

Coaxial

# Inner-Outer DC Block

BLKD-183-S+

50Ω     0.01 to 18 GHz

## The Big Deal

- Ultra-wideband, 10 MHz to 18 GHz
- Excellent Return Loss, 20 dB at 8GHz typ
- Low insertion loss, 0.43 dB typ



CASE STYLE: FF1048-2

## Product Overview

Mini-Circuits' BLKD-183-S+ is a coaxial inner-outer DC Block supporting a wide range of applications from 10 MHz to 18 GHz including Ku band test and measurement and more. This model provides low insertion loss, excellent return loss and DC voltage handling up to 200V. The unit features SMA-Female connector at one end and SMA-Male connector at the other end and comes housed in a rugged stainless steel body, measuring only 0.5" in diameter and 1.3" in length.

## Key Features

| Features                                             | Advantages                                                                                                                                                 |
|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wideband, 10 MHz to 18 GHz                           | Wide frequency range up to 18 GHz provides application flexibility and makes this model ideal for broad- band and multi-band use.                          |
| Inner-Outer DC Block                                 | Blocks DC current flow at the inner and outer conductor                                                                                                    |
| Excellent Return Loss, 20 dB typ at 8 GHz            | Provides good matching for 50Ω systems and minimizes signal reflections across wide frequency range enabling its use in test and measurement.              |
| Low insertion loss, 0.43 dB typ.                     | Provides excellent signal power transmission from input to output.                                                                                         |
| Stainless steel construction.                        | Stands up to wear and tear in demanding test environments and provides excellent reliability.                                                              |
| Very wide operating temperature range, -65 to +125°C | Withstands extreme operating conditions and is suitable for use near high power components where heat rise is common and for use in over temperature tests |

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# Inner-Outer DC Block

50Ω 0.01 to 18 GHz

## Maximum Ratings

Operating Temperature -65°C to 125°C

Storage Temperature -65°C to 125°C

DC Input Voltage at inner/outer conductor 200V

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

## Features

- broadband performance
- low insertion loss
- rugged unibody construction
- off-the-shelf availability
- both an Inner and Outer DC Block

## Applications

- test and measurement instrumentation

BLKD-183-S+



Generic photo used for illustration purposes only

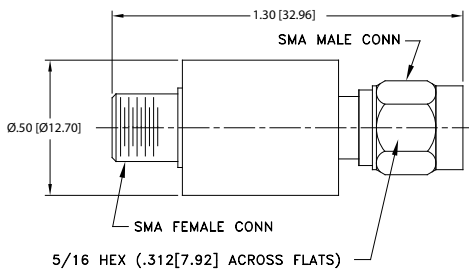
CASE STYLE: FF1048-2

SMA Connectors Model  
Female-Male BLKD-183-S+

**+RoHS Compliant**

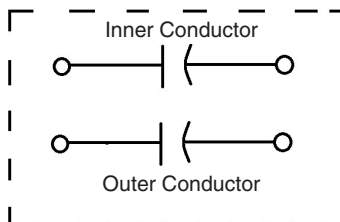
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

## Outline Drawing



Weight: 10 grams MAX  
Dimensions are in inches [mm]

## Electrical Schematic

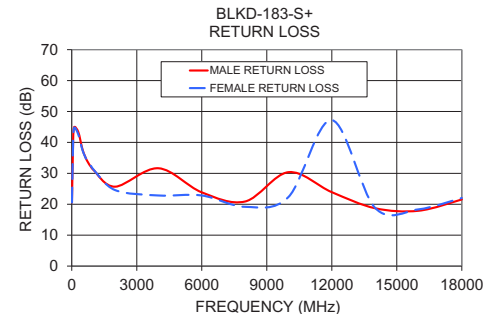
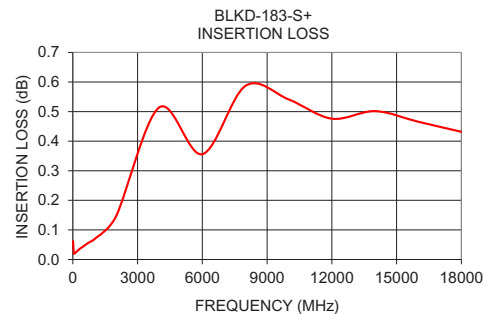


