INCH-POUND

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21 April 2011
SUPERSEDING
MIL-PRF-20/35J
21 June 2001

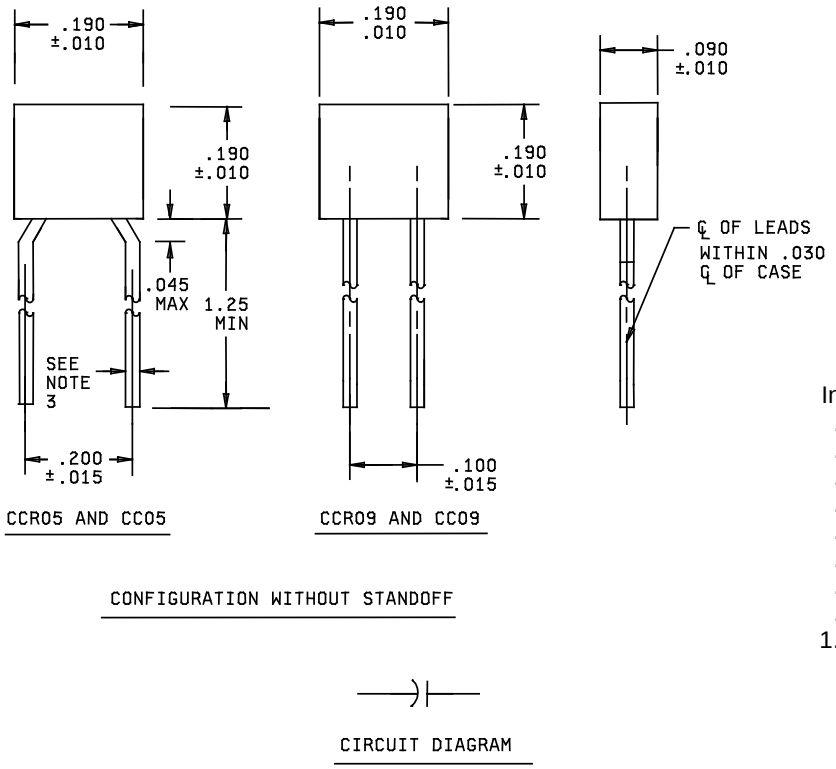
PERFORMANCE SPECIFICATION SHEET

CAPACITORS, FIXED, CERAMIC DIELECTRIC (TEMPERATURE COMPENSATING), ESTABLISHED AND NON-ESTABLISHED RELIABILITY, STYLES CCR05, CC05, CCR09, AND CC09

Styles CC05 and CC09 are inactive for new design after 19 September 1983. Use CCR05 and CCR09.

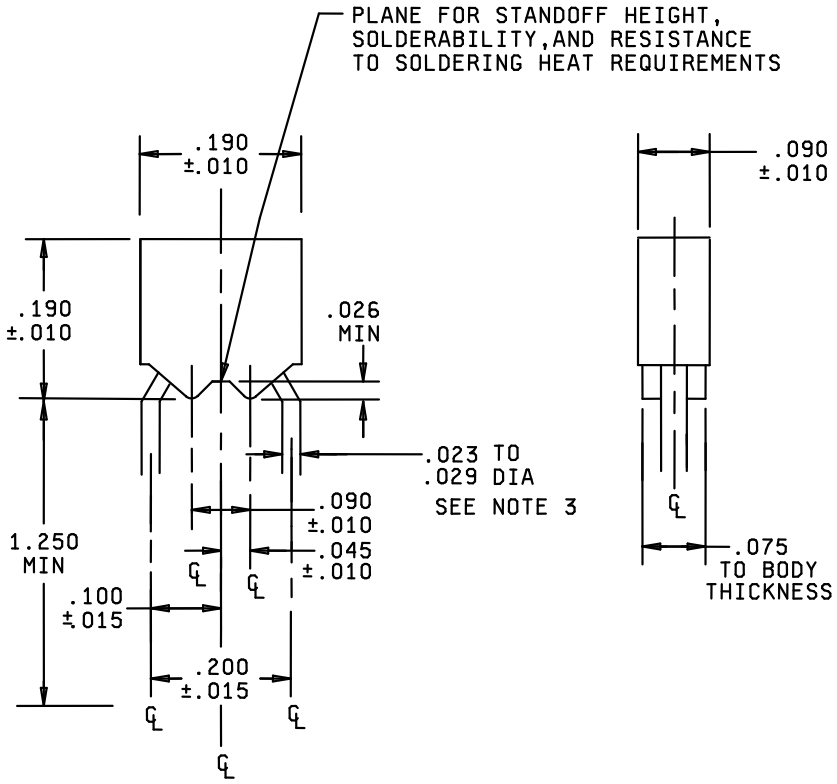
This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the capacitors described herein shall consist of this specification sheet and MIL-PRF-20.



