

INCH-POUND

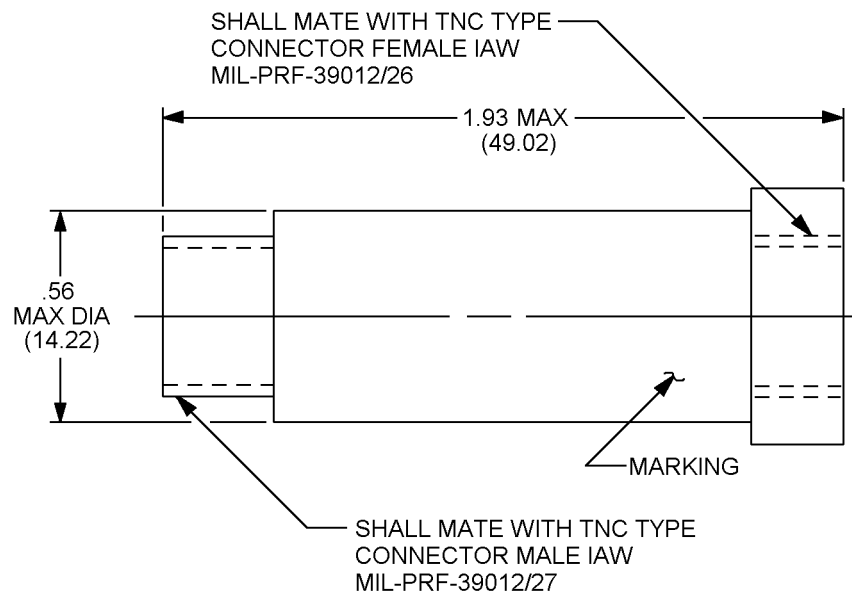
MIL-DTL-3933/17D  
w/AMENDMENT 1  
12 April 2021  
SUPERSEDING  
MIL-DTL-3933/17D  
7 April 2011

## DETAIL SPECIFICATION SHEET

ATTENUATORS, FIXED, SPACE LEVEL, NON SPACE LEVEL,  
COAXIAL LINE (TNC CONNECTORS),  
FREQUENCY RANGE: DC TO 18 GHz, CLASS IV, LOW 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 sheet and [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.

AMSC N/A

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MIL-DTL-3933/17D  
w/AMENDMENT 1

ENGINEERING DATA:

Operating frequency range: DC to 4.5 GHz for PINs M3933/17-01 through -06; DC to 18 GHz for PINs M3933/17-07 through -24.

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

100 MHz (or lower) to 4.5 GHz for PINs M3933/17-01 through -06;  
100 MHz (or lower) to 18 GHz for PINs M3933/17-07 through -24.

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

2.0 GHz for PINs M3933/17-01 through -06;  
8.0 GHz for PINs M3933/17-07 through -24.

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

Maximum weight: See [table I](#).

REQUIREMENTS:

Dimensions and configuration: See [figure 1](#).

Nominal impedance: 50 ohms.

Attenuation: See [table I](#). Stability and sensitivity:

| Maximum change in attenuation after: | Up to 10 dB, inclusive (dB) | Over 10 dB (dB/dB) |
|--------------------------------------|-----------------------------|--------------------|
| Temperature change or thermal shock  | 0.5                         | 0.05               |
| Vibration or shock                   | 0.5                         | 0.05               |
| Moisture resistance or salt spray    | 0.5                         | 0.05               |
| Peak power                           | 0.5                         | 0.05               |

Frequency sensitivity, maximum: 0.4 dB/dB/GHz.

Temperature sensitivity of attenuation, maximum: 0.0006 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: 0.04 dB.

Part or Identifying Number (PIN): M3933/17- (and dash number from [table I](#) with three device level designators are space level (T), screened (S) and non-screened (N) options).

