



FLEXIBLE

# Coaxial Cable

FL47-6VM+

50Ω 6 inch DC to 50 GHz 2.4mm-Male

## THE BIG DEAL

- Wideband frequency coverage, DC to 50 GHz
- Low Loss, 1.7 dB typ. at 50 GHz
- Excellent Return Loss, 20 dB typ.
- 5 mm static bend, 10 mm dynamic bend
- Insulated outer jacket standard
- Connector interface, meets IEEE STD 287-2007 standard
- Ideal for interconnect of assembled systems

## APPLICATIONS

- Replacement for custom bent semi-rigid cables
- Communication receivers and transmitters
- Military and aerospace system
- Environmental and test chambers
- Test accessory



Generic photo used for illustration purposes only

|            |            |
|------------|------------|
| Model No.  | FL47-6VM+  |
| Case Style | UL3030-6   |
| Connectors | 2.4mm-Male |

### +RoHS Compliant

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

## PRODUCT OVERVIEW

The FL47 Series Flexible Coaxial Cables are ideal for interconnection of coaxial components or sub-systems. The construction includes a silver-plated copper-clad steel center conductor. The outer shield is copper braid, tin soaked, which minimizes signal leakage and at the same time flexible for easy bend. Dielectric is low loss PTFE. Connectors have passivated stainless-steel coupling nut over a gold plated connector body with gold plated brass center conductor. The FL47 Series Flexible cables are available in variety of length to meet your requirements.

## KEY FEATURES

| Feature                                                               | Advantages                                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Flexible RF Cables                                                    | The FL47 Series Flexible cables are ideal for use integrating coaxial components and subassemblies without the need for special cable-bending tools and alleviating the risk of damageduring the bending process typical of semi-rigid coaxial cable assemblies. |
| Tight Bend Radius:<br>5mm static bend, 10mm dynamic                   | Capable of only 5mm static bend, 10mm dynamic bend radius, the FL47 Flexible series is able to make connections in tight spaces making these cables ideal for dense system integration                                                                           |
| Excellent Return Loss,<br>• 35 dB at 26.5 GHz                         | The FL47 Series Flexible Cables are ideally suited for interconnecting a wide variety of RF components while minimizing VSWR ripple contribution due to mating cables & connectors.                                                                              |
| Good Power Handling Capability:<br>• 61W at 0.5 GHz<br>• 8W at 18 GHz | Mini-Circuits FL47 Cable series can support medium to high RF power levels enabling these cables to be used in the transmit path. NOTE: power rating is at sea-level altitudes                                                                                   |





Mini-Circuits

FLEXIBLE

# Coaxial Cable

FL47-6VM+

50Ω 6 inch DC to 50 GHz 2.4mm-Male

## ELECTRICAL SPECIFICATIONS AT +25°C

| Parameter           | Frequency (GHz) | Min. | Typ. | Max. | Units  |
|---------------------|-----------------|------|------|------|--------|
| Frequency Range     |                 | DC   | -    | 50   | GHz    |
| Length <sup>1</sup> |                 | 6    |      |      | inches |
| Insertion Loss      | DC - 6          | -    | 0.4  | 1.0  | dB     |
|                     | 6 - 18          | -    | 0.7  | 1.7  |        |
|                     | 18 - 26.5       | -    | 1.0  | 2.0  |        |
|                     | 26.5 - 50       | -    | 1.4  | 2.5  |        |
| Return Loss         | DC - 6          | 17.1 | 31.5 | -    | dB     |
|                     | 6 - 18          | 17.7 | 34.5 | -    |        |
|                     | 18 - 26.5       | 17.7 | 32.7 | -    |        |
|                     | 26.5 - 50       | 15.6 | 28.4 | -    |        |

1. Custom sizes available, consult factory.

## ABSOLUTE MAXIMUM RATINGS

| Parameter                         | Ratings         |
|-----------------------------------|-----------------|
| Operating Temperature             | -55°C to +100°C |
| Storage Temperature               | -55°C to +100°C |
| Power Handling at 25°C, Sea Level | 61W at 0.5 GHz  |
|                                   | 16W at 6 GHz    |
|                                   | 8W at 18 GHz    |
|                                   | 6W at 26.5 GHz  |
|                                   | 2W at 40 GHz    |
|                                   | 1W at 50 GHz    |

