

INCH-POUND

MIL-PRF-20/29E  
21 April 2011  
SUPERSEDING  
MIL-PRF-20/29D  
21 June 2001

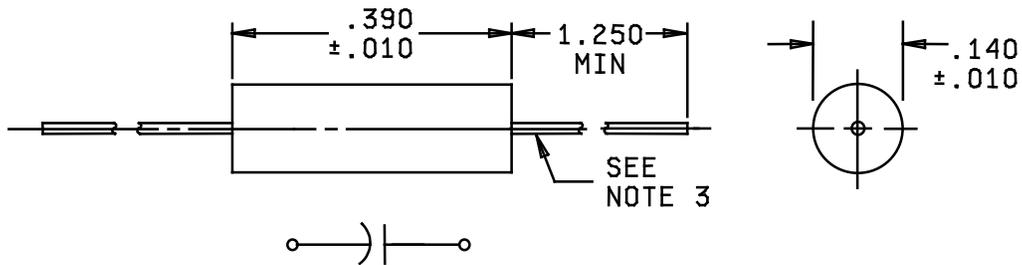
PERFORMANCE SPECIFICATION SHEET

CAPACITORS, FIXED, CERAMIC DIELECTRIC  
(TEMPERATURE COMPENSATING),  
ESTABLISHED AND NON-ESTABLISHED RELIABILITY,  
STYLES CCR77 AND CC77

CC77 is inactive for new design after  
26 March 1984. Use CCR77

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](#).



CIRCUIT DIAGRAM

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Lead diameter shall be  $.015$  ( $0.38$  mm) to  $.027$  ( $0.69$  mm).
4. Lead length may be a minimum of  $1.00$  inch ( $25.4$  mm) long for use in tape and reel packaging, when specified in the ordering data.

| Inches | mm    |
|--------|-------|
| .010   | 0.25  |
| .140   | 3.56  |
| .390   | 9.91  |
| 1.250  | 31.75 |

FIGURE 1. Styles CCR77 and CC77 capacitors.

## REQUIREMENTS:

Dimensions and configuration: See figure 1.

Lead type: Axial.

Case type: Tubular, molded.

DC rated voltage: See table I.

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

Characteristic: CG.

Failure rate level (CCR77 only): M (1.0 percent), P (0.1 percent), R (0.01 percent) or S (0.001 percent).

TABLE I. Capacitor characteristics.

| PIN<br>1/ 2/ | Rated<br>voltage<br>(volts, dc) | Nominal<br>capacitance<br>(pF) | Capacitance<br>tolerance | PIN<br>1/ 2/ | Rated<br>voltage<br>(volts, dc) | Nominal<br>capacitance<br>(pF) | Capacitance<br>tolerance |
|--------------|---------------------------------|--------------------------------|--------------------------|--------------|---------------------------------|--------------------------------|--------------------------|
| CC-77CG151-- | 200                             | 150                            | FGJ                      | CC-77CG102-- | 100                             | 1000                           | FGJ                      |
| CC-77CG161-- | 200                             | 160                            | FGJ                      | CC-77CG112-- | 100                             | 1100                           | FGJ                      |
| CC-77CG181-- | 200                             | 180                            | FGJ                      | CC-77CG122-- | 100                             | 1200                           | FGJ                      |
| CC-77CG201-- | 200                             | 200                            | FGJ                      | CC-77CG132-- | 100                             | 1300                           | FGJ                      |
| CC-77CG221-- | 200                             | 220                            | FGJ                      | CC-77CG152-- | 100                             | 1500                           | FGJ                      |
| CC-77CG241-- | 200                             | 240                            | FGJ                      | CC-77CG162-- | 100                             | 1600                           | FGJ                      |
| CC-77CG271-- | 200                             | 270                            | FGJ                      | CC-77CG182-- | 100                             | 1800                           | FGJ                      |
| CC-77CG301-- | 200                             | 300                            | FGJ                      | CC-77CG202-- | 100                             | 2000                           | FGJ                      |
| CC-77CG331-- | 200                             | 330                            | FGJ                      | CC-77CG222-- | 100                             | 2200                           | FGJ                      |
| CC-77CG361-- | 200                             | 360                            | FGJ                      | CC-77CG242-- | 50                              | 2400                           | FGJ                      |
| CC-77CG391-- | 200                             | 390                            | FGJ                      | CC-77CG272-- | 50                              | 2700                           | FGJ                      |
| CC-77CG431-- | 200                             | 430                            | FGJ                      | CC-77CG302-- | 50                              | 3000                           | FGJ                      |
| CC-77CG471-- | 200                             | 470                            | FGJ                      | CC-77CG332-- | 50                              | 3300                           | FGJ                      |
| CC-77CG511-- | 200                             | 510                            | FGJ                      | CC-77CG362-- | 50                              | 3600                           | FGJ                      |
| CC-77CG561-- | 200                             | 560                            | FGJ                      | CC-77CG392-- | 50                              | 3900                           | FGJ                      |
| CC-77CG621-- | 200                             | 620                            | FGJ                      | CC-77CG432-- | 50                              | 4300                           | FGJ                      |
| CC-77CG681-- | 200                             | 680                            | FGJ                      | CC-77CG472-- | 50                              | 4700                           | FGJ                      |
| CC-77CG751-- | 100                             | 750                            | FGJ                      | CC-77CG512-- | 50                              | 5100                           | FGJK                     |
| CC-77CG821-- | 100                             | 820                            | FGJ                      | CC-77CG562-- | 50                              | 5600                           | FGJK                     |
| CC-77CG911-- | 100                             | 910                            |                          |              |                                 |                                |                          |

1/ Complete PIN will include the following:

1st dash - Symbol "R" (for style CCR77) or dash will be deleted (for style CC77).

2nd dash - Applicable capacitance tolerance symbol.

3rd dash - Applicable failure rate level symbol (CCR77 only) or dash will be deleted (for style CC77).

2/ Capacitors deleted since previous revisions shall be replaced by selecting a capacitor with the nearest parameter.

MIL-PRF-20/29E

Thermal shock and voltage conditioning (CCR77 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: In accordance with [MIL-PRF-20](#).

Resistance to soldering heat: In accordance with [MIL-PRF-20](#).

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](#), as shown in the following example:

ER

|  |        |
|--|--------|
| PIN  | CCR77C |
|  | G151FM |
| "J" brand and CAGE code  | J12345 |
| Date code and lot code<br>(lot code may require<br>two characters) | 1120A  |

NON-ER

|  |       |
|--|-------|
| PIN  | CC77C |
|  | G151F |
| CAGE code  | 12345 |
| Date code and lot code<br>(lot code may require<br>two characters) | 1120A |

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

Preparing activity:

DLA - CC

(Project 5910-2011-013)

Review activities:

Navy - AS, MC, OS, SH  
Air Force – 99

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.daps.dla.mil>.