

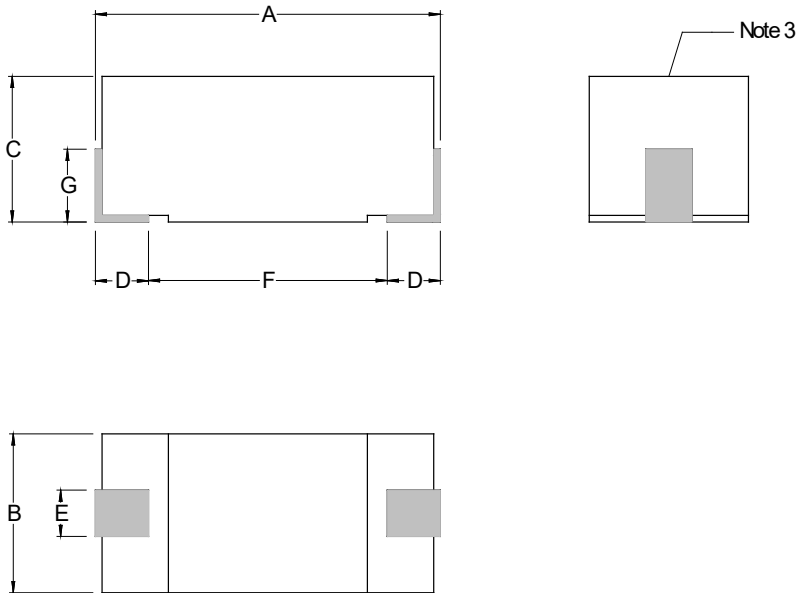
PERFORMANCE SPECIFICATION SHEET

COILS, RADIO FREQUENCY, MOLDED,
IRON CORE, FIXED, SURFACE MOUNT

ESTABLISHED RELIABILITY & NON-ESTABLISHED RELIABILITY

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

The requirements for acquiring the product herein shall
consist of this specification sheet and MIL-PRF-39010



Notes:

	Inches	mm
1. Dimensions in inches	A 0.300 to 0.325	7.62 to 8.26
2. Metric equivalents are given for general information only	B 0.110 to 0.130	2.79 to 3.30
	C 0.125 to 0.145	3.18 to 3.68
3. Marking shall be on top surface of the coil	D 0.020 Min	0.508 Min
	E 0.040 to 0.060	1.02 to 1.52
	F 0.190 (Ref. Only)	4.83 (Ref.Only)
	G 0.070 (Ref. Only)	1.78 (Ref. Only)

FIGURE 1. Dimensions and configuration.



REQUIREMENTS

Interface and physical dimensions: See Figure 1

Material: Iron core

Weight: 0.30 grams maximum

Operating temperature range: -55°C to +105°C

Dielectric withstanding voltage: Test voltage 500Vrms

Barometric pressure: Test condition C, (70,000ft) and a test voltage of 200Vrms

Electrical characteristics: See table I and table II

Inductance and tolerance: See table I

Q values: See table I

Self-resonant frequency: See table I

DC resistance: See table I

Temperature rise: 15°C. Test performed with coil mounted on Surface Mount Device (SMD) test substrate

Terminal (Bond) strength: 2 pounds when tested in accordance with MIL-STD-883, method 2011, test condition F, coil mounted on SMD test substrate.

Points of test voltage application for dielectric withstanding voltage, barometric pressure and insulation resistance: Between the terminals of the coil connected together and a piece of conductive rubber which is sufficient in size to cover at least the entire surface opposite the terminals. The conductive rubber is to be held firmly in place against the coil surface during test.

Solderability: [MIL-STD-202-208](#); test condition B. Both end terminations are to be immersed simultaneously. Rates of immersion, dwell time and withdrawal are human controlled.

Resistance to solvents: Test is not applicable

Resistance to soldering heat: [MIL-STD-202-210](#), test condition C. Mounting board to be SMD test substrate per this document. Test to be performed after final electrical in qualification subgroup II; or after final electrical in group B subgroup 3 inspection.

Overload: Test coil shall be mounted on SMD test substrate.

Low temperature storage: Test coil shall be mounted on SMD test substrate.

Vibration: Test coil shall be mounted on SMD test substrate.

Mechanical shock: Test coil shall be mounted on SMD test substrate.

Life: Test coil shall be mounted on SMD test substrate.

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Moisture resistance: [MIL-STD-202-106](#); polarization voltage not required. Step 7a shall be performed during any five of the first eight cycles only. Step 7b is not applicable. Test coil shall be mounted on SMD test substrate.

SMD test substrate: Material shall be a minimum of 95 percent alumina with metallized areas for part mounting. The substrate shall not cause, or contribute to, any failure in any test which it is used.

Coil mounting: Test coils are to be soldered to the SMD test substrate metallized areas using Sn63 solder, or equivalent, by any suitable method that does not exceed a temperature of 265°C and a solder time period greater than five seconds.