Inches	mm
.010	0.25
.015	0.38
.030	0.75
.045	1.15
.090	2.29
.100	2.54
.190	4.83
.200	5.08
1.250	31.75

FIGURE 1. Styles CCR05, CC05, CCR09, and CC09 capacitors.



OPTIONAL CONFIGURATION WITH STANDOFF (CCR05 ONLY)

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for information only.
3. Lead diameter shall be .023 (0.58 mm) to .029 (0.74 mm).
4. Optional standoffs for style CCR05 shall be of triangular shape so that the standoffs will provide line contact with surface upon which the capacitor is mounted. The shape of the triangle is optional.
5. Thickness of standoffs shall be .075 (1.90 mm) to the body thickness.
6. Lead length may be a minimum of .625 (15.88 mm) for use in tape and reel automatic insertion equipment, when specified.
7. At the option of the user, the standoff configuration may be furnished as a replacement for the nonstandoff configuration of the same style.

FIGURE 1. Styles CCR05, CC05, CCR09, and CC09 capacitors - Continued.

REQUIREMENTS:

Dimensions and configuration: See figure 1.

Lead type: Radial.

Case type: Molded.

DC rated voltage: See table I.

Operating temperature range: -55°C to +125°C.

Characteristic: See table I.

Failure rate level (CCR05 and CCR09 only): M (1.0 percent), P (0.1 percent), R (.01 percent) or S (.001 percent).

Thermal shock and voltage conditioning (CCR05 and CCR09 only): In accordance with MIL-PRF-20.

Capacitance: Within tolerance specified (see table I).

Dissipation factor: In accordance with MIL-PRF-20.

Dielectric withstanding voltage: In accordance with MIL-PRF-20.

Body insulation: Test II.

Solderability: The leads shall be solderable up to .020 inch (0.51 mm) from the body egress.

Resistance to soldering heat: In accordance with MIL-PRF-20.

TABLE I. Capacitor characteristics.

PIN 1/ 2/ 3/	Rated voltage (volts, dc)	Nominal capacitance (pF)	Capacitance tolerance	PIN 1/ 2/	Rated voltage (volts, dc)	Nominal capacitance (pF)	Capacitance tolerance
CC-0-CX1R0---	200	1.0	BC	CC-0-CJ4R3---	200	4.3	BCD
CC-0-CX1R1---	200	1.1	BC	CC-0-CJ4R7---	200	4.7	BCD
CC-0-CX1R2---	200	1.2	BC	CC-0-CJ5R1---	200	5.1	BCD
CC-0-CX1R3---	200	1.3	BC	CC-0-CJ5R6---	200	5.6	BCD
CC-0-CX1R5---	200	1.5	BC	CC-0-CJ6R2---	200	6.2	BCD
CC-0-CX1R6---	200	1.6	BC	CC-0-CJ6R8---	200	6.8	BCD
CC-0-CX1R8---	200	1.8	BC	CC-0-CJ7R5----	200	7.5	BCD
CC-0-CX2R0---	200	2.0	BC	CC-0-CH8R2---	200	8.2	BCD
CC-0-CK2R2---	200	2.2	BC	CC-0-CH9R1---	200	9.1	BCD
CC-0-CK2R4---	200	2.4	BC	CC-0-CH100---	200	10	FG
CC-0-CK2R7---	200	2.7	BCD	CC-0-CH110---	200	11	FGJ
CC-0-CK3R0---	200	3.0	BCD	CC-0-CH120---	200	12	FGJ
CC-0-CK3R3---	200	3.3	BCD	CC-0-CH130---	200	13	FGJ
CC-0-CK3R6---	200	3.6	BCD	CC-0-CH150---	200	15	FGJ
CC-0-CK3R9---	200	3.9	BCD	CC-0-CH160---	200	16	FGJ

See footnotes at end of table.

