COAXIAL

# Phase-Stable Flex Cables CBN Series

50Ω DC to 26.5 GHz SMA-Male to SMA-Male

## KEY FEATURES

- Broadband
- Low Loss Dielectric
- Exceptional Phase & Amplitude Stability
- Extremely Flexible

*Generic photo used for illustration purposes only*

## APPLICATIONS

- Test & Measurement
- High-Speed Data Systems
- Instrumentation
- Precision Measurement
- High-Volume Production Test
- R&D Labs & Device Characterization
- Circuit Level Breadboarding
- Equipment Rack & Stack Interconnects
- Tight & Limited Spacing Applications

## PRODUCT OVERVIEW

The CBN series carries on the Mini-Circuits commitment to quality, consistency, performance, and value. While achieving the design goal of extreme flexibility, the CBN design has largely eliminated flex resistance as well as spring-back. Difficult routing challenges have been greatly simplified while maintaining improved attenuation and unparalleled RF stability.

Whether your application is packaged device characterization on the bench, circuit-level breadboarding, the interconnection of RF equipment in a lab or production environment, or deliverable products where space limitations exist, CBN is the correct choice when extreme flexibility and RF stability is of primary concern.

The CBN-XX-SMSM+ SMA-Male to SMA-Male cable family is ideal for interconnecting coaxial components and subassemblies in a wide range of systems, including test and measurement, instrumentation, and more. This flexible cable provides excellent phase and amplitude stability as well as flexibility. These cables are presently available from 1 to 15 feet long; for custom lengths, please contact the Mini-Circuits Sales Department.

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## ELECTRICAL SPECIFICATIONS[1]

| | |
|---|---|
| Operation Frequency (GHz) | 26.5 |
| Impedance (Ω) | 50 |
| Velocity of Propagation (%) | 74 |
| Shielding Effectiveness (dB) | 90 |
| Voltage Withstand Min. (VDC) | 2000 |
| Bending Phase[2] Max. (deg.) | ±6 @ 26.5 GHz |
| Return Loss Typ. [VSWR] | 17.5 dB [1.30:1] |
| Return Loss Max. [VSWR] | 35.0 dB [1.04:1] |

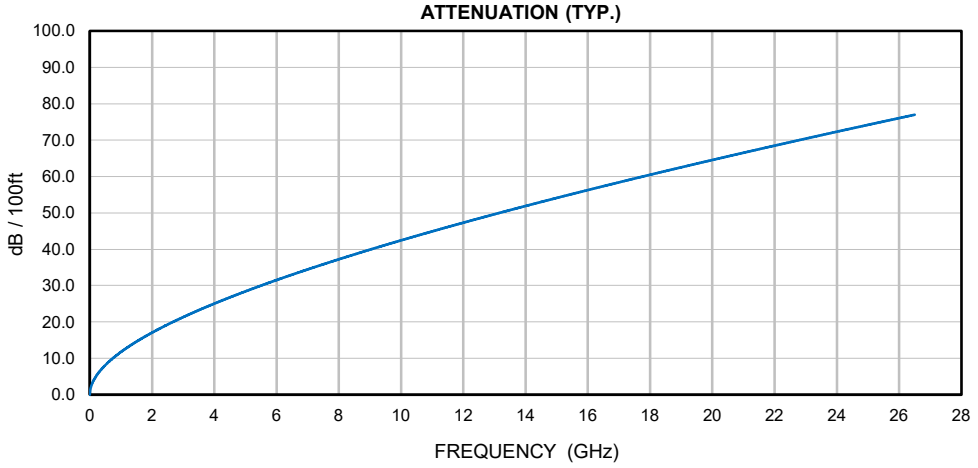
1. Permanent damage may occur if any of these limits are exceeded
2. Phase & Amplitude stability specs guaranteed from 18-inch cable lengths. For cables shorter than 18 inches, no degradation in performance is expected.

## MECHANICAL & ENVIRONMENTAL SPECIFICATIONS[1]

| | |
|---|---|
| Operating Case Temperature[3] | -40°C to +85°C |
| Storage Temperature | -40°C to +85°C |
| Bend Radius: Installation (mm) [in] | 16 [0.64] |
| Bend Radius: Repeated (mm) [in] | 50 [1.97] |
| Weight (g/m) [lbs/1000ft] @ A < 2ft | (50 + 17)*A ± 15 [(33.57 + 11.4)*A ± 10.1] |
| Weight (g/m) [lbs/1000ft] @ A > 2ft | (50 + 18)*A ± 15 [(33.57 + 12.1)*A ± 10.1] |

3. Temperature extremes are not intended for continuous normal operation.

**ATTENUATION (TYP.)**




**Attenuation (Typical @ 25°C & VSWR = 1.0) dB**

| Frequency (MHz) | 1000 | 2000 | 3000 | 4000 | 6000 | 8000 | 10000 | 12000 | 14000 | 18000 | 20000 | 26500 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| dB / 100 m | 38.49 | 55.91 | 69.87 | 82.03 | 103.25 | 121.94 | 139.00 | 154.91 | 169.65 | 198.08 | 211.40 | 252.14 |
| dB / 100 ft | 11.73 | 17.04 | 21.30 | 25.00 | 31.47 | 37.17 | 42.37 | 47.22 | 51.80 | 60.38 | 64.43 | 76.85 |

**Calculate Attenuation = $K1 * \sqrt{FMHz} + K2 * FMHz + 0.02\sqrt{FGHz}$ dB**

| | | | | |
|---|---|---|---|---|
| dB / 100 m | K1 = | 1.1370000 | K2 = | 0.0025300 |
| dB / 100 ft | K1 = | 0.3465576 | K2 = | 0.0007711 |