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





Mini-Circuits

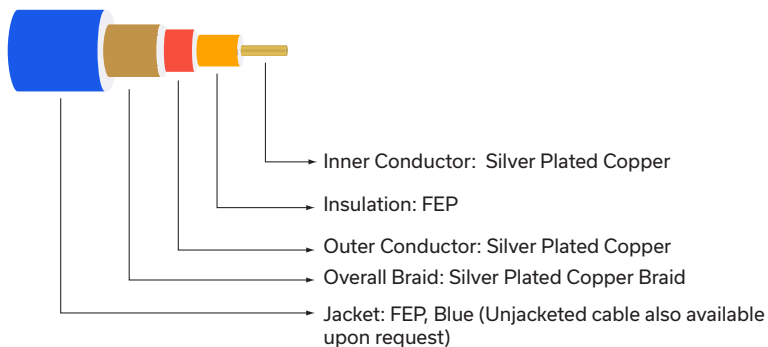
FLEXIBLE

# Coaxial Cable

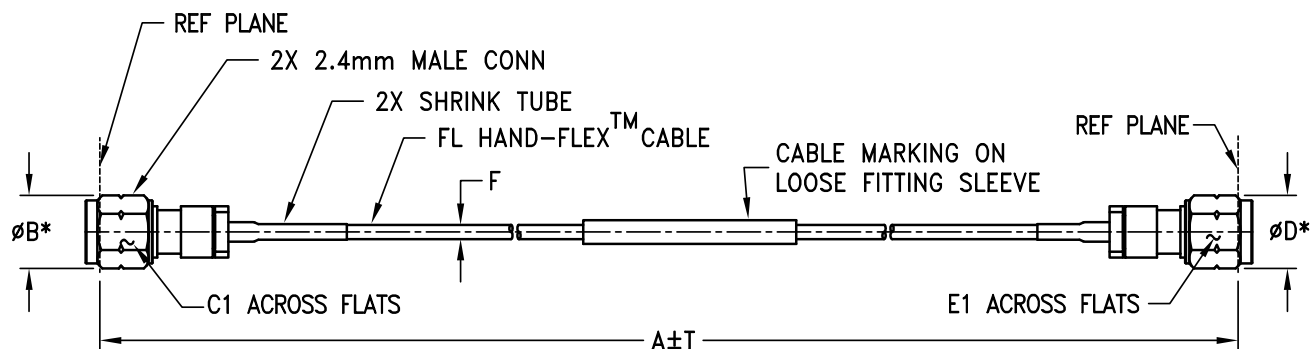
FL47-6VM+

50Ω 6 inch DC to 50 GHz 2.4mm-Male

## CABLE CONSTRUCTION



## OUTLINE DRAWING



## OUTLINE DIMENSIONS (Inch mm)

| A      | B    | C1   | D    | E1   | F    | T    | wt    |
|--------|------|------|------|------|------|------|-------|
| 6.0    | .36  | .315 | .36  | .315 | .055 | .05  | grams |
| 152.40 | 9.14 | 8.00 | 9.14 | 8.00 | 1.40 | 1.27 | 9.34  |





FLEXIBLE

## Coaxial Cable

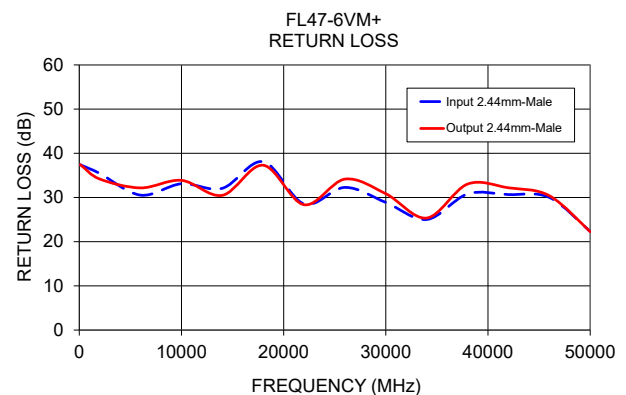
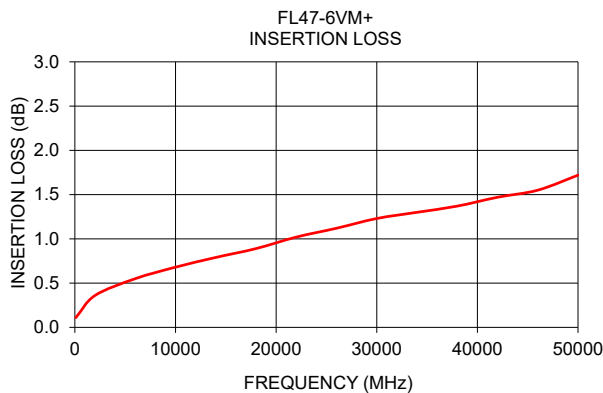
FL47-6VM+