TABLE I. Capacitor characteristics - Continued.

PIN 1/ 2/	Rated voltage (volts, dc)	Nominal capacitance (pF)	Capacitance tolerance	PIN 1/ 2/	Rated voltage (volts, dc)	Nominal capacitance (pF)	Capacitance tolerance
CC-0-CH180---	200	18	FGJ	CC-0-CG271---	200	270	FGJ
CC-0-CG200---	200	20	FGJ	CC-0-CG301---	200	300	FGJ
CC-0-CG220---	200	22	FGJ	CC-0-CG331---	200	330	FGJ
CC-0-CG240---	200	24	FGJ	CC-0-CG361---	100	360	FGJ
CC-0-CG270---	200	27	FGJ	CC-0-CG391---	100	390	FGJ
CC-0-CG300---	200	30	FGJ	CC-0-CG431---	100	430	FGJ
CC-0-CG330---	200	33	FGJ	CC-0-CG471---	100	470	FGJ
CC-0-CG360---	200	36	FGJ	CC-0-CG511---	100	510	FGJ
CC-0-CG390---	200	39	FGJ	CC-0-CG561---	100	560	FGJ
CC-0-CG430---	200	43	FGJ	CC-0-CG621---	100	620	FGJ
CC-0-CG470---	200	47	FGJ	CC-0-CG681---	100	680	FGJ
CC-0-CG510---	200	51	FGJ	CC-0-CG751---	100	750	FGJ
CC-0-CG560---	200	56	FGJ	CC-0-CG821---	100	820	FGJ
CC-0-CG620---	200	62	FGJ	CC-0-CG911---	100	910	FGJ
CC-0-CG680---	200	68	FGJ	CC-0-CG102---	100	1000	FGJ
CC-0-CG750---	200	75	FGJ	CC-0-CG112---	100	1100	FGJ
CC-0-CG820---	200	82	FGJ	CC-0-CG122---	100	1200	FGJ
CC-0-CG910---	200	91	FGJ	CC-0-CG132---	100	1300	FGJ
CC-0-CG101---	200	100	FGJ	CC-0-CG152---	100	1500	FGJ
CC-0-CG111---	200	110	FGJ	CC-0-CG162---	100	1600	FGJ
CC-0-CG121---	200	120	FGJ	CC-0-CG182---	100	1800	FGJ
CC-0-CG131---	200	130	FGJ	CC-0-CG202---	50	2000	FGJ
CC-0-CG151---	200	150	FGJ	CC-0-CG222---	50	2200	FGJ
CC-0-CG161---	200	160	FGJ	CC-0-CG242---	50	2400	FGJ
CC-0-CG181---	200	180	FGJ	CC-0-CG272---	50	2700	FGJ
CC-0-CG201---	200	200	FGJ	CC-0-CG302---	50	3000	FGJ
CC-0-CG221---	200	220	FGJ	CC-0-CG332---	50	3300	FGJ
CC-0-CG241---	200	240	FGJ				

1/ Complete PIN will include the following:

1st dash - Symbol “R” (for styles CCR05 and CCR09) or dash will be deleted (for styles CC05 and CC09).

2nd dash - Applicable style number (5 for .200 ± .015 lead spacing and 9 for .100 ± 0.015 lead spacing).

3rd dash - Applicable capacitance tolerance symbol.

4th dash - Applicable failure rate level symbol (CCR05 and CCR09 only) or dash will be deleted (for styles CC05 and CC09).

5th dash - Symbol “V” (for standoff mounting configuration) or dash will be deleted for no standoff.

2/ With respect to characteristics in previous revisions of this specification sheet: For capacitance values of 2 pF or less, characteristic CX is interchangeable with characteristic CH; for capacitance values of 2.2 pF through 3.9 pF, characteristic CK is interchangeable with characteristic CH; for capacitance values of 4.3 pF through 7.5 pF, characteristic CJ is interchangeable with characteristic CH; and for capacitance values of 11 pF through 18 pF, characteristic CH is interchangeable with characteristic CG. These parts shall be stocked under the same applicable NSN’s.

