Datasheet

CSE-SGMR-152-SGMR
SMA Right-Angle Plug to SMA Right-Angle Plug Cable Assembly

The CSE-SGMR-152-SGMR cable assembly provides an SMA plug (male pin) to SMA plug (male pin) connection with 6 in. of RG-316/U coaxial cable.

Operating from 0 Hz to 3 GHz, the CSE-SGMR-152-SGMR cable assembly combines superior performance, compact size, and a convenient threaded mating interface to provide a reliable, easy-to-use cable assembly. Additionally, all Linx coaxial cables and connectors meet RoHS lead free standards and are tested to meet requirements for corrosion resistance, vibration, mechanical and thermal shock.

Features

- 0 Hz to 3 GHz operation
- SMA right-angle plug (male pin)
  - Gold plated brass construction
  - Right-angle design
- RG-316/U 50 Ω coaxial cable

Applications

- LPWA
- Cellular IoT – LTE-M (Cat-M1), NB-IoT
- Cellular – 5G/4G LTE/3G/2G
- PC, LAN
- ISM – Bluetooth®, ZigBee®
- GNSS – GPS, Galileo, GLONASS, BeiDou, QZSS
- Automotive, Industrial, Commercial, Enterprise

Table 1. Electrical Specifications

Parameter	Value
Insertion Loss (dB max)	0.9
VSWR (max)	1.7
Impedance	50 Ω
Insulation Resistance	500 MΩ min.

Ordering Information

Part Number	Description
CSE-SGMR-152-SGMR	SMA right-angle plug (male pin) to SMA right-angle plug (male pin) on 152 mm (6.0 in) of RG-316/U coaxial cable

Available from Linx Technologies and select distributors and representatives.

Product Dimensions

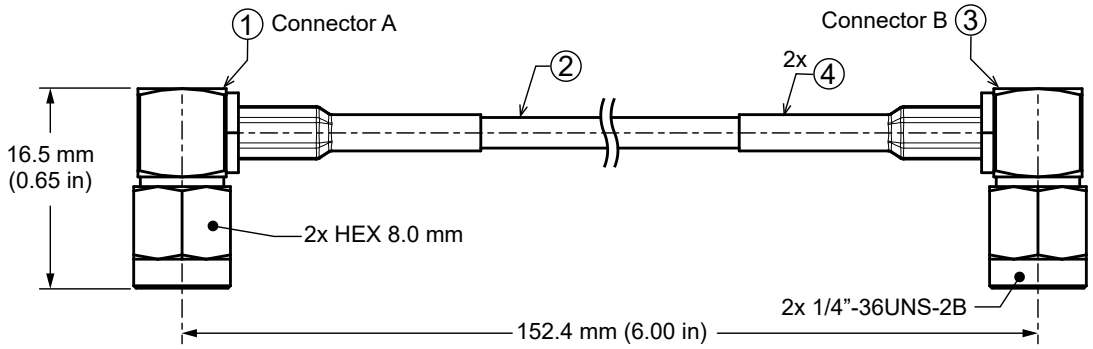

Figure 1. Product Dimensions for the CSE-SGMR-152-SGMR Cable Assembly

Table 2. Cable Assembly Components

Item #	Description	Material	Finish
1	Connector, SMA plug (male pin), right angle	Brass	Gold
2	RG-316/U coaxial cable	RG-316/U	Black
3	Connector, SMA plug (male pin), right angle	Brass	Gold
4	Heat Shrink Tubing	PTFE	Black

Table 3. Cable Assembly Mechanical Specifications

Parameter	Connector A SMA Plug (male pin), right angle	Connector B SMA Plug (male pin), right angle
Fastening Type	1/4"-36UNS-2B threaded coupling	1/4"-36UNS-2B threaded coupling
Recommended Torque	0.9 N m (8.0 in lbs)	0.9 N m (8.0 in lbs)
Coupling Nut Retention	60 lbs. min.	60 lbs. min.
Connector Durability	500 cycles min.	500 cycles min.
Operating Temperature Range	-40 °C to +120 °C	
Weight	12.8 g (0.45 oz)	