Mini-Circuits

50Ω 6 inch DC to 50 GHz 2.4mm-Male

## TYPICAL PERFORMANCE DATA AND CHARTS

| Frequency (MHz) | Insertion Loss (dB) | Return Loss (dB) |                   |
|-----------------|---------------------|------------------|-------------------|
|                 |                     | Input 2.4mm-Male | Output 2.4mm-Male |
| 100             | 0.11                | 37.41            | 37.43             |
| 2000            | 0.36                | 35.45            | 34.18             |
| 6000            | 0.55                | 30.53            | 32.17             |
| 10000           | 0.68                | 33.11            | 33.88             |
| 14000           | 0.79                | 32.08            | 30.49             |
| 18000           | 0.89                | 38.10            | 37.30             |
| 22000           | 1.02                | 28.54            | 28.36             |
| 26000           | 1.12                | 32.28            | 34.16             |
| 30000           | 1.23                | 28.88            | 30.85             |
| 34000           | 1.30                | 25.02            | 25.35             |
| 38000           | 1.37                | 30.80            | 33.04             |
| 42000           | 1.47                | 30.66            | 32.19             |
| 46000           | 1.55                | 30.02            | 30.41             |
| 50000           | 1.72                | 22.29            | 22.26             |



## NOTES

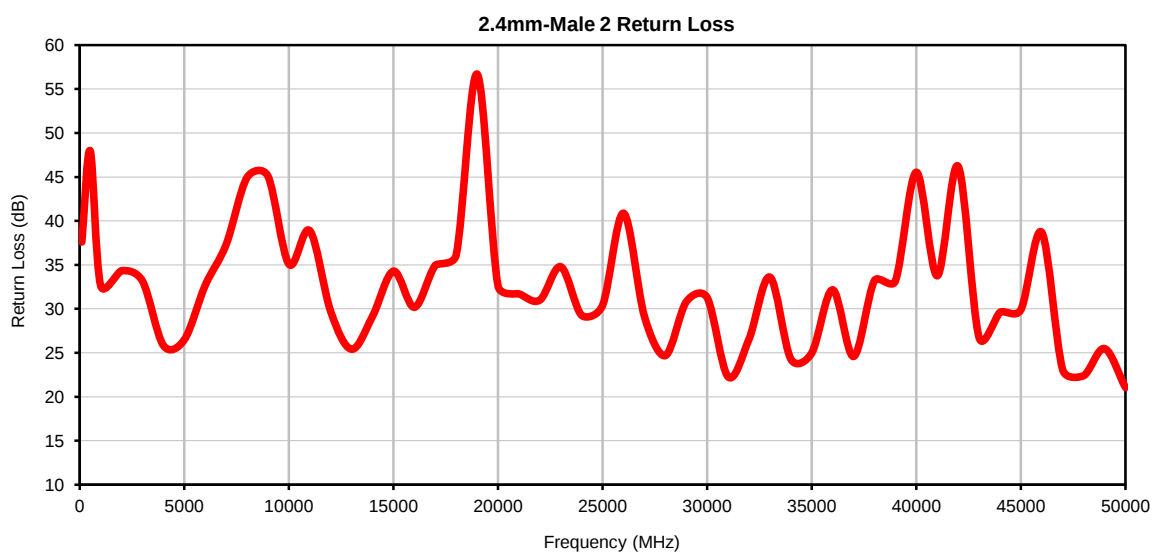
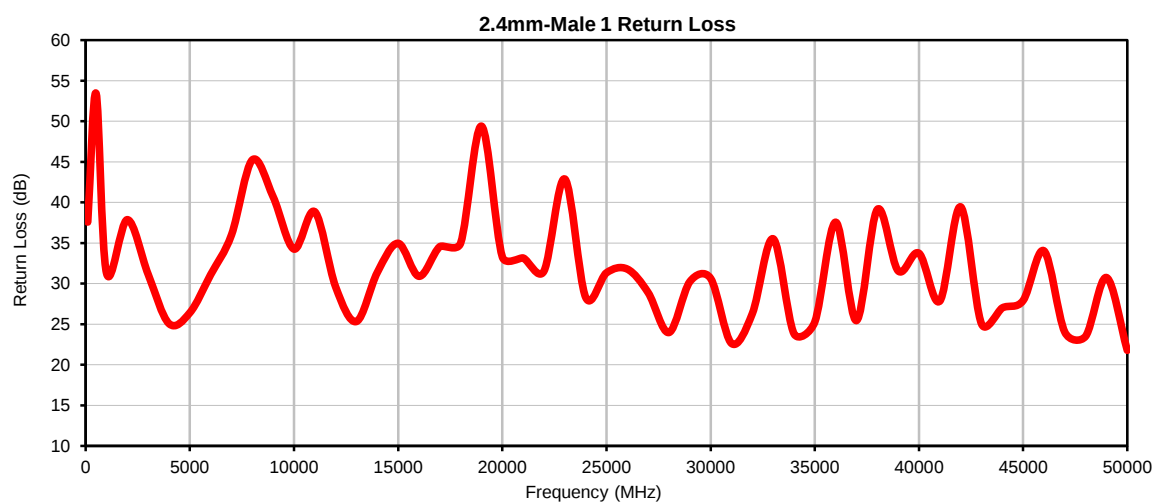
- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's 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)