3/ Temperature coefficient is not practically measurable for characteristic CX capacitors.

Workmanship: For style CCR05 with standoff, exposed copper or bare leads shall be permitted to a maximum of .020 inch (0.51 mm) from the body egress. For style CCR05 without standoff, workmanship shall be in accordance with MIL-PRF-20.

Temperature coefficient and capacitance drift: In accordance with MIL-PRF-20. For capacitors with values of 18 pF or less, the temperature coefficient tolerance shall be determined in accordance with table II.

TABLE II. Temperature coefficient tolerances.

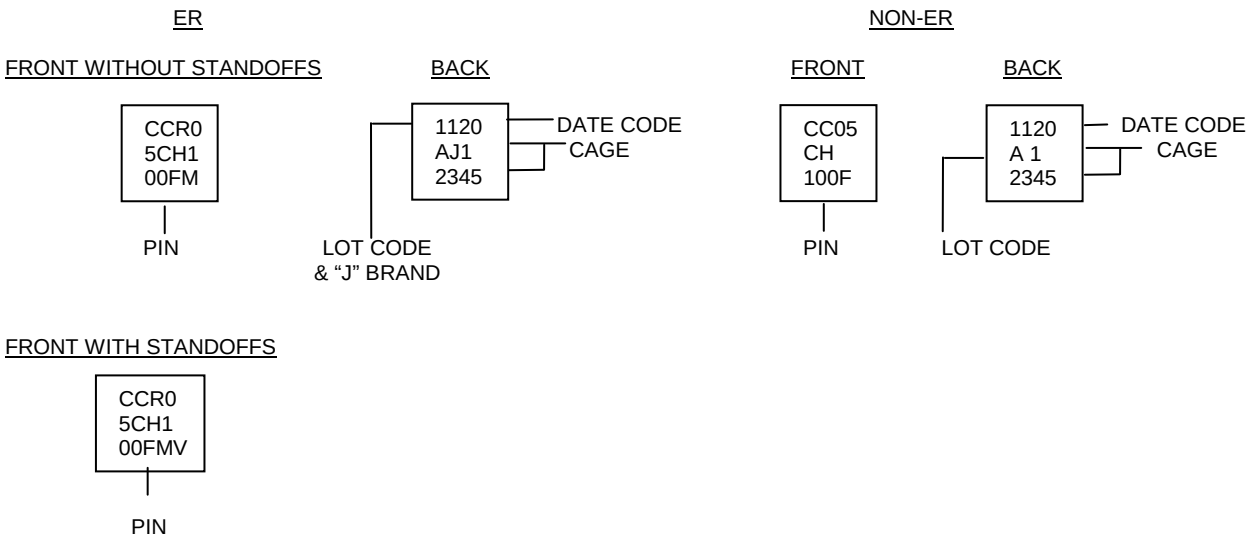
Permissible capacitance change from capacitance at +25°C in ppm/°C					
Temperature	Characteristic				
	CX	CK	CJ	CH	CG
+125°C	1/	±250 ppm/°C	±120 ppm/°C	±60 ppm/°C	±30 ppm/°C
-55°C 2/	1/	+246.25 -326.25	+116.25 -166.25	+55.00 -91.25	+27.50 -53.75

1/ Not practically measurable.
2/ The ppm/°C values for -55°C were calculated by dividing ppm by negative 80°C.

Life: In accordance with MIL-PRF-20, operating condition 2.

Part or Identifying Number (PIN): In accordance with MIL-PRF-20 and table I.

Marking: Method I of MIL-STD-1285. At the option of the manufacturer, the marking may be placed on one side of the capacitor, or the marking may be placed on two lines as long as it is in the same order as shown in the following examples:



Referenced documents. In addition to MIL-PRF-20, this specification sheet references the following document:

MIL-STD-1285

Changes from previous issue: The margins of this specification sheet 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

Review activities:
Navy - AS, MC, OS, SH
Air Force – 99

Preparing activity:
DLA - CC

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