Coaxial Cable Specifications

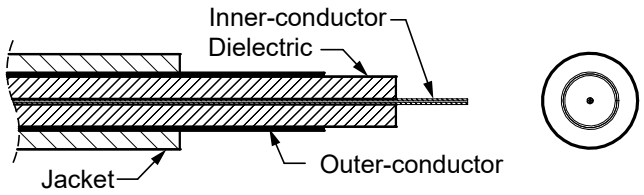

Figure 2. Coaxial Cable Cutaway Diagram

Table 4. Coaxial Cable Material Specifications for RG-316/U

RG-316/U Coax	Material	Dimensions
Inner-Conductor	Tinned copper clad steel, 7 strand, 0.175 mm/conductor	Ø0.53 mm (0.020 in)
Dielectric	FEP, Clear	Ø1.53 mm (0.06 in)
Outer-Conductor	Silver plated copper braid, Coverage 95%	Ø1.71 mm (0.067 in)
Jacket	FEP, natural	Ø2.53 mm (0.100 in)

Table 5. Coaxial Cable Electrical and Physical Specifications for RG-316/U

Parameter	Value					
Rated Temp Voltage	105 °C 30 V					
Conductor Resistance	302 Ω/km 20 °C max.					
Insulation Resistance	3000 M Ω-km min.					
Dielectric Strength	AC 1000 V/Minute					
Spark Test	5.0 kV					
Insulation	Unaged	Tensile Strength	2500 psi min. (1.76 kg/mm²)			
		Elongation	200% min.			
	Aged	Tensile Strength	Unaged min. 75% (168 hrs x 232 °C)			
		Elongation	Unaged min. 75% (168 hrs x 232 °C)			
Jacket	Unaged	Tensile Strength	2500 psi min. (1.76 kg/mm²)			
		Elongation	200% min.			
	Aged	Tensile Strength	Unaged min. 75% (168 hrs x 232 °C)			
		Elongation	Unaged min. 75% (168 hrs x 232 °C)			
Nominal Impedance	50 ± 3 Ω					
Nominal Capacitance	95.8 ± 3 pF/m					
Nominal Velocity of Propagation	69.5%					
VSWR (0 to 6 GHz)	≤ 1.3					
Attenuation (dB/1M)	2.0 GHz 2.80	2.4 GHz 3.10	2.5 GHz 3.15	5.0 GHz 4.85	6.0 GHz 5.20	
Minimum Inside Bend radius	12.7 mm (0.5 in)					

Insertion Loss

Figure 3 shows the Insertion Loss for the CSE-SGMR-152-SGMR cable assembly. Insertion loss is the loss of signal power (gain) resulting from the insertion of a device in a transmission line.

