



Mini-Circuits

FLEXIBLE

# Test Cable

FLC-2M-SMSM+

50Ω 2 m DC to 26 GHz SMA Male

## THE BIG DEAL

- Low Insertion Loss, 5.50 dB Typ. at 26 GHz
- Rugged Construction Includes Protective Shield and Strain Relief for Longer Life
- Stainless Steel Connectors for Long Mating-Cycle Life
- Extra Flexible

## APPLICATIONS

- Military and Defense Systems
- Research & Development labs



Generic photo used for illustration purposes only

|            |              |
|------------|--------------|
| Model No.  | FLC-2M-SMSM+ |
| Case Style | MU1838-6.56  |
| Connectors | SMA Male     |

### +RoHS Compliant

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

### 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.

## PRODUCT OVERVIEW

Mini-Circuits FLC-SMSM+ Series flexible test cables provide ultra-wideband performance from DC to 26 GHz with low insertion loss and excellent VSWR. Specially designed for outstanding stability of phase and insertion loss versus flexure, these cables are ideal for demanding lab environments where crowded layouts and frequent bending are common. They feature SMA male to SMA male stainless steel connectors and rugged cable construction with protective shield and strain relief for excellent durability. Available from stock in a variety of lengths to support a range of requirements.

## KEY FEATURES

| Feature                                                        | Advantages                                                                                                                                                                                                             |
|----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ultra-Wideband, DC to 26 GHz                                   | Supports a wide range of test applications including R&D, military and defense, production test and more.                                                                                                              |
| Excellent Stability of Phase and Insertion Loss Versus Flexure | FLC Series test cables have been tested in bend radii as tight as 2.4 inches to qualify minimal change in insertion loss, insertion phase, and VSWR, providing reliable performance in a wide range of configurations. |
| Low Insertion Loss                                             | Allows accurate measurement with minimal compensation for the effects of the cable connection.                                                                                                                         |
| Performance Qualified to 20,000 Flexures                       | Like all Mini-Circuits test cables, FLC Series models have been performance qualified up to 20,000 bend cycles, ensuring outstanding durability and extra long life.                                                   |





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## ELECTRICAL SPECIFICATIONS AT +25 °C

| Parameter           | Frequency (GHz) | Min. | Typ. | Max. | Units |
|---------------------|-----------------|------|------|------|-------|
| Frequency Range     |                 | DC   |      | 26   | GHz   |
| Length <sup>1</sup> |                 | 2    |      |      | m     |
| Insertion Loss      | DC-6            | -    | 2.15 | 5.8  | dB    |
|                     | 6-18            | -    | 4.29 | 5.8  |       |
|                     | 18-26           | -    | 5.50 | 5.8  |       |
| VSWR                | DC-6            | -    | 1.11 | 1.38 | :1    |
|                     | 6-18            | -    | 1.25 | 1.38 |       |
|                     | 18-26           | -    | 1.33 | 1.38 |       |

1. Custom sizes available, consult factory.

PERFORMANCE CHANGE VS. FLEXURE (TYPICAL)<sup>2</sup>

| Parameter                    | Frequency (GHz) | Bend Radius (inches) |      |      | Units |
|------------------------------|-----------------|----------------------|------|------|-------|
|                              |                 | 10.0                 | 3.25 | 2.40 |       |
| Insertion Loss <sup>3</sup>  | DC-6            | 0.00                 | 0.01 | 0.01 | dB    |
|                              | 6-18            | 0.01                 | 0.02 | 0.03 |       |
|                              | 18-26           | 0.01                 | 0.04 | 0.05 |       |
| Insertion Phase <sup>3</sup> | DC-6            | 0.03                 | 0.09 | 0.49 | Deg   |
|                              | 6-18            | 0.03                 | 0.31 | 1.70 |       |
|                              | 18-26           | 0.07                 | 1.60 | 2.90 |       |
| VSWR <sup>3</sup>            | DC-6            | 0.00                 | 0.01 | 0.01 | :1    |
|                              | 6-18            | 0.01                 | 0.02 | 0.02 |       |
|                              | 18-26           | 0.01                 | 0.08 | 0.11 |       |

2. Performance change versus flexure with a 3 ft cable 360° around a 4" diameter mandrel.

3. Absolute values normalized to the reference position 0. See [AN-46-003](#) under Associated Application Notes.

## ABSOLUTE MAXIMUM RATINGS

| Parameter                           | Ratings          |
|-------------------------------------|------------------|
| Operating Temperature               | -55 °C to +85 °C |
| Storage Temperature                 | -55 °C to +85 °C |
| Power Handling at +25 °C, Sea Level | 315 W at 2 GHz   |
|                                     | 94 W at 18 GHz   |
|                                     | 56 W at 26 GHz   |





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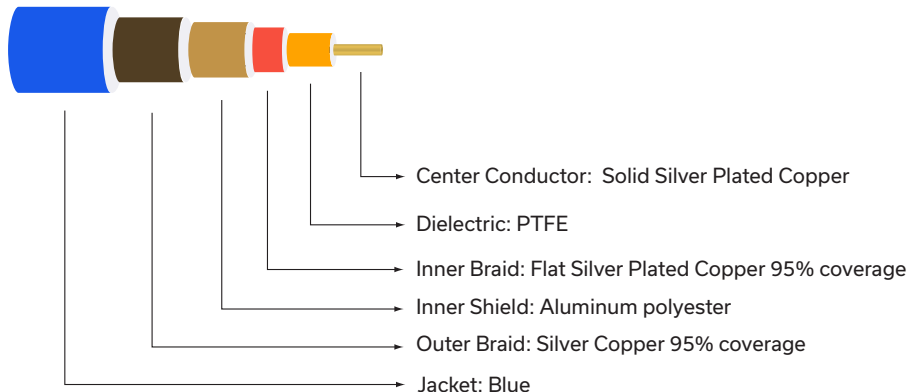
# Test Cable

