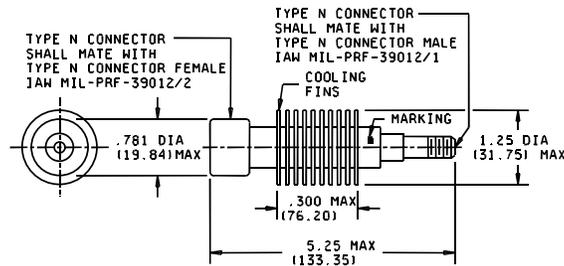


DETAIL SPECIFICATION SHEET

ATTENUATORS, FIXED COAXIAL LINE (SERIES N),
 FREQUENCY RANGE: DC TO 18 GHz, MEDIUM POWER

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

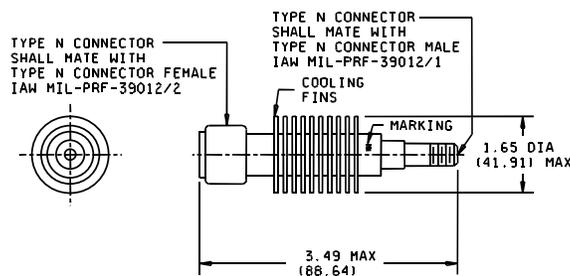
The requirements for acquiring the product described herein shall consist of this specification and the latest issue of MIL-DTL-3933.



NOTES:

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

FIGURE 1. Dimensions and configuration for PIN M3933/10-1.



NOTES:

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

FIGURE 2. Dimensions and configuration for PIN M3933/10-2 through M3933/10-22.

MIL-DTL-3933/10D

ENGINEERING DATA:

Attenuators for use in general field equipment.

Operating frequency range: DC to 18 gigahertz (GHz) (see table I).

Test frequency range for SWR and attenuation measurements, measured or recorded, when using an Automatic Network Analyzer (ANA) or equivalent test equipment:

100 MHz (or lower) to	Dash numbers
4 GHz	01 through 05
8 GHz	06 through 09
11 GHz	10 through 14
18 GHz	15 through 22

Basic test frequency for sensitive measurements like connector repeatability, temperature sensitivity, power sensitivity and any other measurements where a 'delta' spec is imposed:

Basic test frequency	Dash numbers
2 GHz	01 through 05
4 GHz	06 through 09
6 GHz	10 through 14
8 GHz	15 through 22

Operating temperature range:

M3933/10-1: -55°C to +85°C.

M3933/10-2 through -22: -55°C to +125°C.

Maximum weight: 6 ounces.

REQUIREMENTS:

Dimensions and configuration: See figures 1 and 2. Cooling fins shall be circular.

Nominal impedance: 50 ohms.

Attenuation: See table I. Stability and sensitivity:

Maximum attenuation change after:	up to 10 dB, inclusive (dB)	over 10 dB (dB/dB)
temperature change/ thermal shock	0.05	0.005
vibration or shock	0.1	0.01
moisture resistance or salt spray	0.2	0.02
peak power	0.05	0.005

Frequency sensitivity, maximum: 0.1 dB/dB/GHz.

Temperature sensitivity of attenuation, maximum: 0.0004 dB/dB/°C.

Power: See table I.

Power sensitivity for full input power, maximum: 0.005 dB/dB/Watt.

VSWR: See table I.

Connector repeatability, maximum variation in attenuation: 0.02 dB.

Part or Identifying Number (PIN): M3933/10- (and dash number from table I).

TABLE I. Electrical characteristics.