TABLE I. Electrical characteristics.

| Dash<br>number | Attenuation dB |                  |                 | Maximum power input<br>at 25°C     |                        | VSWR maximum <u>1/</u> |                  |                   |                    |                     | Weight<br>(oz)<br>Max | Dimension<br>A<br>(inches)<br>maximum |
|----------------|----------------|------------------|-----------------|------------------------------------|------------------------|------------------------|------------------|-------------------|--------------------|---------------------|-----------------------|---------------------------------------|
|                | Nominal        | Deviation        |                 |                                    |                        | DC to<br>4.5 GHz       | DC to<br>4.0 GHz | 4.0 to<br>8.0 GHz | 8.0 to<br>12.4 GHz | 12.4 to<br>18.0 GHz |                       |                                       |
|                |                | DC to<br>4.5 GHz | DC to<br>18 GHz | AV (W) <u>3/</u><br>(continuously) | Peak <u>2/</u><br>(kW) |                        |                  |                   |                    |                     |                       |                                       |
| 01 N<br>S<br>T | 1              | ±0.3             | ---             | 4                                  | 0.2                    | 1.25:1                 | ---              | ---               | ---                | ---                 | 3.0                   | ---                                   |
| 02 N<br>S<br>T | 2              | ±0.4             | ---             | 4                                  | 0.2                    | 1.25:1                 | ---              | ---               | ---                | ---                 | 3.0                   | ---                                   |
| 03 N<br>S<br>T | 3              | ±0.4             | ---             | 4                                  | 0.2                    | 1.25:1                 | ---              | ---               | ---                | ---                 | 3.0                   | ---                                   |
| 04 N<br>S<br>T | 4              | ±0.4             | ---             | 4                                  | 0.2                    | 1.25:1                 | ---              | ---               | ---                | ---                 | 3.0                   | ---                                   |
| 05 N<br>S<br>T | 5              | ±0.4             | ---             | 4                                  | 0.2                    | 1.25:1                 | ---              | ---               | ---                | ---                 | 3.0                   | ---                                   |
| 06 N<br>S<br>T | 6              | ±0.4             | ---             | 4                                  | 0.2                    | 1.25:1                 | ---              | ---               | ---                | ---                 | 3.0                   | ---                                   |
| 07 N<br>S<br>T | 20             | ---              | ±0.6            | 2                                  | 0.2                    | ---                    | 1.15:1           | 1.20:1            | 1.25:1             | 1.35:1              | 3.0                   | ---                                   |
| 08 N<br>S<br>T | 30             | ---              | ±0.9            | 2                                  | 0.2                    | ---                    | 1.15:1           | 1.20:1            | 1.25:1             | 1.35:1              | 3.0                   | ---                                   |
| 09 N<br>S<br>T | 1              | ---              | ±0.4            | 2                                  | 0.2                    | ---                    | 1.15:1           | 1.20:1            | 1.25:1             | 1.35:1              | 3.0                   | ---                                   |
| 10 N<br>S<br>T | 2              | ---              | ±0.4            | 2                                  | 0.2                    | ---                    | 1.15:1           | 1.20:1            | 1.25:1             | 1.35:1              | 3.0                   | ---                                   |
| 11 N<br>S<br>T | 3              | ---              | ±0.4            | 2                                  | 0.2                    | ---                    | 1.15:1           | 1.20:1            | 1.25:1             | 1.35:1              | 3.0                   | ---                                   |
| 12 N<br>S<br>T | 4              | ---              | ±0.4            | 2                                  | 0.2                    | ---                    | 1.15:1           | 1.20:1            | 1.25:1             | 1.35:1              | 3.0                   | ---                                   |

See footnotes at end of table.

