

INCH - POUND

MIL-PRF-83446/9E
w/AMENDMENT 2
28 May 2024
SUPERSEDING
MIL-PRF-83446/9E
w/AMENDMENT 1
7 April 2019

PERFORMANCE SPECIFICATION SHEET

COILS, RADIO FREQUENCY, CHIP, VARIABLE

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-83446](#).

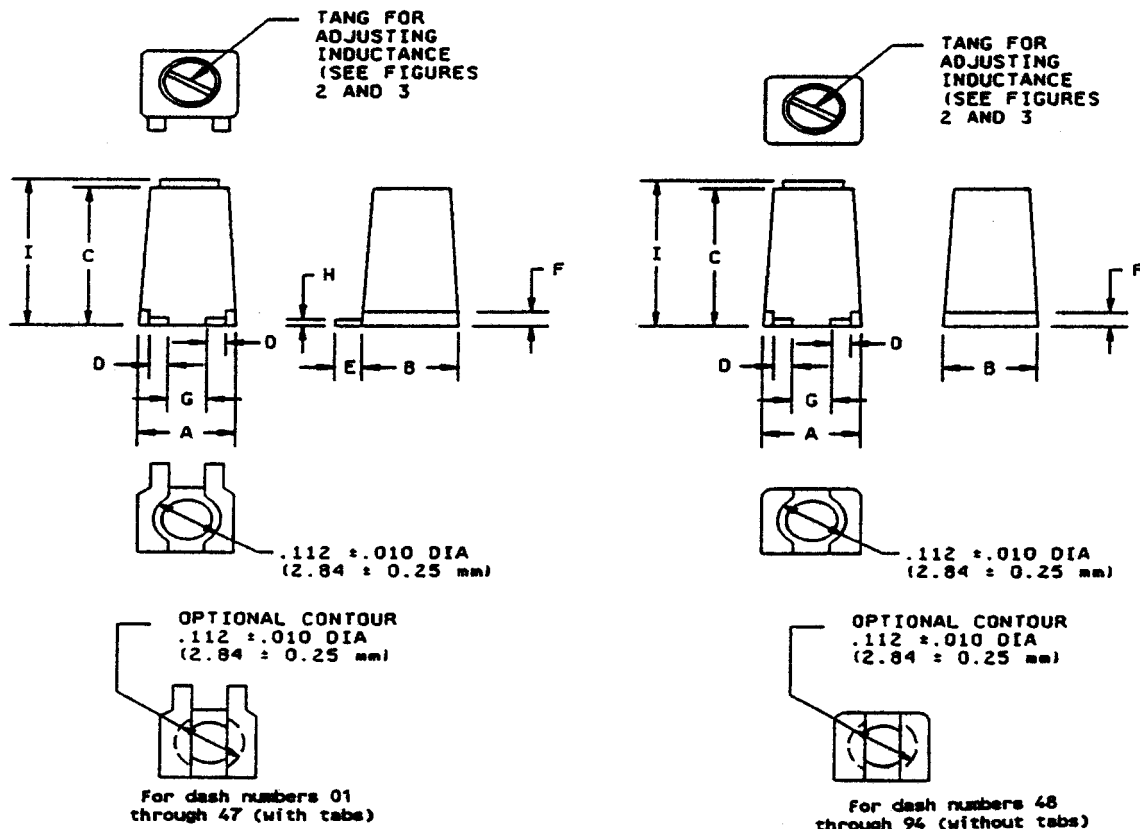


FIGURE 1. Variable, chip coil.



For dash numbers 01 through 47 (with tabs)		
Ltr	Inches	mm
A	.165 max	4.19 max
B	.130 max	3.30 max
C	.225 max	5.72 max
D	.030 $\pm$.010	0.76 $\pm$ 0.25
E	.040 $\pm$.015 -.010	1.02 $\pm$ 0.38 -0.25
F	.020 $\pm$.005	0.51 $\pm$ 0.13
G	.073 min	1.85 min
H	.005 $\pm$.002	0.13 $\pm$ 0.05
I	.250 max	6.35 max

For dash numbers 48 through 94 (without tabs)		
Ltr	Inches	mm
A	.165 max	4.19 max
B	.130 max	3.30 max
C	.225 max	5.72 max
D	.030 $\pm$.010	0.76 $\pm$ 0.25
F	.020 $\pm$.005	0.51 $\pm$ 0.13
G	.073 min	1.85 min
I	.250 max	6.35 max

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Dimension I is the maximum protrusion of the tang at minimum inductance.

FIGURE 1. Variable, chip coil – Continued.