Dash number	Attenuation (dB)							Maximum power output		VSWR maximum <u>1/</u>					
	Nominal	Deviation								AV (W) @ 25°C (continuously)	Peak <u>2/</u> (kW)	DC to	4.0 to	4.0 to	6.0 to
		4.0 GHz	6 GHz	8 GHz	11 GHz	12 GHz	18.0 GHz	4.0 GHz	6 GHz			8.0 GHz	11 GHz	12.0 GHz	18.0 GHz
01 N S	6	±0.2	---	---	---	---	---	15	3 <u>2/</u>	1.30:1	---	---	---	---	---
02 N S	3	±0.5	---	---	---	---	---	20 <u>4/</u>	1 <u>3/</u>	1.15:1	---	---	---	---	---
03 N S	10	±0.5	---	---	---	---	---	20 <u>4/</u>	1 <u>3/</u>	1.15:1	---	---	---	---	---
04 N S	20	±0.5	---	---	---	---	---	20 <u>4/</u>	1 <u>3/</u>	1.15:1	---	---	---	---	---
05 N S	30	±0.75	---	---	---	---	---	20 <u>4/</u>	1 <u>3/</u>	1.15:1	---	---	---	---	---
06 N S	3	±0.3	---	±0.6	---	---	---	25 <u>5/</u>	5 <u>2/</u>	1.20:1	---	1.30:1	---	---	---
07 N S	6	±0.3	---	±0.6	---	---	---	25 <u>5/</u>	5 <u>2/</u>	1.20:1	---	1.30:1	---	---	---
08 N S	10	±0.3	---	±0.6	---	---	---	25 <u>5/</u>	5 <u>2/</u>	1.20:1	---	1.30:1	---	---	---
09 N S	20	±0.3	---	±0.6	---	---	---	25 <u>5/</u>	5 <u>2/</u>	1.20:1	---	1.30:1	---	---	---
10 N S	30	±0.6	---	±1.0	---	---	---	25 <u>5/</u>	5 <u>2/</u>	1.20:1	---	1.30:1	---	---	---
11 N S	3	±0.35	±0.65	---	±0.75	---	---	20	1 <u>2/</u>	1.15:1	1.20:1	---	1.30:1	---	---
12 N S	6	±0.35	±0.65	---	±0.75	---	---	20	1 <u>2/</u>	1.15:1	1.20:1	---	1.30:1	---	---
13 N S	10	±0.35	±0.65	---	±0.75	---	---	20	1 <u>2/</u>	1.15:1	1.20:1	---	1.30:1	---	---
14 N S	20	±0.35	±0.65	---	±0.75	---	---	20	1 <u>2/</u>	1.15:1	1.20:1	---	1.30:1	---	---
15 N S	30	±0.35	±0.65	---	±0.75	---	---	20	1 <u>2/</u>	1.15:1	1.20:1	---	1.35:1	---	---

See footnotes at end of table.

TABLE I. Electrical characteristics - Continued.

Dash number	Attenuation (dB)							Maximum power output		VSWR maximum <u>1/</u>					
	Nominal	Deviation								AV (W) @ 25°C (continuously)	Peak <u>2/</u> (kW)	DC to	4.0 to	4.0 to	6.0 to
		4.0 GHz	6 GHz	8 GHz	11 GHz	12 GHz	18.0 GHz	4.0 GHz	6 GHz			8.0 GHz	11 GHz	12.0 GHz	18.0 GHz
16 N S	3	---	---	---	---	---	±0.3	20 <u>5/</u>	1 <u>2/</u>	1.15:1	---	1.20:1	---	1.25:1	1.40:1
17 N S	6	---	---	---	---	---	±0.3	10 <u>5/</u>	1 <u>2/</u>	1.15:1	---	1.20:1	---	1.25:1	1.40:1
18 N S	10	---	---	---	---	---	±0.5	10 <u>5/</u>	2 <u>2/</u>	1.15:1	---	1.20:1	---	1.25:1	1.40:1
19 N S	20	---	---	---	---	---	±0.5	10 <u>5/</u>	2 <u>2/</u>	1.15:1	---	1.20:1	---	1.25:1	1.40:1
20 N S	30	---	---	---	---	---	±1.0	10 <u>5/</u>	2 <u>2/</u>	1.15:1	---	1.20:1	---	1.25:1	1.40:1
21 N S	40	---	---	---	---	---	±1.0	10 <u>5/</u>	2 <u>2/</u>	1.15:1	---	1.20:1	---	1.25:1	1.40:1
22 N S	50	---	---	---	---	---	±1.35	10 <u>5/</u>	2 <u>2/</u>	1.15:1	---	1.20:1	---	1.25:1	1.40:1

1/ VSWR value is for both ends.

2/ Peak power for a duty cycle of 5×10^{-4} maximum duration 5 microseconds.

3/ Peak power for a duty cycle of 1×10^{-3} .

4/ Derate linearly from 20 watts at 25°C to 10 percent at 125°C.

5/ Derate linearly from the stated voltage at 25°C to 0 watts at 125°C.

MIL-DTL-3928/10D

Custodians:

Army - CR
Navy - EC
Air Force - 11
DLA - CC

Preparing activity:

DLA - CC

(Project 5985-1229-01)

Review activities:

Army - MI
Navy - AS, MC, SH
Air Force - 99