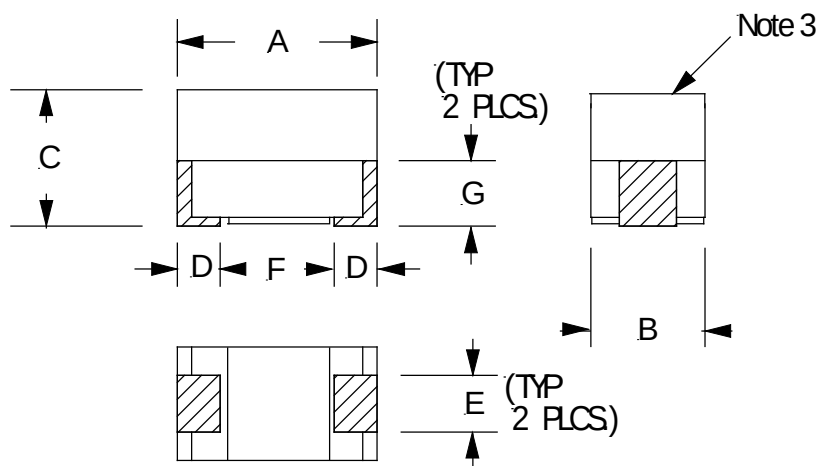


## PERFORMANCE SPECIFICATION SHEET

COIL, RADIO FREQUENCY, CHIP, FIXED, MOLDED, UNSHIELDED  
ESTABLISHED RELIABILITY, SURFACE MOUNT

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

The requirements for acquiring the products described  
herein shall consist of this specification sheet and MIL-PRF-32560.



| Dim. | Inches            | Millimeters      |
|------|-------------------|------------------|
| A    | 0.118 to 0.138    | 3.00 to 3.51     |
| B    | 0.085 to 0.105    | 2.16 to 2.67     |
| C    | 0.081 to 0.101    | 2.06 to 2.57     |
| D    | 0.016 min.        | 0.41 min.        |
| E    | 0.041 to 0.061    | 1.04 to 1.55     |
| F    | 0.070 (Ref. Only) | 1.78 (Ref. Only) |
| G    | 0.054 (Ref. Only) | 1.37 (Ref. Only) |

## NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Marking shall be on the top surface of the coil.

FIGURE 1. Dimensions and Configuration.

REQUIREMENTS:

Dimensions and configuration: See Figure 1.

Material: Phenolic core (inductance values 0.0018 to 0.082 uH, inclusive); Iron core (inductance values 0.10 to 0.82 uH, inclusive); Ferrite core (inductance values 1.0 to 100 uH, inclusive).

Termination finish: Tin lead only

Weight: 0.10 gram, maximum.

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

Temperature rise (at 90°C): 35°C maximum. Test performed with coil mounted on SMD test substrate.

Maximum operating temperature: +125°C.

Altitude: 70,000 feet maximum.

Dielectric Withstanding Voltage: In accordance with MIL-PRF-32560.

Barometric Pressure: In accordance with MIL-PRF-32560.

Insulation Resistance: In accordance with MIL-PRF-32560.

Points of test voltage application for Dielectric Withstanding Voltage, Barometric Pressure, and Insulation Resistance are between the terminals of the coil shorted together and the contact arm or assembly. The contact arm is made of conductive, moisture-resistant, resilient material and it shall cover the entire surface opposite the terminals, and shall be held firmly in place against this surface during testing.

Electrical characteristics (initial): See Table I.

Inductance and tolerance: See Table I.

Quality Factor (Q): See Table I.

Self-resonant frequency: See Table I.

DC resistance: See Table I.

Terminal (Bond) Strength: 2.0 pounds, when tested in accordance with MIL-STD-883, Method 2011, Test condition F. Test performed with coil mounted on SMD test substrate.

Solderability: In accordance with MIL-PRF-32560 with the following exception:

- a. MIL-STD-202-208, test method B

Resistance to solvents: Test is not applicable.

Overload: Test performed with coil mounted on SMD test substrate.

Low temperature storage: Test performed with coil mounted on SMD test substrate.

Vibration: In accordance with MIL-PRF-32560. Test performed with coil mounted on SMD test substrate.

Shock (Specified Pulse): In accordance with MIL-PRF-32560. Test performed with coil mounted on SMD test substrate.

Life: Test performed with coil mounted on SMD test substrate.

Moisture Resistance: In accordance with MIL-PRF-32560.

