COAXIAL

# Phase-Stable Flex Cables

## CBN Series

50Ω DC to 18 GHz SMA Male to N-Type Male

### KEY FEATURES

- Broadband, DC to 18 GHz
- Low Loss PTFE Dielectric
- Exceptional Phase & Amplitude Stability
- Extremely Flexible



*Generic photo used for illustration purposes only*

### APPLICATIONS

- Test & Measurement
- High-Speed Data Systems
- 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 phase stability is of primary concern.

The CBN-XX-SMNM+ SMA male to N-type 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 cable assembly 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.

REV. OR
ECO-031030
CBN-XX-SMNM+
MCL NY
260904

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### ELECTRICAL SPECIFICATIONS[1]

| | |
|---|---|
| Operating Frequency (GHz) | 18 |
| Impedance (Ω) | 50 |
| Velocity of Propagation (%) | 74 |
| Shielding Effectiveness (dB) | 90 |
| Voltage Withstand Min. (VDC) | 6600 |
| Bending Phase[2] Max. (deg.) | ±6 @ 18 GHz |
| Return Loss Typ. [VSWR] | 23.1 dB [1.15:1] |
| Return Loss Max. [VSWR] | 17.7 dB [1.30:1] |

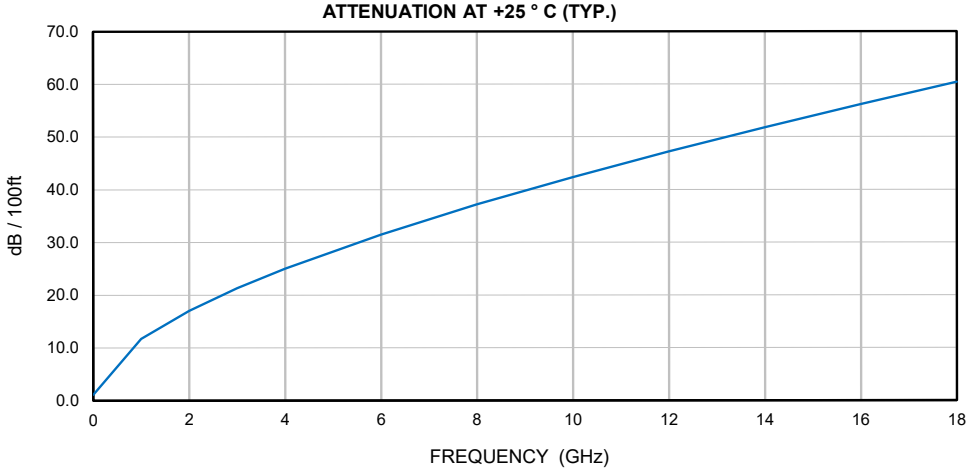
1. Permanent damage may occur if these limits are exceeded.
2. Phase & Amplitude stability specs guaranteed from 18-inch cable lengths. For cables shorter than 18 inches, no degradation in performance is expected.

### 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] | 16.2 [0.64] |
| Bend Radius: Repeated mm [in] | 160 [6.38] |
| Weight (g/m) [lbs/1000 ft] at A < 2 ft | (50 + 17) * A ±15 [(33.57 + 11.4) * A ±10.1] |
| Weight (g/m) [lbs/1000 ft] at A > 2 ft | (50 + 18) * A ±15 [(33.57 + 12.1) * A ±10.1] |

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

**ATTENUATION AT +25 ° C (TYP.)**




**Attenuation (Typical at +25 °C & VSWR = 1.0:1) dB**

| Frequency (GHz) | 1 | 2 | 3 | 4 | 6 | 8 | 10 | 12 | 14 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|
| dB / 100 m | 38.49 | 55.91 | 69.87 | 82.03 | 103.25 | 121.94 | 139.00 | 154.91 | 169.65 | 198.08 |
| dB / 100 ft | 11.73 | 17.04 | 21.30 | 25.00 | 31.47 | 37.17 | 42.37 | 47.22 | 51.80 | 60.38 |

