

# FLEX<sup>TM</sup> TEST Test Cable

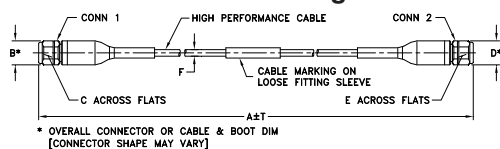
50Ω 2FT DC to 50 GHz Low Loss

## Maximum Ratings

|                         |                |    |          |
|-------------------------|----------------|----|----------|
| Operating Temperature   | -40°C to +70°C |    |          |
| Storage Temperature     | -55°C to +85°C |    |          |
| Power Handling at 25°C, | 54W            | at | 2 GHz    |
| Sea Level               | 17W            | at | 18 GHz   |
|                         | 13W            | at | 26.5 GHz |
|                         | 11W            | at | 40 GHz   |
|                         | 7W             | at | 50 GHz   |

Permanent damage may occur if any of these limits are exceeded.

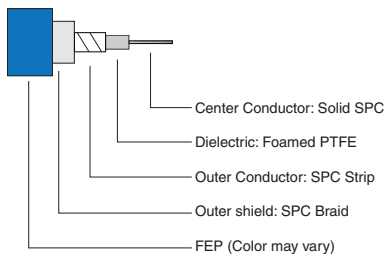
## Outline Drawing



## Outline Dimensions (inch/mm)

| A    |        | B    | C    | D    | E    | F    | T      |          | wt    |
|------|--------|------|------|------|------|------|--------|----------|-------|
| Feet | Meters | 0.36 | .312 | 0.36 | .312 | .100 | Inch   | MM       | grams |
| 2.00 | 0.61   | 9.14 | 7.92 | 9.14 | 7.92 | 2.54 | +50/-0 | +12.7/-0 | 36    |

## Cable Construction



## Product Guarantee

Mini-Circuits® will repair or replace your test cable at its option if the connector attachment fails within six months of shipment. This guarantee excludes cable or connector interface damage from misuse or abuse.

## Notes

- Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at [www.minicircuits.com/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp)

## Features

- low insertion loss
- stainless steel 50 GHz connector for long mating-cycle life
- good amplitude and phase stability vs flexing over frequency
- 50 GHz connector mates with 2.4 mm, V\*

## Applications

- military and defense applications
- research & development labs
- field RF testing
- environmental and temperature test chambers

## E50-2FT-VMVM+



CASE STYLE: RG2513-2

| Connectors | Model         |
|------------|---------------|
| 2.4mm Male | E50-2FT-VMVM+ |

## +RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

## Electrical Specifications at 25°C

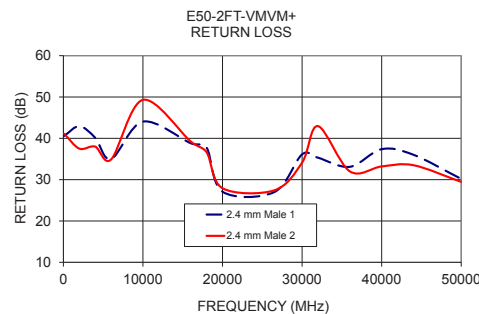
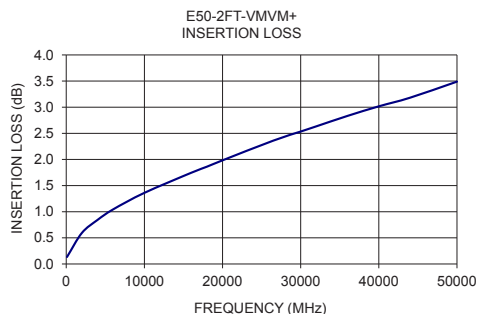
| Parameter       | Condition (GHz) | Min. | Typ. | Max. | Units |
|-----------------|-----------------|------|------|------|-------|
| Frequency Range |                 | DC   |      | 50   | GHz   |
| Length          |                 |      | 2    |      | FT    |
| Insertion Loss  | DC - 18         | —    | 1.9  | 2.3  | dB    |
|                 | 18 - 26.5       | —    | 2.4  | 2.9  |       |
|                 | 26.5 - 40       | —    | 3.0  | 3.9  |       |
|                 | 40 - 50         | —    | 3.5  | 4.5  |       |
| Return Loss     | DC - 18         | 19   | 20   | —    | dB    |
|                 | 18 - 26.5       | 17   | 20   | —    |       |
|                 | 26.5 - 40       | 16   | 18   | —    |       |
|                 | 40 - 50         | 15   | 17   | —    |       |

\*V Connector is a trademark of Anritsu

Custom sizes available, consult factory.