*Typical Performance Data*

| FREQUENCY<br>(MHz) | INSERTION<br>LOSS<br>(dB) | 2.4mm-MALE 1<br>RETURN LOSS<br>(dB) | 2.4mm-MALE 2<br>RETURN LOSS<br>(dB) |
|--------------------|---------------------------|-------------------------------------|-------------------------------------|
| 100                | 0.13                      | 37.58                               | 37.61                               |
| 500                | 0.21                      | 53.42                               | 47.95                               |
| 1000               | 0.29                      | 31.31                               | 32.63                               |
| 2000               | 0.38                      | 37.88                               | 34.34                               |
| 3000               | 0.43                      | 31.14                               | 33.15                               |
| 4000               | 0.48                      | 25.07                               | 25.84                               |
| 5000               | 0.52                      | 26.41                               | 26.49                               |
| 6000               | 0.55                      | 31.10                               | 32.69                               |
| 7000               | 0.58                      | 36.01                               | 37.32                               |
| 8000               | 0.61                      | 45.24                               | 44.95                               |
| 9000               | 0.64                      | 40.69                               | 45.08                               |
| 10000              | 0.67                      | 34.25                               | 35.09                               |
| 11000              | 0.69                      | 38.85                               | 38.89                               |
| 12000              | 0.73                      | 29.58                               | 29.69                               |
| 13000              | 0.76                      | 25.33                               | 25.41                               |
| 14000              | 0.78                      | 31.37                               | 29.16                               |
| 15000              | 0.80                      | 34.96                               | 34.29                               |
| 16000              | 0.83                      | 30.90                               | 30.18                               |
| 17000              | 0.86                      | 34.55                               | 34.95                               |
| 18000              | 0.88                      | 35.00                               | 36.13                               |
| 19000              | 0.91                      | 49.40                               | 56.70                               |
| 20000              | 0.94                      | 33.29                               | 32.61                               |
| 21000              | 0.97                      | 33.15                               | 31.71                               |
| 22000              | 0.99                      | 31.54                               | 31.00                               |
| 23000              | 1.02                      | 42.89                               | 34.79                               |
| 24000              | 1.05                      | 28.31                               | 29.26                               |
| 25000              | 1.07                      | 31.33                               | 30.40                               |
| 26000              | 1.09                      | 31.79                               | 40.88                               |
| 27000              | 1.12                      | 28.89                               | 29.13                               |
| 28000              | 1.15                      | 23.97                               | 24.68                               |
| 29000              | 1.17                      | 30.24                               | 30.80                               |
| 30000              | 1.20                      | 30.64                               | 31.27                               |
| 31000              | 1.24                      | 22.63                               | 22.28                               |
| 32000              | 1.25                      | 26.30                               | 26.56                               |
| 33000              | 1.26                      | 35.52                               | 33.61                               |
| 34000              | 1.30                      | 23.83                               | 24.29                               |
| 35000              | 1.32                      | 25.28                               | 24.98                               |
| 36000              | 1.33                      | 37.57                               | 32.17                               |
| 37000              | 1.36                      | 25.45                               | 24.58                               |
| 38000              | 1.36                      | 39.13                               | 33.22                               |
| 39000              | 1.39                      | 31.57                               | 33.19                               |
| 40000              | 1.41                      | 33.74                               | 45.54                               |
| 41000              | 1.44                      | 27.84                               | 33.76                               |
| 42000              | 1.45                      | 39.45                               | 46.22                               |
| 43000              | 1.49                      | 25.05                               | 26.75                               |
| 44000              | 1.49                      | 27.00                               | 29.60                               |
| 45000              | 1.52                      | 27.91                               | 29.90                               |
| 46000              | 1.54                      | 34.03                               | 38.69                               |
| 47000              | 1.58                      | 24.02                               | 23.05                               |
| 48000              | 1.61                      | 23.51                               | 22.40                               |
| 49000              | 1.61                      | 30.74                               | 25.48                               |
| 50000              | 1.70                      | 21.77                               | 21.05                               |