**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 = 1.0:1; +25 °C; Sea Level) W**

| Frequency (GHz) | 1 | 2 | 3 | 4 | 6 | 8 | 10 | 12 | 14 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|
| Avg. Power (W) | 486 | 326 | 258 | 219 | 173 | 147 | 129 | 112 | 107 | 92 |

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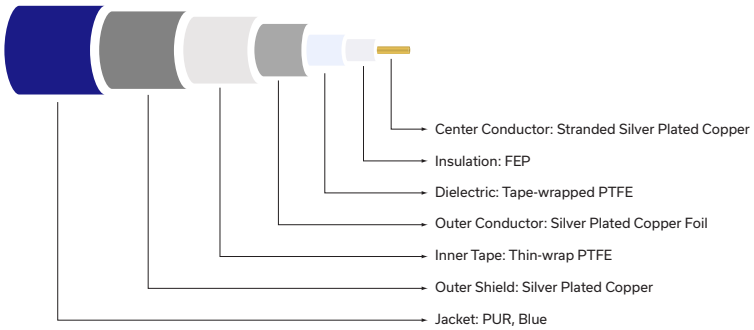
## CBN Series

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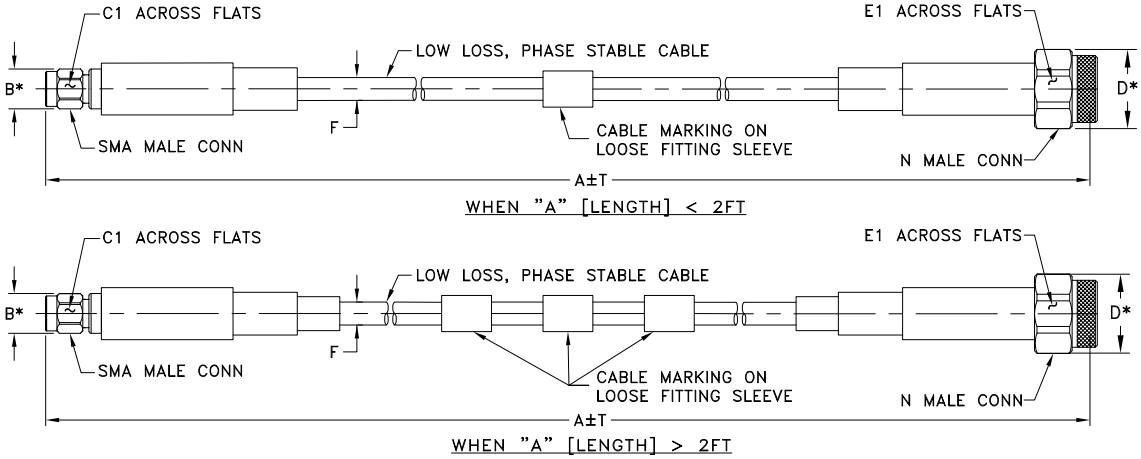
### COAXIAL CONNECTIONS

| Description | Connector 1 | Connector 2 |
|---|---|---|
| Connector Type | SMA Male | N-Type Male |
| Orientation | Straight | Straight |
| Body Material/ Plating | Stainless Steel/ Passivation | Stainless Steel/ Passivation |
| Center Pin Material/ Plating | BeCu/Gold | BeCu/Gold |

### 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 | |
| 2.00 | 0.61 | 0.36 (9.14) | 0.315 (8.00) | 0.88 (22.35) | 0.748 (19.00) | 0.205 (5.20) | +0.04/-0 | +0.01/-0 | 84.5 |
| 3.00 | 0.91 | | | | | | +0.06/-0 | +0.02/-0 | 99.5 |
| 6.56 | 2.00 | | | | | | +0.13/-0 | +0.04/-0 | 154.0 |
| 10.00 | 3.05 | | | | | | +0.20/-0 | +0.06/-0 | 206.5 |

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

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

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## CBN Series

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**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** | GM3751 |
| **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-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