FLC-2M-SMSM+

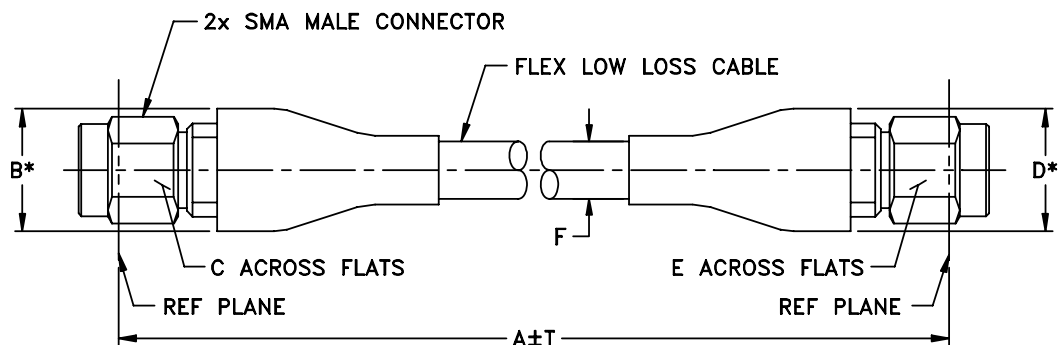
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## CABLE CONSTRUCTION



## OUTLINE DRAWING



\* OVERALL CONNECTOR DIMENSION

## OUTLINE DIMENSIONS (Inch/mm)

|        | A    | B    | C     | D    | E     | F    |      | T        | wt       |
|--------|------|------|-------|------|-------|------|------|----------|----------|
| Feet   |      | .42  | .312  | .42  | .312  | .194 | Inch | mm       | grams    |
| Meters | 6.56 | 2.00 | 10.70 | 7.93 | 10.70 | 7.93 | 4.95 | +1.57/-0 | +40.0/-0 |
|        |      |      |       |      |       |      |      |          | 132      |





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## Test Cable

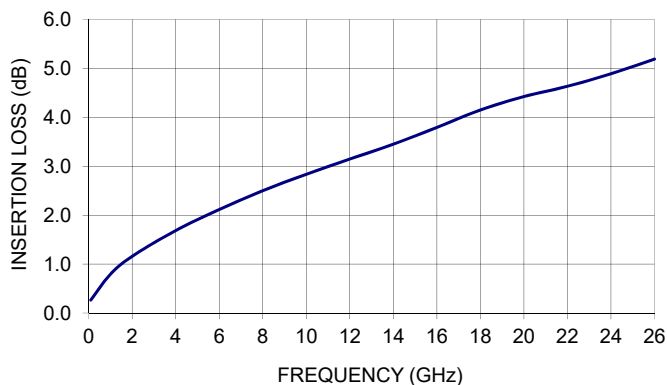
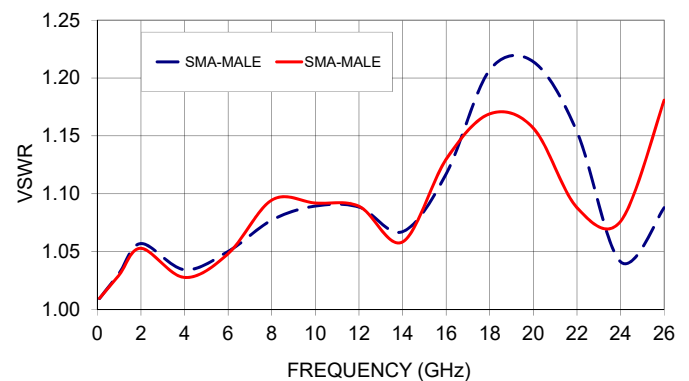
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## TYPICAL PERFORMANCE DATA AND CHARTS

| Frequency<br>(GHz) | Insertion Loss<br>(dB) | VSWR<br>(:1) |            |
|--------------------|------------------------|--------------|------------|
|                    |                        | SMA Male 1   | SMA Male 2 |
| 0.1                | 0.27                   | 1.01         | 1.01       |
| 1.0                | 0.80                   | 1.03         | 1.03       |
| 2.0                | 1.16                   | 1.06         | 1.05       |
| 4.0                | 1.69                   | 1.03         | 1.03       |
| 6.0                | 2.12                   | 1.05         | 1.05       |
| 8.0                | 2.50                   | 1.08         | 1.09       |
| 10.0               | 2.84                   | 1.09         | 1.09       |
| 12.0               | 3.15                   | 1.09         | 1.09       |
| 14.0               | 3.45                   | 1.07         | 1.06       |
| 16.0               | 3.79                   | 1.12         | 1.13       |
| 18.0               | 4.15                   | 1.21         | 1.17       |
| 20.0               | 4.42                   | 1.21         | 1.16       |
| 22.0               | 4.63                   | 1.15         | 1.09       |
| 24.0               | 4.89                   | 1.04         | 1.08       |
| 26.0               | 5.19                   | 1.09         | 1.18       |

FLC-2M-SMSM+  
INSERTION LOSSFLC-2M-SMSM+  
VSWR

## NOTES

- A. 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.
- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuits' applicable established test performance criteria and measurement instructions.
- C. 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/terms/viewterm.html](http://www.minicircuits.com/terms/viewterm.html)