Table II electrical characteristics (final): 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 characteristic (initial) measurements determined after the test coil is mounted to the test substrate.

Part or identifying number (PIN): M39010/20-***** (dash number from table 1)

Part marking: The parts shall be laser marked. The PIN number marked on the coil shall not include the M39010/ identifier due to body surface area size constraints. Remaining part marking requirements of MIL-PRF-39010 apply.

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Table I Electrical characteristics (initial) and dash numbers

Dash Number 1/	Inductance μ H 2/	Inductance Tolerance $\pm$ percent	Q minimum 2/	Test frequency (MHz)	Self Resonant Frequency min (MHz) 3/	DC resistance (25°C) max (ohms)	Rated DC current (mA) 4/
A1R1**	1.10	5	25	7.9	150	0.180	620
A1R2**	1.20	5,10	25	7.9	150	0.180	620
A1R3**	1.30	5	25	7.9	140	0.220	560
A1R5**	1.50	5, 10	28	7.9	140	0.220	560
A1R6**	1.60	5	28	7.9	125	0.300	480
A1R8**	1.80	5,10	30	7.9	125	0.300	480
A2R0**	2.00	5	30	7.9	115	0.400	415
A2R2**	2.20	5, 10	30	7.9	115	0.400	415
A2R4**	2.40	5	30	7.9	100	0.550	355
A2R7**	2.70	5,10	37	7.9	100	0.550	355
A3R0**	3.00	5	37	7.9	90	0.850	285
A3R3**	3.30	5, 10	45	7.9	90	0.850	285
A3R6**	3.60	5	45	7.9	80	1.00	263
A3R9**	3.90	5,10	45	7.9	80	1.00	263
A4R3**	4.30	5	45	7.9	75	1.20	239
A4R7**	4.70	5, 10	45	7.9	75	1.20	239
A5R1**	5.10	5	45	7.9	65	1.80	195
A5R6**	5.60	5,10	50	7.9	65	1.80	195
A6R2**	6.20	5	50	7.9	60	2.00	185
A6R8**	6.80	5, 10	50	7.9	60	2.00	185
A7R5**	7.50	5	50	7.9	55	2.70	160
A8R2**	8.20	5,10	55	7.9	55	2.70	160
A9R1**	9.10	5	55	7.9	50	3.70	144
A100**	10.0	5, 10	55	7.9	50	3.70	144

See footnotes at end of table.

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Table I Electrical characteristics (initial) and dash numbers

Dash Number <u>1/</u>	Inductance μ H <u>2/</u>	Inductance Tolerance $\pm$ percent	Q minimum <u>2/</u>	Test frequency (MHz)	Self Resonant Frequency min (MHz) <u>3/</u>	DC resistance (25°C) max (ohms)	Rated DC current (mA) <u>4/</u>
A110**	11.0	5	45	2.5	40	2.70	160
A120**	12.0	5,10	45	2.5	40	2.70	160
A130**	13.0	5	45	2.5	35	2.80	157
A150**	15.0	5, 10	45	2.5	35	2.80	157
A160**	16.0	5	45	2.5	30	3.10	149
A180**	18.0	5,10	50	2.5	30	3.10	149
A200**	20.0	5	50	2.5	25	3.30	144
A220**	22.0	5, 10	50	2.5	25	3.30	144
A240**	24.0	5	50	2.5	20	3.50	140
A270**	27.0	5, 10	50	2.5	20	3.50	140

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

2/ Inductance and Q are tested using HP4194A with test fixture 16034E, or equivalent.

3/ Self resonant frequency tested using HP8753C, HP4292A, HP4194A or equivalent

4/ The rated dc current is based on 90°C ambient temperature with a 15°C rise.

Table II Electrical characteristics (final)

Inspection Group	Allowable variation from initial measurement	Allowable variation from initial measurement	Allowable percent from specified minimum value in electrical characteristics (initial) table	Allowable percent from specified minimum value in electrical characteristics (initial) table
	Inductance (percent)	DC resistance	Self resonant frequency	Q
Qualification inspection				
Group II	±2			-10
Group IV	±5	±(3% + 0.001 ohm)	<u>1</u> /	-10
Group VI	±5	±(2% +0.001 ohm)	<u>1</u> /	-15
Group B inspection				
Subgroup 1	±5	±(2% +0.001 ohm)	<u>1</u> /	-15
Subgroup 3	±2			-10
Subgroup 4	±5	±(3% + 0.001 ohm)	<u>1</u> /	-10

1/ The self-resonant frequency shall not be less than the value specified in table I

Amendment notations. The margins of this specification are marked with vertical lines to indicate modifications generated by this amendment. 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.

Referenced documents. In addition to [MIL-PRF-39010](#), this document references the following:

MIL-STD-202-106, MIL-STD-202-208, MIL-STD-202-210, 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, SH
Air Force – 19

(Project 5950-2022-082)

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>.