## Electrical Specifications at 25°C

| Parameter       | Frequency (MHz) | Min. | Typ.  | Max. | Unit |
|-----------------|-----------------|------|-------|------|------|
| Frequency Range |                 | 0.01 | —     | 18   | GHz  |
| Insertion Loss  | 100 - 18000     |      | 0.43  | 0.80 | dB   |
| Return Loss     | 100 - 14000     | 16.5 | 25.42 | —    | dB   |
|                 | 14000 - 18000   | 15.5 | 18.52 | —    |      |

## Typical Performance Data

| Frequency (MHz) | Insertion Loss (dB) | Return Loss (dB) |             |
|-----------------|---------------------|------------------|-------------|
|                 |                     | Input Female     | Output Male |
| 10.00           | 0.06                | 20.57            | 20.57       |
| 50.00           | 0.02                | 35.63            | 35.64       |
| 100.00          | 0.02                | 44.74            | 44.50       |
| 300.00          | 0.03                | 43.40            | 42.60       |
| 500.00          | 0.04                | 37.66            | 37.43       |
| 700.00          | 0.06                | 34.17            | 34.20       |
| 900.00          | 0.06                | 31.97            | 32.25       |
| 1000.00         | 0.07                | 31.10            | 31.25       |
| 2000.00         | 0.15                | 25.68            | 24.58       |
| 4000.00         | 0.51                | 31.64            | 22.83       |
| 6000.00         | 0.36                | 23.85            | 22.84       |
| 8000.00         | 0.59                | 20.89            | 19.17       |
| 10000.00        | 0.54                | 30.38            | 22.34       |
| 12000.00        | 0.48                | 23.91            | 47.23       |
| 14000.00        | 0.50                | 18.71            | 18.82       |
| 16000.00        | 0.47                | 17.89            | 18.34       |
| 18000.00        | 0.43                | 21.54            | 22.03       |