SMD test substrate (where applicable): Material shall be made of a minimum of 96 percent alumina, or equivalent. The test substrate shall be prepared with metallized surface land areas.

Coil Mounting (where applicable): Test coils are to be soldered to the SMD test substrate's metallized areas only. Solder used shall be Sn63Pb37 solder or equivalent. The test substrate shall then be placed in or on a suitable heat transfer unit (molten solder, hot plate, tunnel oven, etc.) with the temperature maintained at 260°C +/- 5°C, until the solder melts and reflows forming a homogenous solder connection.

Electrical characteristics (final): See Table II. For any Subgroup test requiring coils to be mounted to an SMD test substrate, the electrical characteristics (final) measurements are to be referenced to the electrical characteristics (initial) measurements determined after the test coil is mounted to the test substrate.

Part Marking: Coil marking is not applicable due to body size constraints.

Table I Electrical characteristics (initial) and dash numbers.

| Dash Number<br><u>1/</u> | Inductance<br>( $\mu$ H) <u>3/</u> | Inductance<br>Tolerance<br>(%) | Q<br>(min)<br><u>3/</u> | Test<br>Frequency<br>(MHz) | Self-<br>resonant<br>frequency<br>(MHz)<br>(min) | DC<br>resistance<br>(ohms)<br>(max) | Current<br>rating<br>(mA)<br>(max)<br><u>2/</u> |
|--------------------------|------------------------------------|--------------------------------|-------------------------|----------------------------|--------------------------------------------------|-------------------------------------|-------------------------------------------------|
| BR0018*B*                | 0.0018                             | $\pm 20$                       | 40                      | 50                         | 2700                                             | 0.050                               | 1,562                                           |
| BR0022*B*                | 0.0022                             | $\pm 20$                       | 40                      | 50                         | 2700                                             | 0.050                               | 1,562                                           |
| BR0027*B*                | 0.0027                             | $\pm 20$                       | 40                      | 50                         | 2700                                             | 0.050                               | 1,562                                           |
| BR0033*B*                | 0.0033                             | $\pm 20$                       | 40                      | 50                         | 2700                                             | 0.050                               | 1,562                                           |
| BR0039*B*                | 0.0039                             | $\pm 20$                       | 40                      | 50                         | 2700                                             | 0.050                               | 1,562                                           |
| BR0047*B*                | 0.0047                             | $\pm 20$                       | 40                      | 50                         | 2700                                             | 0.050                               | 1,562                                           |
| BR0056*B*                | 0.0056                             | $\pm 20$                       | 40                      | 50                         | 2700                                             | 0.050                               | 1,562                                           |
| BR0068*B*                | 0.0068                             | $\pm 20$                       | 40                      | 50                         | 2700                                             | 0.050                               | 1,562                                           |
| BR0082*B*                | 0.0082                             | $\pm 20$                       | 40                      | 50                         | 2700                                             | 0.050                               | 1,562                                           |
| BR010*B*                 | 0.010                              | $\pm 10$                       | 30                      | 50                         | 2000                                             | 0.13                                | 966                                             |
| BR012*B*                 | 0.012                              | $\pm 10$                       | 30                      | 50                         | 1850                                             | 0.14                                | 931                                             |
| BR015*B*                 | 0.015                              | $\pm 10$                       | 30                      | 50                         | 1700                                             | 0.16                                | 871                                             |
| BR018*B*                 | 0.018                              | $\pm 10$                       | 30                      | 50                         | 1550                                             | 0.18                                | 821                                             |
| BR022*B*                 | 0.022                              | $\pm 10$                       | 30                      | 50                         | 1300                                             | 0.20                                | 779                                             |
| BR027*B*                 | 0.027                              | $\pm 10$                       | 30                      | 50                         | 1150                                             | 0.22                                | 743                                             |
| BR033*B*                 | 0.033                              | $\pm 10$                       | 30                      | 50                         | 1000                                             | 0.24                                | 711                                             |
| BR039*B*                 | 0.039                              | $\pm 10$                       | 30                      | 50                         | 900                                              | 0.27                                | 670                                             |
| BR047*B*                 | 0.047                              | $\pm 10$                       | 30                      | 50                         | 800                                              | 0.30                                | 636                                             |
| BR056*B*                 | 0.056                              | $\pm 10$                       | 30                      | 50                         | 750                                              | 0.33                                | 606                                             |
| BR068*B*                 | 0.068                              | $\pm 10$                       | 30                      | 50                         | 700                                              | 0.36                                | 580                                             |