TABLE I. Electrical characteristics - Continued.

| Dash<br>number | Attenuation dB |                  |                 | Maximum power input<br>at 25°C     |                        | VSWR maximum <u>1/</u> |                  |                   |                    |                     | Weight<br>(oz)<br>Max | Dimension<br>A<br>(inches)<br>maximum |
|----------------|----------------|------------------|-----------------|------------------------------------|------------------------|------------------------|------------------|-------------------|--------------------|---------------------|-----------------------|---------------------------------------|
|                | Nominal        | Deviation        |                 |                                    |                        | DC to<br>4.5 GHz       | DC to<br>4.0 GHz | 4.0 to<br>8.0 GHz | 8.0 to<br>12.4 GHz | 12.4 to<br>18.0 GHz |                       |                                       |
|                |                | DC to<br>4.5 GHz | DC to<br>18 GHz | AV (W) <u>3/</u><br>(continuously) | Peak <u>2/</u><br>(kW) |                        |                  |                   |                    |                     |                       |                                       |
| 13 N<br>S<br>T | 5              | ---              | ±0.4            | 2                                  | 0.2                    | ---                    | 1.15:1           | 1.20:1            | 1.25:1             | 1.35:1              | 3.0                   | ---                                   |
| 14 N<br>S<br>T | 6              | ---              | ±0.4            | 2                                  | 0.2                    | ---                    | 1.15:1           | 1.20:1            | 1.15:1             | 1.35:1              | 3.0                   | ---                                   |
| 15 N<br>S<br>T | 7              | ---              | ±0.5            | 2                                  | 0.2                    | ---                    | 1.15:1           | 1.20:1            | 1.25:1             | 1.35:1              | 3.0                   | ---                                   |
| 16 N<br>S<br>T | 8              | ---              | ±0.5            | 2                                  | 0.2                    | ---                    | 1.15:1           | 1.20:1            | 1.25:1             | 1.35:1              | 3.0                   | ---                                   |
| 17 N<br>S<br>T | 10             | ---              | ±0.5            | 2                                  | 0.2                    | ---                    | 1.15:1           | 1.20:1            | 1.25:1             | 1.35:1              | 3.0                   | ---                                   |
| 18 N<br>S<br>T | 12             | ---              | ±0.5            | 2                                  | 0.2                    | ---                    | 1.15:1           | 1.20:1            | 1.25:1             | 1.35:1              | 3.0                   | ---                                   |
| 19 N<br>S<br>T | 15             | ---              | ±0.5            | 2                                  | 0.2                    | ---                    | 1.15:1           | 1.20:1            | 1.25:1             | 1.35:1              | 3.0                   | ---                                   |
| 20 N<br>S<br>T | 25             | ---              | ±0.8            | 2                                  | 0.2                    | ---                    | 1.15:1           | 1.20:1            | 1.25:1             | 1.35:1              | 3.0                   | ---                                   |
| 21 N<br>S<br>T | 35             | ---              | ±0.9            | 2                                  | 0.2                    | ---                    | 1.15:1           | 1.20:1            | 1.25:1             | 1.35:1              | 3.0                   | ---                                   |
| 22 N<br>S<br>T | 40             | ---              | ±1.0            | 2                                  | 0.2                    | ---                    | 1.15:1           | 1.20:1            | 1.25:1             | 1.35:1              | 3.0                   | ---                                   |
| 23 N<br>S<br>T | 50             | ---              | ±1.4            | 2                                  | 0.2                    | ---                    | 1.15:1           | 1.20:1            | 1.25:1             | 1.35:1              | 3.0                   | ---                                   |
| 24 N<br>S<br>T | 60             | ---              | ±1.5            | 2                                  | 0.2                    | ---                    | 1.15:1           | 1.20:1            | 1.25:1             | 1.35:1              | 3.0                   | ---                                   |

1/ VSWR value is for both ends.2/ Peak power for a duty cycle of  $5 \times 10^{-4}$ , maximum pulse duration of 5 microseconds.3/ Power input is derated linearly to 0.5 watts at +125°C.

MIL-DTL-3933/17D  
w/AMENDMENT 1

Referenced documents. In addition to [MIL-DTL-3933](#), this specification sheet references  
[MIL-PRF-39012/26](#)  
[MIL-PRF-39012/27](#)

Amendment notations. The margins of this specification sheet 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.

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

Preparing activity:  
DLA - CC  
(Project 5985-2021-004)

Review activities:  
Army - MI  
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