## 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/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp)



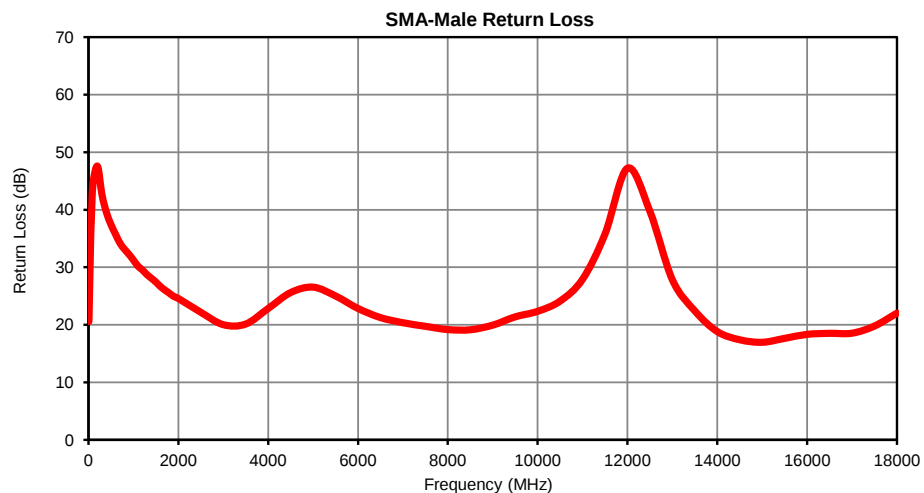
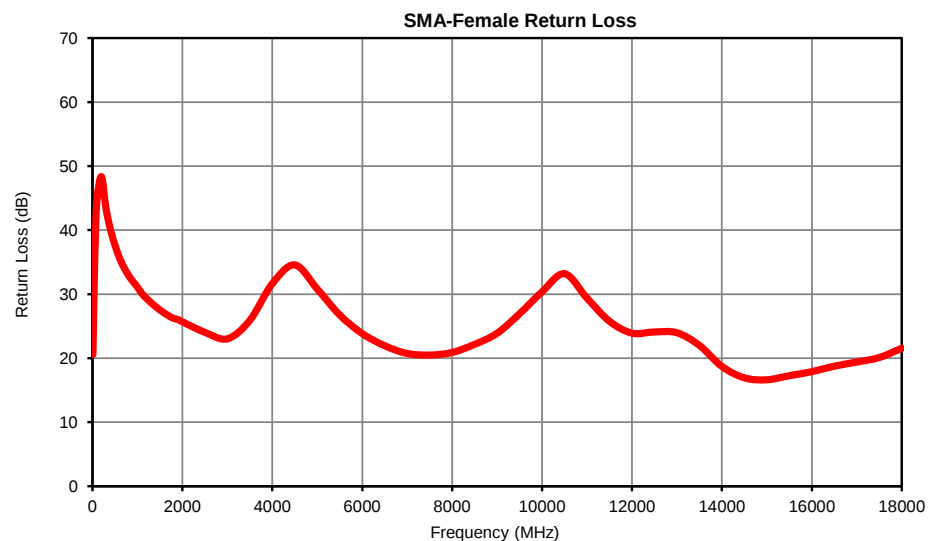
