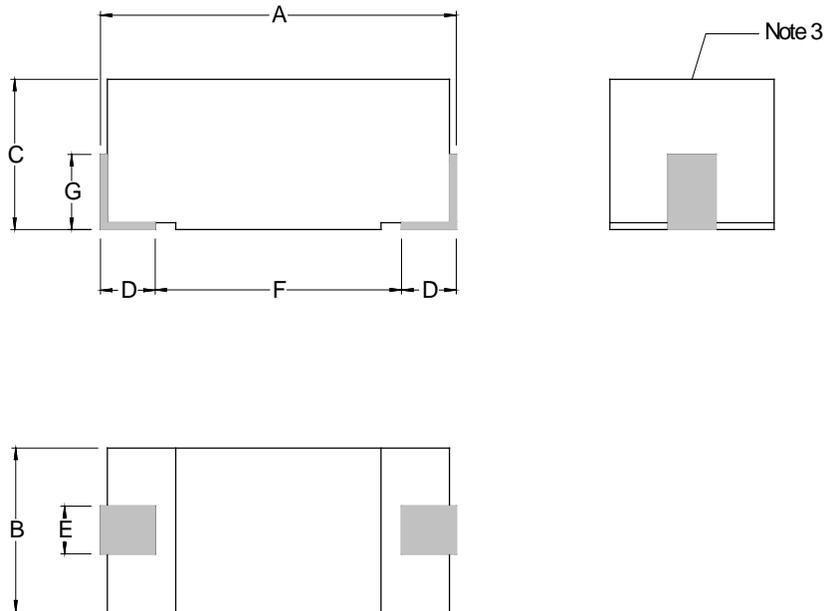


PERFORMANCE SPECIFICATION SHEET
COILS, RADIO FREQUENCY, SHIELDED,
MOLDED, FIXED, SURFACE MOUNT
ESTABLISHED RELIABILITY & NON-ESTABLISHED RELIABILITY

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:

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

	Inches	mm
A	0.490 to 0.520	12.44 to 13.21
B	0.230 to 0.250	5.84 to 6.35
C	0.210 to 0.230	5.33 to 5.84
D	0.050 Min	1.27 Min
E	0.055 to 0.075	1.40 to 1.91
F	0.330 (Ref. Only)	8.38 (Ref.Only)
G	0.110 (Ref. Only)	2.79 (Ref. Only)

REQUIREMENTS

Interface and physical dimensions: See Figure 1

Material:

Dash number AR10 to AR82: Phenolic core with iron sleeve

Dash number AR91 to A120: Iron core with iron sleeve

Weight: 1.2 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

Percent coupling: 3 percent maximum with 0.050 inch spacing between coils

Temperature rise: 15°C. Test performed with coil mounted on 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: Method 208 of MIL-STD-202; 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: Method 210 of MIL-STD-202, 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 f substrate.

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

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

Moisture resistance: Method 106 of MIL-STD-202; 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 marking: These parts shall be laser marked.

Part or identifying number (PIN): M39010/17-***** (dash number from table I)

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/
AR10**	0.10	5, 10	45	25	450	0.025	2,245
AR11**	0.11	5	45	25	425	0.034	1,925
AR12**	0.12	5,10	45	25	425	0.034	1,925
AR13**	0.13	5	45	25	400	0.037	1,845
AR15**	0.15	5, 10	45	25	400	0.037	1,845
AR16**	0.16	5	45	25	350	0.047	1,635
AR18**	0.18	5,10	45	25	350	0.047	1,635
AR20**	0.20	5	40	25	325	0.067	1,370
AR22**	0.22	5, 10	40	25	325	0.067	1,370
AR24**	0.24	5	40	25	300	0.11	1,070
AR27**	0.27	5,10	40	25	300	0.11	1,070
AR30**	0.30	5	40	25	275	0.13	985
AR33**	0.33	5, 10	40	25	275	0.13	985
AR36**	0.36	5	40	25	250	0.18	835
AR39**	0.39	5,10	40	25	250	0.18	835
AR43**	0.43	5	40	25	235	0.25	710
AR47**	0.47	5, 10	40	25	235	0.25	710
AR51**	0.51	5	40	25	210	0.33	615
AR56**	0.56	5,10	40	25	210	0.33	615
AR62**	0.62	5	40	25	190	0.45	530
AR68**	0.68	5, 10	40	25	190	0.45	530
AR75**	0.75	5	40	25	180	0.59	460
AR82**	0.82	5,10	40	25	180	0.59	460

See footnotes at end of table.

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/
AR91**	0.91	5	40	25	119	0.070	1,340
A1R0**	1.00	5, 10	40	25	119	0.070	1,340
A1R1**	1.10	5	40	7.9	111	0.10	1,120
A1R2**	1.20	5, 10	40	7.9	111	0.10	1,120
A1R3**	1.30	5	40	7.9	98	0.12	1,025
A1R5**	1.50	5, 10	40	7.9	98	0.12	1,025
A1R6**	1.60	5	40	7.9	89	0.14	950
A1R8**	1.80	5, 10	40	7.9	89	0.14	950
A2R0**	2.00	5	40	7.9	85	0.19	815
A2R2**	2.20	5, 10	40	7.9	85	0.19	815
A2R4**	2.40	5	40	7.9	78	0.28	670
A2R7**	2.70	5, 10	40	7.9	78	0.28	670
A3R0**	3.00	5	40	7.9	72	0.35	600
A3R3**	3.30	5, 10	40	7.9	72	0.35	600
A3R6**	3.60	5	40	7.9	64	0.40	560
A3R9**	3.90	5, 10	40	7.9	64	0.40	560
A4R3**	4.30	5	40	7.9	60	0.55	480
A4R7**	4.70	5, 10	40	7.9	60	0.55	480
A5R1**	5.10	5	40	7.9	55	0.72	420
A5R6**	5.60	5, 10	40	7.9	55	0.72	420
A6R2**	6.20	5	40	7.9	47	1.02	350
A6R8**	6.80	5, 10	40	7.9	47	1.02	350
A7R5**	7.50	5	40	7.9	43	1.32	310
A8R2**	8.20	5, 10	40	7.9	43	1.32	310
A9R1**	9.10	5	40	7.9	39	1.62	280
A100**	10.0	5, 10	40	7.9	39	1.62	280
A110**	11.0	5	40	2.5	37	2.00	250
A120**	12.0	5, 10	40	2.5	37	2.00	250

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 HP4291A, 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 percent from specified minimum value in electrical characteristics (initial) table	
	Inductance (percent)	DC resistance	Self-resonant frequency	Q
Qualification inspection				
Group II	±5			-10
Group IV	±5	±(3% + 0.001 ohm)	<u>1/</u>	-10
Group VI	±5	±(2% +0.001 ohm)	<u>1/</u>	-10
Group B inspection				
Subgroup 1	±5	±(2% +0.001 ohm)	<u>1/</u>	-10
Subgroup 3	±5			-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

Referenced documents: In addition to MIL-PRF-39010, this document references:

MIL-STD-202

MIL-STD-883

Custodians:

Army – CR

Navy – EC

Air Force – 85

DLA – CC

Preparing activity:

Army - CR

Agent:

DLA - CC

Review activities:

Army – AR, CR4, MI

Navy – AS, CG, MC, OS, SH

Air Force – 19, 99

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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>.