| BR082*B*                 | 0.082                              | $\pm 10$                       | 30                      | 50                         | 625                                              | 0.40                                | 551                                             |
| BR10*B*                  | 0.10                               | $\pm 10$                       | 30                      | 25                         | 550                                              | 0.20                                | 1,018                                           |
| BR12*B*                  | 0.12                               | $\pm 10$                       | 30                      | 25                         | 500                                              | 0.22                                | 971                                             |
| BR15*B*                  | 0.15                               | $\pm 10$                       | 30                      | 25                         | 450                                              | 0.25                                | 910                                             |
| BR18*B*                  | 0.18                               | $\pm 10$                       | 30                      | 25                         | 400                                              | 0.28                                | 860                                             |
| BR22*B*                  | 0.22                               | $\pm 10$                       | 30                      | 25                         | 350                                              | 0.32                                | 805                                             |
| BR27*B*                  | 0.27                               | $\pm 10$                       | 30                      | 25                         | 320                                              | 0.36                                | 759                                             |
| BR33*B*                  | 0.33                               | $\pm 10$                       | 30                      | 25                         | 300                                              | 0.40                                | 720                                             |
| BR39*B*                  | 0.39                               | $\pm 10$                       | 30                      | 25                         | 250                                              | 0.45                                | 679                                             |
| BR47*B*                  | 0.47                               | $\pm 10$                       | 30                      | 25                         | 220                                              | 0.50                                | 644                                             |
| BR56*B*                  | 0.56                               | $\pm 10$                       | 30                      | 25                         | 180                                              | 0.55                                | 614                                             |
| BR68*B*                  | 0.68                               | $\pm 10$                       | 30                      | 25                         | 160                                              | 0.60                                | 588                                             |
| BR82*B*                  | 0.82                               | $\pm 10$                       | 30                      | 25                         | 140                                              | 0.67                                | 556                                             |
| B1R0*B*                  | 1.0                                | $\pm 5$                        | 30                      | 7.9                        | 120                                              | 0.70                                | 515                                             |
| B1R2*B*                  | 1.2                                | $\pm 5$                        | 30                      | 7.9                        | 100                                              | 0.75                                | 497                                             |
| B1R5*B*                  | 1.5                                | $\pm 5$                        | 30                      | 7.9                        | 85                                               | 0.85                                | 467                                             |
| B1R8*B*                  | 1.8                                | $\pm 5$                        | 30                      | 7.9                        | 75                                               | 0.90                                | 454                                             |
| B2R2*B*                  | 2.2                                | $\pm 5$                        | 30                      | 7.9                        | 70                                               | 1.0                                 | 431                                             |
| B2R7*B*                  | 2.7                                | $\pm 5$                        | 30                      | 7.9                        | 65                                               | 1.1                                 | 411                                             |
| B3R3*B*                  | 3.3                                | $\pm 5$                        | 30                      | 7.9                        | 58                                               | 1.2                                 | 393                                             |
| B3R9*B*                  | 3.9                                | $\pm 5$                        | 30                      | 7.9                        | 50                                               | 1.3                                 | 378                                             |
| B4R7*B*                  | 4.7                                | $\pm 5$                        | 30                      | 7.9                        | 45                                               | 1.5                                 | 352                                             |
| B5R6*B*                  | 5.6                                | $\pm 5$                        | 30                      | 7.9                        | 42                                               | 1.6                                 | 341                                             |
| B6R8*B*                  | 6.8                                | $\pm 5$                        | 30                      | 7.9                        | 40                                               | 1.8                                 | 321                                             |
| B8R2*B*                  | 8.2                                | $\pm 5$                        | 30                      | 7.9                        | 35                                               | 2.0                                 | 305                                             |
| B100*B*                  | 10                                 | $\pm 5$                        | 30                      | 7.9                        | 30                                               | 2.1                                 | 297                                             |