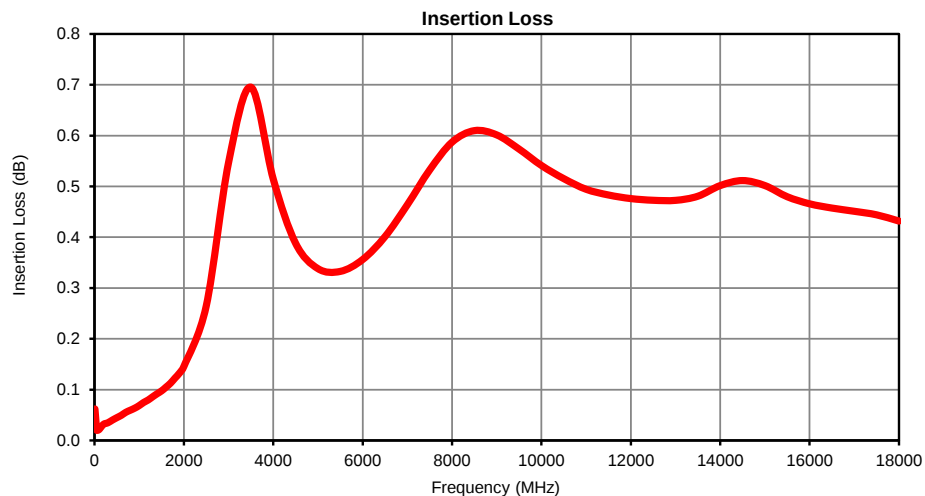
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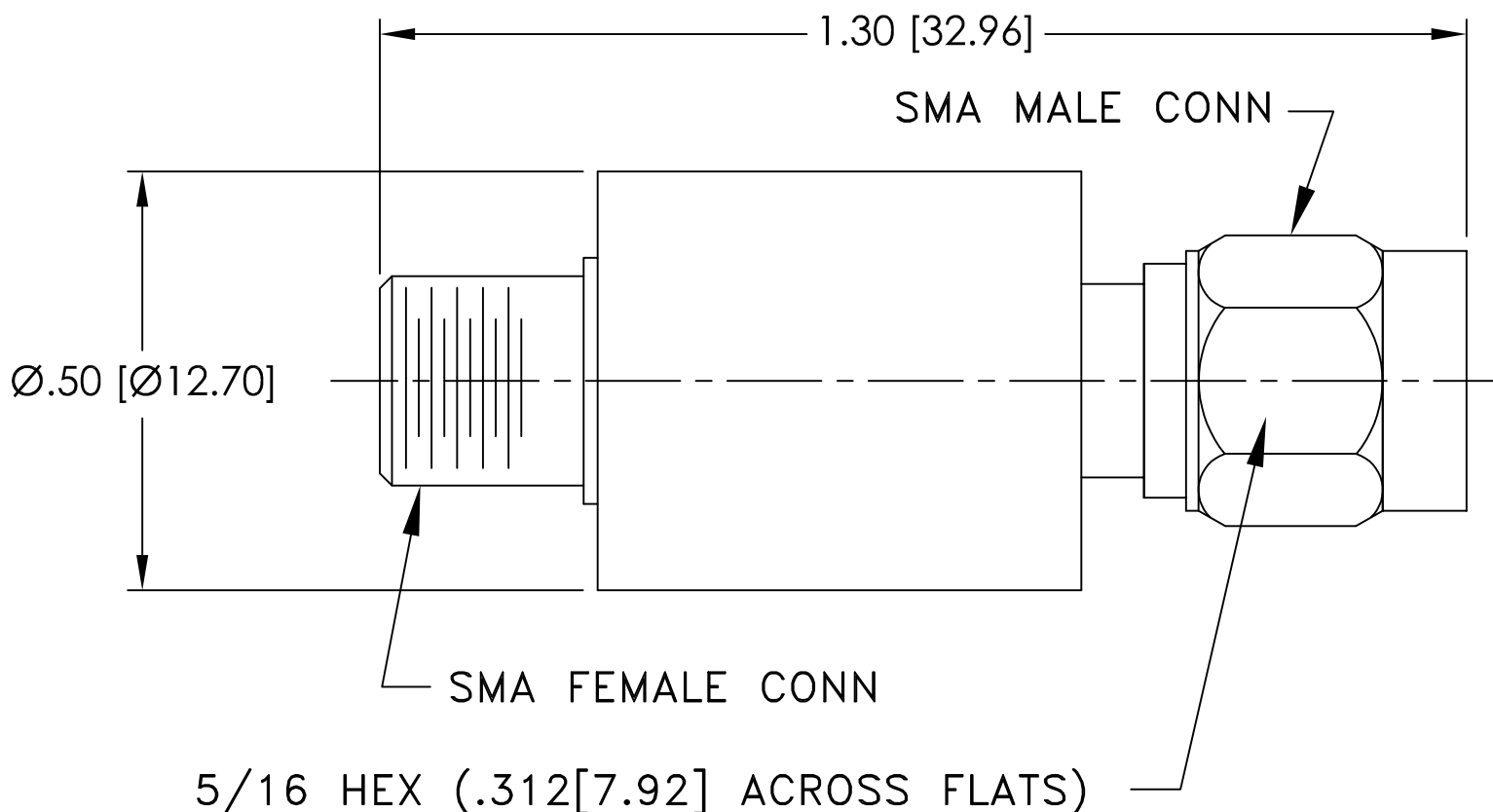
REV. OR  
ECO-004730  
BLKD-183-S+  
OM/RS/CP  
201026