**Power (VSWR = 1.0; 25°C; Sea Level) W**

| Frequency (MHz) | 1000 | 2000 | 3000 | 4000 | 6000 | 8000 | 10000 | 12000 | 14000 | 18000 | 20000 | 26500 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Avg. Power (kW) | 0.473 | 0.362 | 0.261 | 0.222 | 0.176 | 0.149 | 0.131 | 0.118 | 0.107 | 0.092 | 0.086 | 0.072 |

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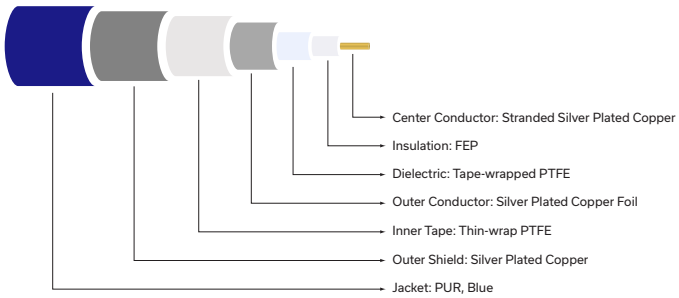
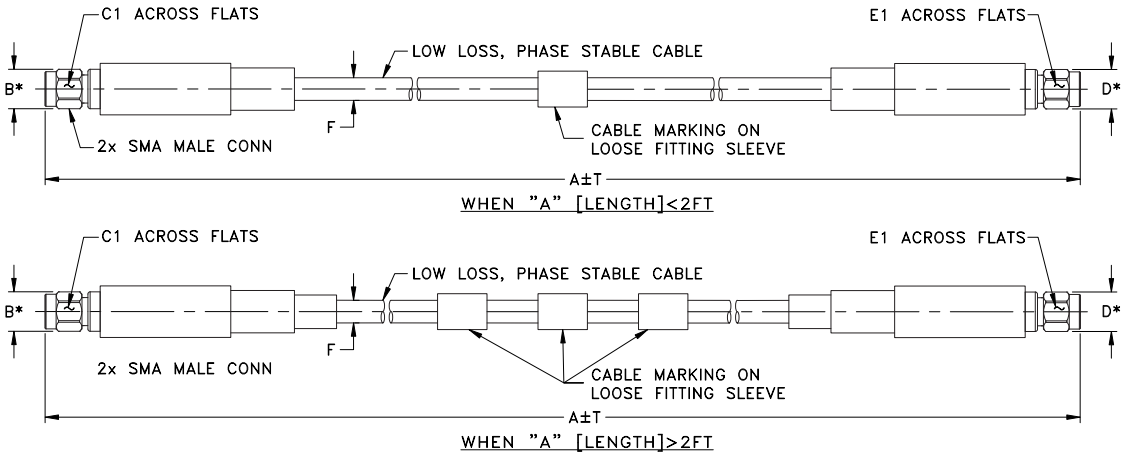
## COAXIAL CONNECTIONS

| Description | Connector 1 | Connector 2 |
|---|---|---|
| Connector Type | SMA-Male | SMA-Male |
| Orientation | Straight | Straight |

## CABLE CONSTRUCTION




## CASE STYLE DRAWING




Unless Otherwise Specified dimensions are in inches [mm], Tolerances: 2 Pl.±0.03; 3 PL ±0.015 inches

| A | | B | C1 | D | E1 | F | T | | Wt. grams |
|---|---|---|---|---|---|---|---|---|---|
| Feet | Meters | | | | | | Feet | Meters | |
| 1.00 | 0.30 | .36 (9.14) | .315 (8.00) | .36 (9.14) | .315 (8.00) | .205 (5.20) | +.04/-0 | +.01/-0 | 32.0 |
| 1.50 | 0.46 | | | | | | +.04/-0 | +.01/-0 | 40.0 |
| 2.00 | 0.61 | | | | | | +.04/-0 | +.01/-0 | 48.0 |
| 2.50 | 0.76 | | | | | | +.04/-0 | +.01/-0 | 56.0 |
| 3.00 | 0.91 | | | | | | +.06/-0 | +.02/-0 | 63.5 |
| 3.28 | 1.00 | | | | | | +.07/-0 | +.02/-0 | 68.0 |
| 3.50 | 1.07 | | | | | | +.07/-0 | +.02/-0 | 71.5 |
| 4.00 | 1.22 | | | | | | +.08/-0 | +.02/-0 | 79.0 |
| 4.92 | 1.50 | | | | | | +.10/-0 | +.03/-0 | 93.0 |
| 5.00 | 1.52 | | | | | | +.10/-0 | +.03/-0 | 94.0 |
| 6.00 | 1.83 | | | | | | +.12/-0 | +.04/-0 | 109.5 |
| 6.56 | 2.00 | | | | | | +.13/-0 | +.04/-0 | 118.0 |
| 10.00 | 3.05 | | | | | | +.20/-0 | +.06/-0 | 170.5 |
| 15.00 | 4.57 | | | | | | +.30/-0 | +.09/-0 | 246.5 |

**PRODUCT MARKING*:** CBN-XX-SMSM+

*Marking may contain other features or characters for internal lot control.

# Phase-Stable Flex Cables CBN Series

50Ω DC to 26.5 GHz SMA-Male to SMA-Male

## ADDITIONAL INFORMATION IS AVAILABLE ON OUR DASHBOARD CLICK HERE

| | |
|---|---|
| **Performance Data & Graphs** | Data<br>Graphs<br>S-Parameter (S2P Files) Data Set (.zip file) |
| **Case Style** | GM3711 |
| **RoHS Status** | Compliant |
| **Environmental Ratings** | ENV149 |

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