800	140	600	.380 (9.65) \pm .062 (1.57)	1.688 (42.88)
CFR15AKL473--	.047	J, K, M	800	140	600	.414 (10.51) \pm .062 (1.57)	1.688 (42.88)
CFR15AKL563--	.056	J, K, M	800	140	600	.451 (11.46) \pm .062 (1.57)	1.688 (42.88)
CFR15AKL683--	.068	J, K, M	800	140	600	.501 (12.73) \pm .093 (2.36)	1.688 (42.88)
CFR15AKL823--	.082	J, K, M	800	140	600	.523 (13.28) \pm .093 (2.36)	1.688 (42.88)
CFR15AKL104--	.1	J, K, M	800	140	600	.579 (14.71) \pm .093 (2.36)	1.688 (42.88)
CFR15AKL124--	.12	J, K, M	800	85	600	.582 (14.78) \pm .093 (2.36)	2.063 (52.40)
CFR15AKL154--	.15	J, K, M	800	85	600	.652 (16.56) \pm .093 (2.36)	2.063 (52.40)
CFR15AKL184--	.18	J, K, M	800	85	600	.716 (18.19) \pm .093 (2.36)	2.063 (52.40)
CFR15AKL224--	.22	J, K, M	800	85	600	.793 (20.14) \pm .093 (2.36)	2.063 (52.40)
CFR15AKL274--	.27	J, K, M	800	85	600	.779 (19.79) \pm .093 (2.36)	2.438 (61.93)
CFR15AKL334--	.33	J, K, M	800	85	600	.863 (21.42) \pm .093 (2.36)	2.438 (61.93)
CFR15AKL394--	.39	J, K, M	800	85	600	.940 (23.88) \pm .093 (2.36)	2.438 (61.93)
CFR15AKL474--	.47	J, K, M	800	85	600	1.034 (26.26) \pm .093 (2.36)	2.438 (61.93)
CFR15AKL564--	.56	J, K, M	800	85	600	1.131 (28.73) \pm .093 (2.36)	2.438 (61.93)

1/ The complete type designation will include additional symbols to indicate capacitance tolerance and product level (C, M, P, R, and S).

REQUIREMENTS:

Design and construction:

Dimensions and configuration: See figure 1 and table I.

Case: Non-hermetic.

Dielectric: Polypropylene, foil.

Capacitance (cap.) value: See table I.

Cap. Tolerance: See table I.

Rated voltage: See table I.

Dv/dt: See table I.

Operating temperature range: -55°C to 105°C for dc operation.

Product level: Non-established reliability - C; Established reliability - M, P, R or S.

Preconditioning: Not applicable.

Burn-in: In accordance with MIL-PRF-55514, except ac capacitors shall be +105°C +0°C, -5°C, and the applied voltage shall be 140 percent of the dc voltage specified in table I.

Dielectric withstanding voltage (DWV): In accordance with MIL-PRF-55514, except charge time 2 minutes maximum at 200 percent rated dc voltage.

Insulation resistance: In accordance with MIL-PRF-55514, except test voltage to be 100 V dc.

Dissipation factor (DF): Not more than 0.1 percent when measured in accordance with MIL-PRF-55514.

Low temperature conditioning and capacitance change with temperature: In accordance with MIL-PRF-55514.

Resistance to soldering heat: Method 210 of MIL-STD-202, condition B.

ΔCap: Maximum of ± 0.25 percent.

Life (at 105°C): In accordance with MIL-PRF-55514.

Accelerated condition: 140 percent of 105°C rated voltage.

Rated condition: 100 percent of +105°C rated voltage.

IR (at +25°C terminal to terminal): Not less than 50.0 percent of initial requirement.

ΔCap (at +25°C): Maximum of 2.0 percent.

DF (at +25°C) after life: .12 percent maximum.

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AC conditioning: In accordance with MIL-PRF-55514. AC conditioning for qualification shall be at the rated ac voltage at 85°C and 20 kHz shall be run on test samples in accordance with table II herein at 12-month intervals.

TABLE II. AC conditioning test samples.

DC rated voltage (volts)	Sample size	Cap range for selection of sample 1/ (μ F)
200	24	.012 to 1.0
400	24	.0068 to 1.0
600	24	.001 to 1.0
800	24	.0056 to 0.56

- 1/ Each test sample shall contain at least one capacitor of the highest and lowest capacitance value of each voltage group manufactured during the 12-month period.

Custodians:

Army - CR
Air Force - 85
Navy - EC

Preparing activity:
Army - CR

Review activities:

Air Force - 17, 19, 99
DLA - CC
Navy - AS, OS, MC

Agent:
DLA-CC
(Project 5910-1946-05)