## Typical Performance Curves

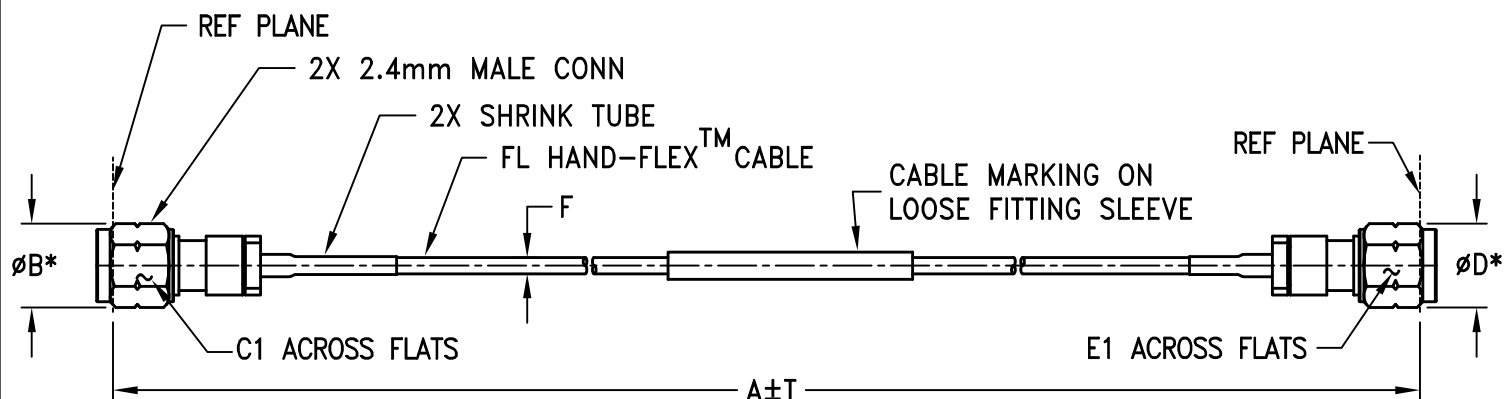


# Case Style

## Outline Dimensions

**UL**

**UL3030**



### UL3030 SERIES

#### 2.4 MM MALE (CONN)

| CASE<br>STYLE # | A     |        | B      | C1     | D      | E1     | F                           |                         | T    |      | WT.<br>(GRAMS) |
|-----------------|-------|--------|--------|--------|--------|--------|-----------------------------|-------------------------|------|------|----------------|
|                 | INCH  | MM     |        |        |        |        | FL47U-AVM+<br>(UN-JACKETED) | FL47-AVM+<br>(JACKETED) | INCH | MM   |                |
| UL3030-6        | 6.00  | 157.40 |        |        |        |        |                             |                         | .05  | 1.27 | 9.34           |
| UL3030-12       | 12.00 | 304.80 | .36    | .315   | .36    | .315   | .046±.004                   | .055±.004               | .10  | 2.54 | 10.18          |
|                 |       |        | [9.14] | [8.00] | [9.14] | [8.00] | [1.17±0.1]                  | [1.40±0.1]              |      |      |                |
|                 |       |        |        |        |        |        |                             |                         |      |      |                |

Unless otherwise specified dimensions are in inches (mm).

Tolerances: 2 Pl.±.03; 3 Pl. ±.015

Note:

- 047 Flexible Coaxial Cable.
- "A" Represents Length of Cable.

**Mini-Circuits®**  
ISO 9001 ISO 14001 CERTIFIED

ALL-NEW  
**minicircuits.com**

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: [www.minicircuits.com](http://www.minicircuits.com)

RF/IF MICROWAVE COMPONENTS



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 | -55° to 100°C<br>Ambient Environment  | Individual Model Data Sheet |
| Storage Temperature   | -55° to 100° C<br>Ambient Environment | Individual Model Data Sheet |
| Thermal Shock         | -55° to 85°C, 25 cycles               | MIL-STD-202F: Method 107G   |