INCH-POUND

MS21381E
2 July 2007
SUPERSEDING
MS21381D
8 May 1987

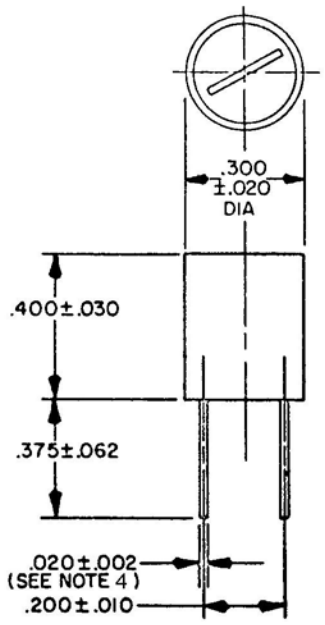
MILITARY SPECIFICATION SHEET

COILS, RADIO FREQUENCY, MOLDED, VARIABLE, SUBMINIATURE, IRON CORE, MAGNETICALLY SHIELDED TYPES LT10V174 TO LT10V209 INCL. AND LT10V247 TO LT10SV258 INCL.

Inactive for new design.

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 and MIL-PRF-15305.



Inches	mm
.002	0.05
.010	0.25
.020	0.51
.030	0.76
.062	1.57
.200	5.08
.300	7.62
.375	9.53
.400	10.16

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. These coils are intended to be mounted by the body.
4. Solderable/weldable lead wire, tinned copper, AWG number 24.

FIGURE 1. Dimensions and configuration.

REQUIREMENTS:

Design, construction, and physical dimensions: See figure 1.

Style: LT10.

Grade: 1.
Class: A.

Weight: 1.5 grams, maximum.

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

Ambient temperature: 90°C maximum.

Temperature rise: 15°C maximum.

Working voltage: 300 V dc.

Percent coupling: 3 percent maximum.

Terminal pull: 3 pounds minimum.

Altitude: 70,000 feet.

Tuning torque: .40 inch-ounce to 6 inch-ounce.

Shock, specified pulse: Method 213 of MIL-STD-202, test condition I, is applicable.

Dielectric withstanding voltage:

At sea level: Method 301 of MIL-STD-202, test voltage 840 V rms for a minimum.

At reduced barometric pressure: Method 105 of MIL-STD-202, test condition C, test voltage 630 V rms for a minimum of 60 seconds.

Electrical characteristics: See table I and table II.

Inductance: See table I.

Q values: See table I.

Self-resonant frequency (SRF): See table I.

DC resistance (DCR): See table I.

Part or Identifying Number (PIN): MS21381- (dash number from table I).

TABLE I. Electrical characteristics (initial). 1/

Dash number 2/	Inductance tuning range (µH)			Test Frequency (L & Q) (MHz)	Q min at L nom	Minimum self resonant frequency at L nom (MHz)	DCR (max) (ohms)	Rated DC Current (max) (mA)
	L Nom	L Min	L Max					
-1	.10	.095	.105	25.0	45	250	.030	1510
-74	.11	.105	.116	25.0	45	250	.030	1480
-2	.12	.114	.126	25.0	45	250	.030	1450
-75	.13	.124	.137	25.0	45	250	.030	1420
-3	.15	.143	.158	25.0	45	250	.030	1400
-76	.16	.152	.168	25.0	45	250	.035	1380
-4	.18	.171	.189	25.0	45	250	.035	1370
-77	.20	.190	.210	25.0	45	250	.035	1350
-5	.22	.209	.231	25.0	45	250	.035	1340
-78	.24	.228	.252	25.0	45	250	.040	1320
-6	.27	.257	.284	25.0	51	250	.040	1300
-79	.30	.285	.315	25.0	51	250	.040	1280
-7	.33	.314	.347	25.0	51	250	.040	1260
-80	.36	.342	.378	25.0	51	250	.045	1250
-8	.39	.371	.410	25.0	51	210	.045	1240
-81	.43	.409	.452	25.0	51	200	.045	1220
-9	.47	.447	.494	25.0	51	184	.045	1200
-82	.51	.485	.536	25.0	51	180	.050	1180
-10	.56	.532	.588	25.0	51	176	.050	1160
-83	.62	.589	.651	25.0	51	163	.055	1130
-11	.68	.646	.714	25.0	51	152	.055	1100
-84	.75	.713	.788	25.0	51	147	.060	1070
-12	.82	.779	.861	25.0	55	144	.060	1040
-85	.91	.865	.956	25.0	55	136	.070	1010
-13	1.00	.950	1.050	25.0	55	128	.070	986
-14	1.2	1.08	1.32	7.9	58	136	.085	968
-15	1.5	1.35	1.65	7.9	64	124	.100	893
-16	1.8	1.62	1.98	7.9	74	108	.110	853
-17	2.2	1.98	2.42	7.9	71	96	.120	817
-18	2.7	2.43	2.97	7.9	71	83.2	.125	800
-19	3.3	2.97	3.63	7.9	58	74.4	.165	696
-20	3.9	3.51	4.29	7.9	58	69.6	.180	659
-21	4.7	4.23	5.17	7.9	61	63.2	.245	571
-22	5.6	5.04	6.16	7.9	61	57.6	.265	550
-23	6.8	6.12	7.46	7.9	55	50.4	.330	493
-24	8.2	7.38	9.02	7.9	61	48.0	.460	417
-25	10	9.00	11.0	7.9	58	43.2	.640	359
-26	12	10.8	13.2	2.5	77	29.6	.800	316
-27	15	13.5	16.5	2.5	77	23.0	.865	301
-28	18	16.2	19.8	2.5	74	19.0	.940	292
-29	22	19.8	24.2	2.5	80	17.0	1.03	267
-30	27	24.3	29.7	2.5	74	16.5	1.18	243
-31	33	29.7	36.3	2.5	77	14.9	1.30	231
-32	39	35.1	42.9	2.5	77	14.1	1.41	223
-33	47	42.3	51.7	2.5	71	11.9	1.61	203
-34	56	50.4	61.6	2.5	74	11.1	2.08	191
-35	68	61.2	74.8	2.5	67	10.3	2.20	185
-36	82	73.8	90.2	2.5	67	9.35	2.42	174