## Typical Performance Data

| FREQUENCY<br>(MHz) | INSERTION LOSS<br>(dB) | SMA-FEMALE<br>Return Loss<br>(dB) | SMA-MALE<br>Return Loss<br>(dB) |
|--------------------|------------------------|-----------------------------------|---------------------------------|
| 10                 | 0.06                   | 20.57                             | 20.57                           |
| 50                 | 0.02                   | 35.63                             | 35.64                           |
| 60                 | 0.02                   | 37.72                             | 37.68                           |
| 100                | 0.02                   | 44.74                             | 44.50                           |
| 200                | 0.03                   | 48.34                             | 47.56                           |
| 300                | 0.03                   | 43.40                             | 42.60                           |
| 400                | 0.04                   | 40.07                             | 39.52                           |
| 500                | 0.04                   | 37.66                             | 37.43                           |
| 600                | 0.05                   | 35.67                             | 35.77                           |
| 700                | 0.06                   | 34.17                             | 34.20                           |
| 800                | 0.06                   | 32.96                             | 33.14                           |
| 900                | 0.06                   | 31.97                             | 32.25                           |
| 1000               | 0.07                   | 31.10                             | 31.25                           |
| 1100               | 0.07                   | 30.09                             | 30.21                           |
| 1200               | 0.08                   | 29.35                             | 29.54                           |
| 1300               | 0.09                   | 28.69                             | 28.73                           |
| 1400               | 0.09                   | 28.08                             | 28.09                           |
| 1500               | 0.10                   | 27.54                             | 27.43                           |
| 1600               | 0.10                   | 27.04                             | 26.66                           |
| 1700               | 0.11                   | 26.59                             | 26.04                           |
| 1800               | 0.12                   | 26.23                             | 25.49                           |
| 1900               | 0.13                   | 26.03                             | 24.92                           |
| 2000               | 0.15                   | 25.68                             | 24.58                           |
| 2500               | 0.26                   | 24.04                             | 22.18                           |
| 3000               | 0.55                   | 23.02                             | 20.02                           |
| 3500               | 0.70                   | 25.90                             | 20.13                           |
| 4000               | 0.51                   | 31.64                             | 22.83                           |
| 4500               | 0.39                   | 34.57                             | 25.60                           |
| 5000               | 0.34                   | 30.80                             | 26.54                           |
| 5500               | 0.33                   | 26.74                             | 25.01                           |
| 6000               | 0.36                   | 23.85                             | 22.84                           |
| 6500               | 0.40                   | 21.94                             | 21.25                           |
| 7000               | 0.46                   | 20.74                             | 20.36                           |
| 7500               | 0.53                   | 20.49                             | 19.73                           |
| 8000               | 0.59                   | 20.89                             | 19.17                           |
| 8500               | 0.61                   | 22.16                             | 19.14                           |
| 9000               | 0.60                   | 23.89                             | 19.94                           |
| 9500               | 0.57                   | 26.94                             | 21.38                           |
| 10000              | 0.54                   | 30.38                             | 22.34                           |
| 10500              | 0.52                   | 33.19                             | 24.12                           |
| 11000              | 0.49                   | 29.37                             | 27.91                           |
| 11500              | 0.48                   | 25.77                             | 35.79                           |
| 12000              | 0.48                   | 23.91                             | 47.23                           |
| 12500              | 0.47                   | 24.09                             | 39.70                           |
| 13000              | 0.47                   | 23.97                             | 27.82                           |
| 13500              | 0.48                   | 22.00                             | 22.41                           |
| 14000              | 0.50                   | 18.71                             | 18.82                           |
| 14500              | 0.51                   | 16.93                             | 17.40                           |
| 15000              | 0.50                   | 16.62                             | 16.96                           |
| 15500              | 0.48                   | 17.27                             | 17.64                           |
| 16000              | 0.47                   | 17.89                             | 18.34                           |
| 16500              | 0.46                   | 18.75                             | 18.51                           |
| 17000              | 0.45                   | 19.40                             | 18.54                           |
| 17500              | 0.44                   | 20.10                             | 19.78                           |
| 18000              | 0.43                   | 21.54                             | 22.03                           |

## Typical Performance Curves





Weight: 10 grams MAX

Dimensions are in inches (mm). Tolerances: 2 Pl.  $\pm .03$ ; 3 Pl.  $\pm .015$

### Notes:

1. Case material: High Temperature Plastic.
2. Finish: Clear.



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



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          |
| Barometric Pressure        | 100,000 Feet                                                                           | MIL-STD-202, Method 105, Condition D |
| Humidity                   | 90% RH, 65°C<br>Units may require bake-out after humidity to restore full performance. | MIL-STD-202, Method 103              |
| Thermal Shock              | -65° to 125°C, 5 cycles                                                                | MIL-STD-202, Method 107, Condition B |
| Vibration (High Frequency) | 20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)    | MIL-STD-202, Method 204, Condition D |
| Mechanical Shock           | 100g, 6ms sawtooth, 3 shocks each direction 3 axes (total 18)                          | MIL-STD-202, Method 213, Condition I |