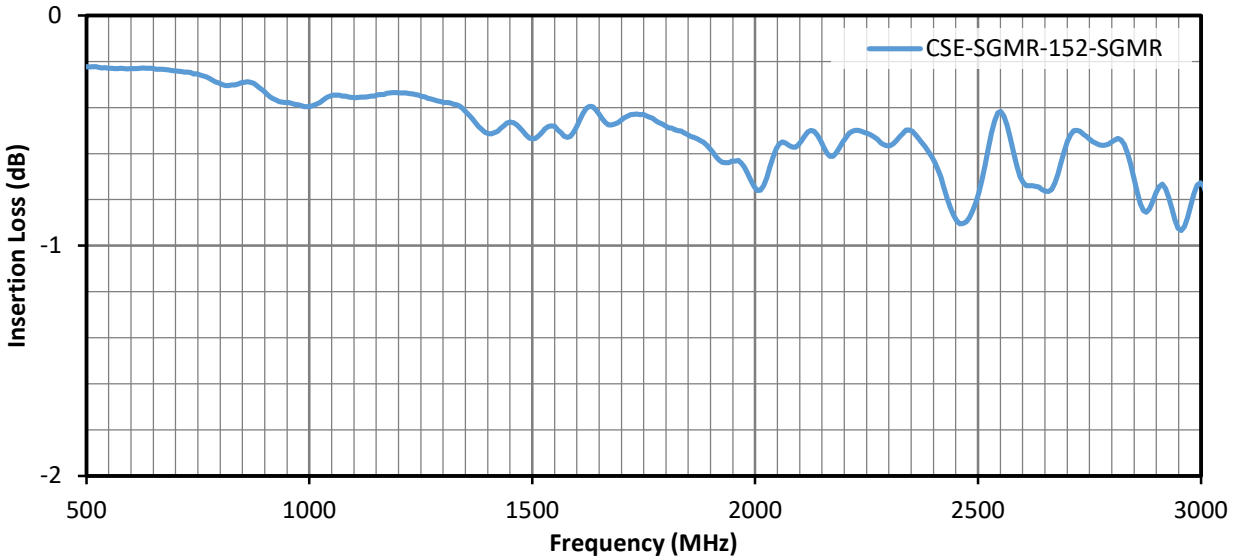

Figure 3. Insertion Loss for the CSE-SGMR-152-SGMR Cable Assembly

VSWR

Figure 4 provides the voltage standing wave ratio (VSWR) across the cable assembly's bandwidth for the CSE-SGMR-152-SGMR cable assembly. VSWR describes how efficiently power is transmitted through the cable assembly. A lower VSWR value indicates better performance at a given frequency.

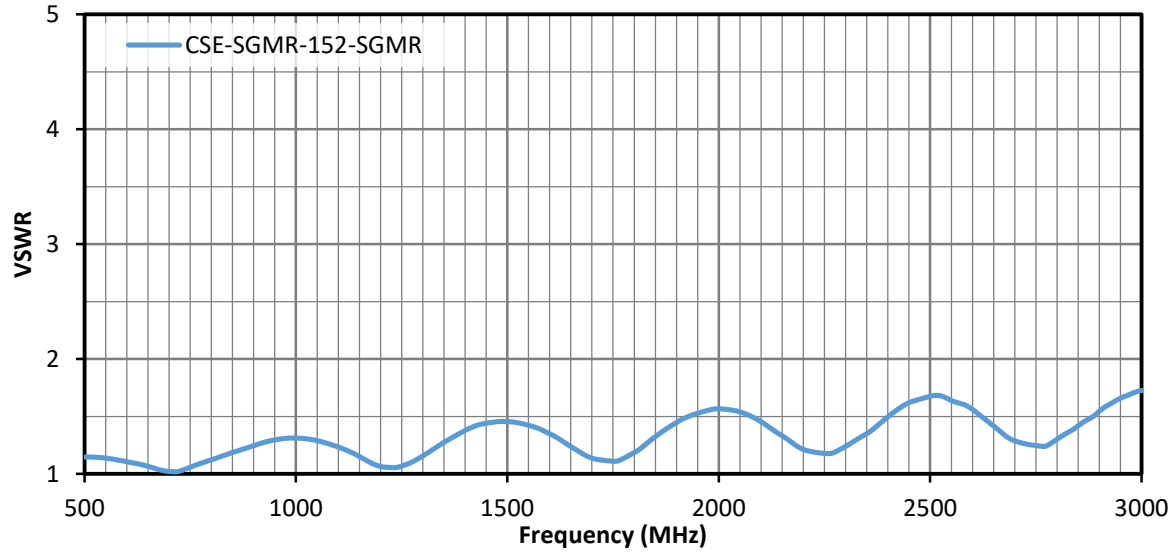

Figure 4. VSWR for the CSE-SGMR-152-SGMR Cable Assembly

Packaging Information

The CSE-SGMR-152-SGMR cable assembly is packaged in a clear plastic bag, in quantities of 50. Distribution channels may offer alternative packaging options.

Cable Assembly Definitions and Useful Formulas

VSWR - Voltage Standing Wave Ratio. VSWR is a unitless ratio that describes how efficiently power is transmitted through the cable assembly. A lower VSWR value indicates better performance at a given frequency. VSWR is easily derived from Return Loss.

$$\text{VSWR} = \frac{10^{\left[\frac{\text{Return Loss}}{20}\right]} + 1}{10^{\left[\frac{\text{Return Loss}}{20}\right]} - 1}$$

Insertion Loss - The loss of signal power (gain) resulting from the insertion of a device in a transmission line. Insertion loss can be derived from the power transmitted to the load before the insertion of the component P_T and the power transmitted to the load after the insertion of the component P_R.

$$Insertion\ Loss\ (\text{dB}) = 10 \log_{10} \frac{P_T}{P_R}$$

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