REQUIREMENTS:

Dimensions and configuration: See figure 1.

Weight: 0.5 gram, maximum.

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

Temperature rise (at 90°C): 35°C.

Maximum operating temperature: 125°C.

Altitude: 70,000 feet.

Dielectric withstanding voltage: [MIL-STD-202-301](#), test voltage 700 volts rms.

Barometric pressure: [MIL-STD-202-105](#), test condition C, (70,000 feet), test voltage 200 volts rms.

Electrical characteristics (initial): See table I.

Electrical characteristics (final): See table II.

Supersession data: A new part numbering system with codes for termination materials was incorporated with Revision A, superseding MIL-I-83446/9, dated 1 March 1979.

M83446/09-(dash number from table I) supersedes M83446/9-(dash number from table I).

Examples:

M83446/09-21A supersedes M83446/9-21.

M83446/09-03A supersedes M83446/9-3.

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

M83446/09-

04

Sequentially assigned dash
Numbers (see table I and II)

B

Termination finish
(see MIL-PRF-83446)

TABLE I. Electrical characteristics (initial) and dash numbers.

Dash number	Inductance (μ H)			Q Min at L nom	Q Typ at L nom	Test Frequency (MHz) <u>1/</u>	Self resonant frequency (min) MHz	DC resistance at 25°C (max) ohms	Current (max) mA <u>2/</u>	Incremental current (max) mA <u>3/</u>
	Min	Nom	Max							
01, 48	0.015	0.018	0.021	50	60	150	1200	0.03	750	----
02, 49	0.018	0.022	0.026	55	65	150	1100	0.03	750	----
03, 50	0.022	0.027	0.032	55	65	150	1000	0.03	750	----
04, 51	0.027	0.033	0.039	55	65	150	900	0.04	750	----
05, 52	0.033	0.039	0.047	55	65	150	750	0.04	750	----
06, 53	0.039	0.047	0.056	55	65	100	660	0.04	750	----
07, 54	0.047	0.056	0.068	55	65	100	610	0.05	700	----
08, 55	0.055	0.068	0.083	55	65	100	550	0.05	700	----
09, 56	0.067	0.082	0.099	55	65	100	520	0.06	645	----
10, 57	0.080	0.100	0.120	55	65	100	490	0.06	645	----
11, 58	0.096	0.120	0.144	50	60	50	460	0.07	600	----
12, 59	0.12	0.15	0.18	50	60	50	430	0.08	560	----
13, 60	0.14	0.18	0.22	50	60	50	385	0.09	525	----
14, 61	0.17	0.22	0.27	45	51	50	330	0.10	500	----
15, 62	0.21	0.27	0.33	45	51	50	300	0.15	400	----
16, 63	0.26	0.33	0.40	45	51	50	275	0.19	360	----
17, 64	0.32	0.39	0.47	40	50	50	240	0.25	300	----
18, 65	0.37	0.47	0.57	40	50	25	210	0.30	280	----
19, 66	0.46	0.56	0.68	40	50	25	190	0.40	250	----
20, 67	0.54	0.68	0.82	40	50	25	165	0.60	200	----
21, 68	0.68	0.82	1.00	40	50	25	155	0.70	180	----
22, 69	0.75	1.00	1.25	40	50	25	140	0.90	160	----
23, 70	0.90	1.20	1.50	35	44	25	125	1.1	150	----
24, 71	1.13	1.50	1.87	30	38	7.9	115	1.3	135	----
25, 72	1.35	1.80	2.25	30	38	7.9	105	1.7	120	----
26, 73	1.65	2.20	2.75	30	38	7.9	100	2.3	100	----
27, 74	2.02	2.70	3.37	25	35	7.9	85	3.0	90	----
28, 75	2.48	3.30	4.12	25	35	7.9	75	3.9	80	----

See footnotes at the end of table.

TABLE I. Electrical characteristics (initial) and dash numbers.