## Typical Performance Data

| Frequency (MHz) | Insertion Loss (dB) | Return Loss (dB) |               |
|-----------------|---------------------|------------------|---------------|
|                 |                     | 2.4 mm Male 1    | 2.4 mm Male 2 |
| 100             | 0.13                | 40.6             | 41.1          |
| 2000            | 0.59                | 42.9             | 37.5          |
| 4000            | 0.84                | 40.1             | 38.0          |
| 6000            | 1.04                | 35.0             | 34.9          |
| 10000           | 1.36                | 44.0             | 49.3          |
| 16000           | 1.75                | 38.8             | 39.2          |
| 18000           | 1.86                | 37.7             | 36.6          |
| 20000           | 1.98                | 27.1             | 27.9          |
| 26500           | 2.36                | 27.0             | 27.4          |
| 30000           | 2.53                | 36.1             | 34.1          |
| 32000           | 2.63                | 35.3             | 43.0          |
| 36000           | 2.83                | 33.1             | 32.0          |
| 40000           | 3.02                | 37.4             | 33.2          |
| 44000           | 3.18                | 36.0             | 33.5          |
| 50000           | 3.49                | 30.2             | 29.5          |



**Mini-Circuits®**

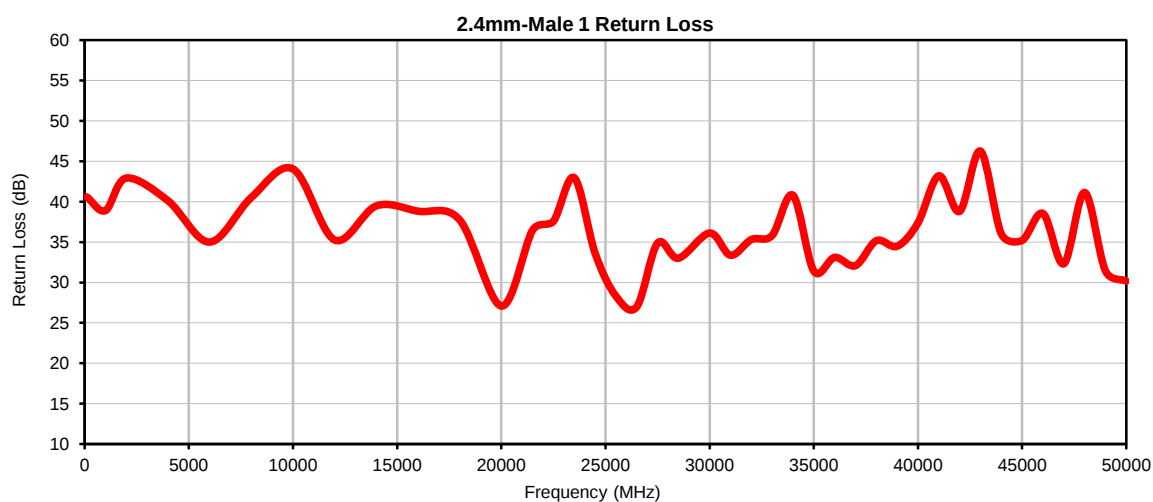
[www.minicircuits.com](http://www.minicircuits.com) P.O. Box 350166, Brooklyn, NY 11235-0003 (718) 934-4500 [sales@minicircuits.com](mailto:sales@minicircuits.com)

REV. OR  
M167577  
E50-2FT-VMVM+  
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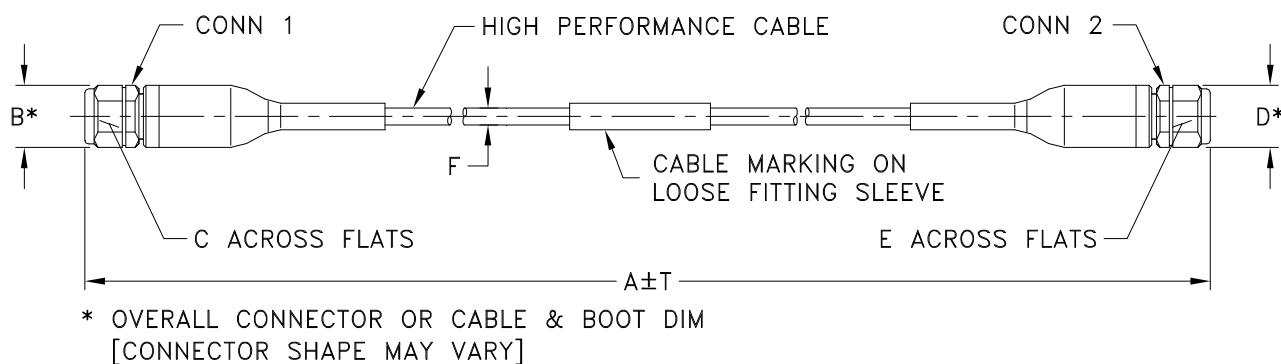
*Typical Performance Data*