1/ Type designation LT10V174 through LT10V209 shall be used for dash numbers -1 through -36, respectively.
Type designation LT10V247 through LT10V258 shall be used for dash numbers -74 through -85, respectively.

2/ Former MS part numbers MS21381-37 through MS21381-73 have been superseded by MS21402-1 through MS21402-37, respectively.

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) 1/	DC resistance	Self-resonant frequency	Q
Qualification inspection				
Group II	±2	---	---	-10
Group III	±5	±(3% +.001 ohm)	-8	-10
Group IV 2/	±5	±(2% +.001 ohm)	-10	-10
Conformance inspection group C				
Subgroup I	±2	---	---	-10
Subgroup II	±5	±(2% +.001 ohm)	-10	-10
Subgroup III	±5	±(3% +.001 ohm)	-8	-10

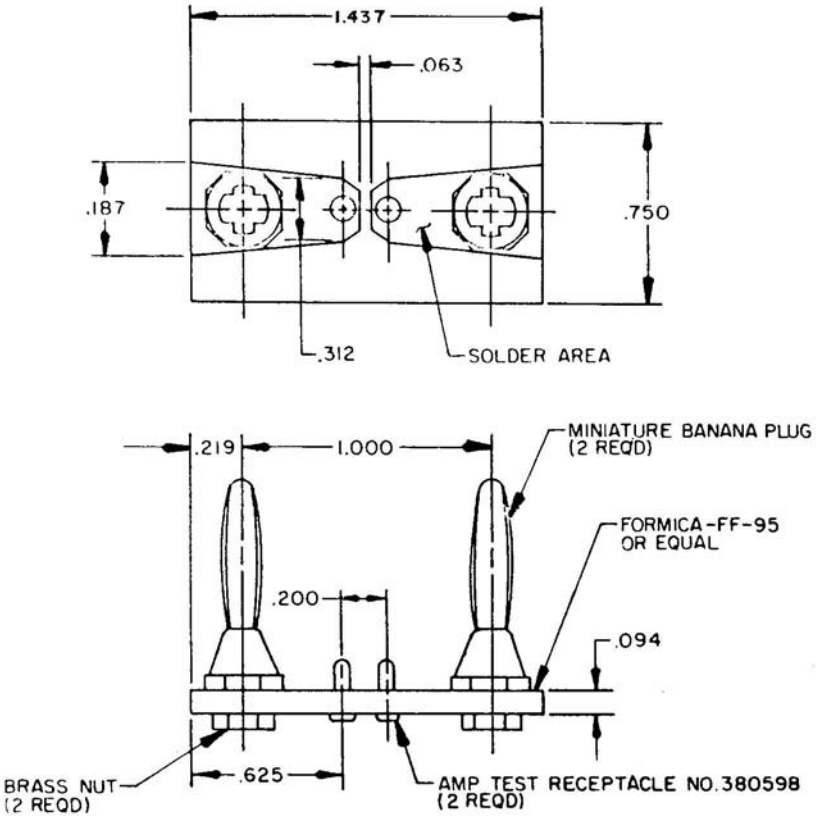
1/ Initial inductance shall consist of testing the variable for inductance range; equal to or less than MIN. L and equal to or more than MAX. L.

The variable shall then be set to the nominal inductance.

The remaining applicable electrical characteristics shall be read without readjusting the unit.

Allowable variation from initial inductance shall be the percent change between nominal inductance and the final inductance reading.

The variable shall not be reset or adjusted between initial and final inductance tests.



Inches	mm
.063	1.60
.094	2.39
.187	4.75
.200	5.08
.219	5.56
.312	7.92
.625	15.88
.750	19.05
1.000	25.40
1.437	36.50

NOTE: Tolerance is ±.005 (0.13 mm).

FIGURE 2. Test fixture for electrical measurements.

Changes from previous issue. The margins of this specification 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.

Referenced documents. In addition to MIL-PRF-15305, this document references MIL-STD-202.

Custodians:
Army – CR
Navy – EC
Air Force – 11
DLA - CC

Review activities:
Army – MI
Air Force – 19

Preparing activity:
DLA – CC

(Project 5950-2007-015)

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 http://assist.daps.dla.mil.