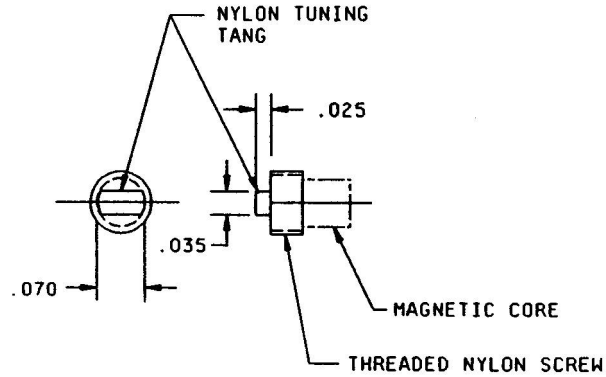
Dash number	Inductance (μ H)			Q Min at L nom	Q Typ at L nom	Test Frequency (MHz) <u>1/</u>	Self resonant frequency (min) MHz	DC resistance at 25°C (max) ohms	Current (max) mA <u>2/</u>	Incremental current (max) mA <u>3/</u>
	Min	Nom	Max							
29, 76	2.92	3.9	4.87	25	33	7.9	47	3.9	80	----
30, 77	3.52	4.7	5.88	25	33	7.9	30	3.9	80	----
31, 78	4.2	5.6	7.0	22	30	7.9	24	4.0	75	----
32, 79	5.1	6.8	8.5	22	30	7.9	23	4.0	75	----
33, 80	6.1	8.2	10.2	22	30	7.9	22	4.5	72	----
34, 81	7.5	10.0	12.5	22	30	7.9	21	4.5	72	----
35, 82	9.0	12.0	15.0	22	30	7.9	17	5.0	70	----
36, 83	11.2	15.0	18.7	22	30	2.5	15	6.0	65	----
37, 84	13.5	18.0	22.5	22	30	2.5	14	8.0	55	----
38, 85	16.5	22.0	27.5	22	30	2.5	13	10.0	50	----
39, 86	20.2	27.0	31.3	22	30	2.5	11	11.0	45	----
40, 87	24.7	33.0	41.2	22	30	2.5	10	13.0	43	----
41, 88	29.2	39.0	48.8	22	30	2.5	9	14.0	42	----
42, 89	35.2	47.0	58.8	22	30	2.5	8	15.0	40	----
43, 90	42.0	56.0	70.0	22	30	2.5	7	19.0	36	----
44, 91	51.0	68.0	85.0	22	30	2.5	6	24.0	32	----
45, 92	62.0	82.0	102.0	25	33	2.5	5	31.0	28	5.6
46, 93	75.0	100.0	125.0	25	33	2.5	4	40.0	25	5.0
47, 94	90.0	120.0	150.0	25	33	2.5	3	50.0	22	4.4

1/ Test frequency range 2.5 through 25 MHz: For electrical characteristics measurements, use the TF-260Q-3 test fixture, or equivalent (see figure 5). Fixture inductance (approximately 0.028 μ H) and residual Q-meter inductance (approximately 0.01 μ H) should be subtracted from indicated inductance.

Test frequency range 25 through 150 MHz: For electrical characteristics measurements, use the TF-250RX-3 test fixture, or equivalent (see figure 4). Fixture inductance (approximately 0.009 μ H) should be subtracted from indicated inductance.

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

3/ Applicable to ferrite core only.

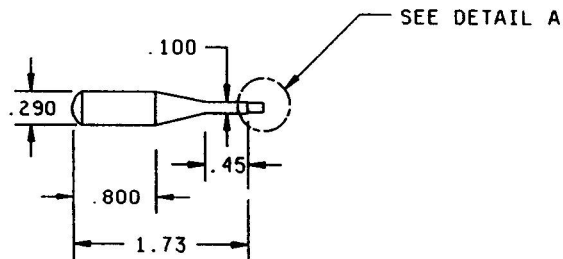
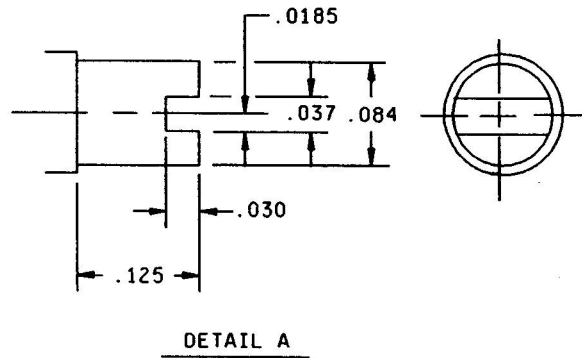


NOTES:

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2. Metric equivalents are given for general information only.

Inches	mm
.025	0.64
.035	0.89
.070	1.78

FIGURE 2. Core and adjustment screw assembly.