| FREQUENCY<br>(MHz) | INSERTION LOSS<br>(dB) | 2.4mm-MALE 1<br>RETURN LOSS<br>(dB) | 2.4mm-MALE 2<br>RETURN LOSS<br>(dB) |
|--------------------|------------------------|-------------------------------------|-------------------------------------|
| 100                | 0.13                   | 40.6                                | 41.1                                |
| 1000               | 0.43                   | 38.9                                | 40.6                                |
| 2000               | 0.59                   | 42.9                                | 37.5                                |
| 4000               | 0.84                   | 40.1                                | 38.0                                |
| 6000               | 1.04                   | 35.0                                | 34.9                                |
| 8000               | 1.21                   | 40.5                                | 36.5                                |
| 10000              | 1.36                   | 44.0                                | 49.3                                |
| 12000              | 1.50                   | 35.3                                | 32.5                                |
| 14000              | 1.63                   | 39.5                                | 39.1                                |
| 16000              | 1.75                   | 38.8                                | 39.2                                |
| 18000              | 1.86                   | 37.7                                | 36.6                                |
| 20000              | 1.98                   | 27.1                                | 27.9                                |
| 21500              | 2.06                   | 36.5                                | 42.8                                |
| 22500              | 2.12                   | 37.6                                | 32.5                                |
| 23500              | 2.17                   | 43.0                                | 41.7                                |
| 24500              | 2.23                   | 33.6                                | 43.9                                |
| 25500              | 2.29                   | 28.3                                | 31.7                                |
| 26500              | 2.36                   | 27.0                                | 27.4                                |
| 27500              | 2.40                   | 34.9                                | 34.6                                |
| 28500              | 2.45                   | 33.0                                | 32.7                                |
| 30000              | 2.53                   | 36.1                                | 34.1                                |
| 31000              | 2.58                   | 33.4                                | 40.0                                |
| 32000              | 2.63                   | 35.3                                | 43.0                                |
| 33000              | 2.68                   | 35.8                                | 39.4                                |
| 34000              | 2.73                   | 40.8                                | 38.6                                |
| 35000              | 2.78                   | 31.4                                | 31.8                                |
| 36000              | 2.83                   | 33.1                                | 32.0                                |
| 37000              | 2.88                   | 32.1                                | 31.1                                |
| 38000              | 2.92                   | 35.2                                | 31.2                                |
| 39000              | 2.97                   | 34.5                                | 31.4                                |
| 40000              | 3.02                   | 37.4                                | 33.2                                |
| 41000              | 3.06                   | 43.2                                | 30.9                                |
| 42000              | 3.10                   | 38.8                                | 34.6                                |
| 43000              | 3.15                   | 46.3                                | 33.6                                |
| 44000              | 3.18                   | 36.0                                | 33.5                                |
| 45000              | 3.24                   | 35.2                                | 40.8                                |
| 46000              | 3.29                   | 38.5                                | 37.1                                |
| 47000              | 3.34                   | 32.3                                | 32.8                                |
| 48000              | 3.39                   | 41.1                                | 35.1                                |
| 49000              | 3.43                   | 31.4                                | 30.4                                |
| 50000              | 3.49                   | 30.2                                | 29.5                                |

## Typical Performance Curves



### Outline Dimensions



#### RG2513 SERIES

2.4mm MALE (CONN-1)

2.4mm MALE (CONN-2)

| CASE<br>STYLE # | A    |        | B             | C              | D             | E              | F              | T       |          | WEIGHT<br>GRAMS |
|-----------------|------|--------|---------------|----------------|---------------|----------------|----------------|---------|----------|-----------------|
|                 | FEET | METERS |               |                |               |                |                | INCH    | MM       |                 |
| RG2513-2        | 2.00 | .61    | .36<br>(9.25) | .312<br>(7.93) | .36<br>(9.25) | .312<br>(7.93) | .100<br>(2.54) | +.50/-0 | +12.7/-0 | 36              |
| RG2513-3        | 3.00 | .91    |               |                |               |                |                | +.72/-0 | +18.3/-0 | 41              |
|                 |      |        |               |                |               |                |                |         |          |                 |
|                 |      |        |               |                |               |                |                |         |          |                 |
|                 |      |        |               |                |               |                |                |         |          |                 |
|                 |      |        |               |                |               |                |                |         |          |                 |

Unless otherwise specified dimensions are in inches (mm).

Tolerances: 2Pl. ± .03; 3Pl. ± .015

#### Note:

1. High Performance very Flexible Cable.



All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

| Specification         | Test/Inspection Condition                                                                                        | Reference/Spec              |
|-----------------------|------------------------------------------------------------------------------------------------------------------|-----------------------------|
| Operating Temperature | -40° to 70° C<br>Ambient Environment                                                                             | Individual Model Data Sheet |
| Storage Temperature   | -55° to 85° C<br>Ambient Environment                                                                             | Individual Model Data Sheet |
| Mechanical Flexing    | 4,000 cycles<br>During each cycle, cable flexed from 90° through 0° to -90°<br>and back with a Radii of 3 inches | ---                         |