Table I Electrical characteristics (initial) and dash numbers. - continued

| Dash Number<br><u>1/</u> | Inductance<br>( $\mu$ H) <u>3/</u> | Inductance<br>Tolerance<br>(%) | Q<br>(min)<br><u>3/</u> | Test<br>Frequency<br>(MHz) | Self-<br>resonant<br>frequency<br>(MHz)<br>(min) | DC<br>resistance<br>(ohms)<br>(max) | Current<br>rating<br>(mA)<br>(max)<br><u>2/</u> |
|--------------------------|------------------------------------|--------------------------------|-------------------------|----------------------------|--------------------------------------------------|-------------------------------------|-------------------------------------------------|
| B120*B*                  | 12                                 | $\pm 5$                        | 30                      | 2.5                        | 28                                               | 2.5                                 | 272                                             |
| B150*B*                  | 15                                 | $\pm 5$                        | 30                      | 2.5                        | 25                                               | 2.8                                 | 257                                             |
| B180*B*                  | 18                                 | $\pm 5$                        | 30                      | 2.5                        | 23                                               | 3.3                                 | 237                                             |
| B220*B*                  | 22                                 | $\pm 5$                        | 30                      | 2.5                        | 20                                               | 3.7                                 | 224                                             |
| B270*B*                  | 27                                 | $\pm 5$                        | 30                      | 2.5                        | 18                                               | 5.0                                 | 193                                             |
| B330*B*                  | 33                                 | $\pm 5$                        | 30                      | 2.5                        | 15                                               | 5.6                                 | 182                                             |
| B390*B*                  | 39                                 | $\pm 5$                        | 30                      | 2.5                        | 14                                               | 6.4                                 | 170                                             |
| B470*B*                  | 47                                 | $\pm 5$                        | 30                      | 2.5                        | 13                                               | 7.0                                 | 163                                             |
| B560*B*                  | 56                                 | $\pm 5$                        | 30                      | 2.5                        | 11                                               | 8.0                                 | 152                                             |
| B680*B*                  | 68                                 | $\pm 5$                        | 30                      | 2.5                        | 10                                               | 9.0                                 | 144                                             |
| B820*B*                  | 82                                 | $\pm 5$                        | 30                      | 2.5                        | 9                                                | 10.0                                | 136                                             |
| B101*B*                  | 100                                | $\pm 5$                        | 30                      | 2.5                        | 8                                                | 13.0                                | 120                                             |

1/ The complete dash number will include three (3) additional letters (indicated by \*\*\*). The first additional letter will indicate the inductance tolerance (e.g. J =  $\pm 5\%$ , K =  $\pm 10\%$ , M =  $\pm 20\%$ ), the second additional letter will indicate the termination finish B = Tin Lead, and the third additional letter will indicate the product level (e.g. M, P, R, S) and will be added to the end of the dash number.

2/ Maximum current allowed not to exceed the specified maximum temperature rise.

3/ Inductance and Q to be measured using HP4291A; HP 4194A or equivalent using TF16092; TF16034 or equivalent.

Table II Electrical characteristics (final).

| Inspection<br>group         | Allowable variation from initial measurements |                               |                                         |                |
|-----------------------------|-----------------------------------------------|-------------------------------|-----------------------------------------|----------------|
|                             | Inductance<br>(Percent)                       | DC resistance                 | Self-resonant<br>frequency<br>(Percent) | Q<br>(Percent) |
| Qualification<br>inspection |                                               |                               |                                         |                |
| Group II                    | $\pm 5$                                       | $\pm(3\% + .001 \text{ ohm})$ | -10                                     | -10            |
| Group IIIA                  | $\pm 5$                                       | -----                         | ----                                    | -10            |
| Group IV                    | $\pm 5$                                       | $\pm(3\% + .001 \text{ ohm})$ | -10                                     | -10            |
| Group V                     | $\pm 5$                                       | $\pm(3\% + .001 \text{ ohm})$ | -10                                     | -10            |
| Group B<br>inspection       |                                               |                               |                                         |                |
| Subgroup 1                  | $\pm 5$                                       | $\pm(3\% + .001 \text{ ohm})$ | -10                                     | -10            |
| Subgroup 2                  | $\pm 5$                                       | $\pm(3\% + .001 \text{ ohm})$ | -10                                     | -10            |
| Subgroup 3a                 | $\pm 5$                                       | ----                          | ----                                    | -10            |
| Subgroup 4                  | $\pm 5$                                       | $\pm(3\% + .001 \text{ ohm})$ | -10                                     | -10            |

Part or Identifying Number (PIN): The part number shall be in the following form.

M32560/03-\*\*\*\*\* (dash number per Table I)

Referenced documents: In addition to MIL-PRF-32560, this document references:

MIL-STD-202-208, MIL-STD-883

Custodians:

Army – CR  
Navy – EC  
Air Force – 85  
DLA – CC

Preparing activity:

DLA – CC

Review Activities:

Army – AR, CR4, MI  
Navy – AS, CG, MC, OS  
Air Force – 19, 99  
NASA – NA  
Other - MDA

(Project 5950-2017-003)

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.dla.mil>.