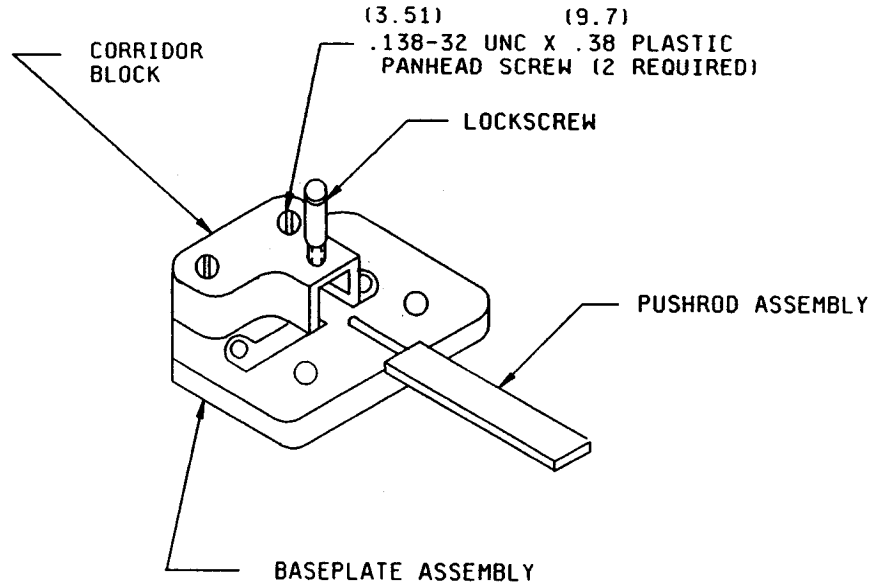


Inches	mm
.0185	0.470
.030	0.76
.037	0.94
.084	2.13
.100	2.54
.125	3.18
.290	7.37
.45	11.4
.800	20.32
1.73	43.94

NOTES:

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3. Unless otherwise specified, tolerance is ± 0.010 (0.25 mm).
4. Material: Plastic.

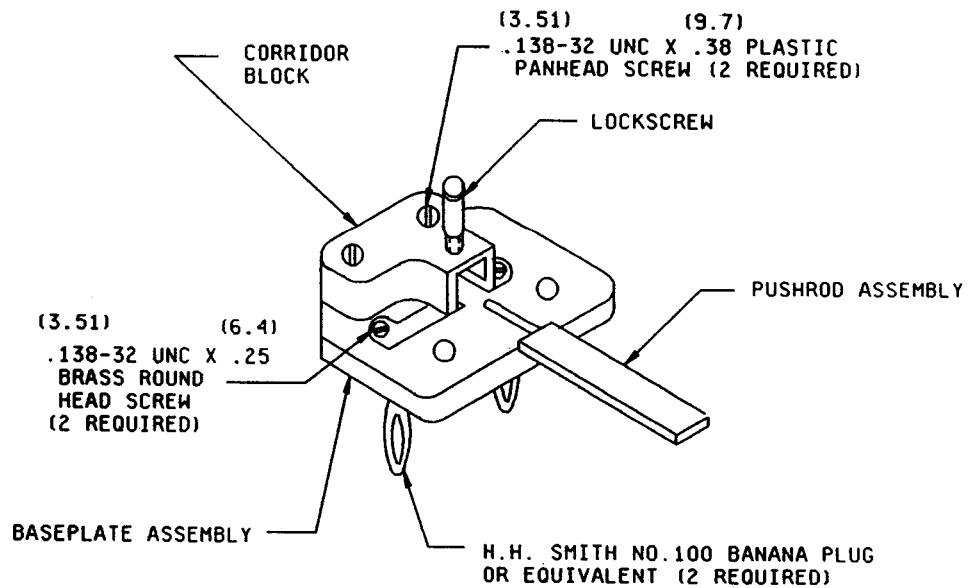
FIGURE 3. Tuning tool (TT-2271 or equivalent).



NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Metric equivalents are in parentheses.

FIGURE 4. Typical chip coil test fixture (TF-250RX-3, or equivalent).



NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Metric equivalents are in parentheses.

FIGURE 5. Typical chip coil test fixture TF-260Q-3, or equivalent).

TABLE II. Electrical characteristics (final).

Inspection group	Allowable variation from initial measurements			
	Inductance (Percent)	DC resistance	Self-resonant frequency (Percent)	Q (Percent)
Qualification inspection				
Group II	±5	±(3% +.001 ohm)	-8	-10
Group IV	±5	±(2% +.001 ohm)	-10	-10
Group V	±2	---	---	-10
Conformance inspection group C				
Subgroup II	±5	±(3% +.001 ohm)	-8	-10
Subgroup IV	±5	±(3% +.001 ohm)	-8	-10

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-83446](#), this document references the following:

MIL-STD-202-105 MIL-STD-202-301

Custodians:

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

Preparing activity:

DLA – CC

(Project 5950-2024-007)

Review activities:

Army – MI
Navy – AS, OS
Air Force - 19

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>.