

# GMS® Interconnect Series

## Product Information

CORNING

Microwave  
Products

### Product Features:

- Frequency range:  
DC up to 23 GHz,
- Force to engage/disengage:  
10 ounces min./2.5 pounds  
max.,
- Male connectors have full  
self-centering mechanism,
- Shrouded female,
- Temperature range -55°  
thru 165° C,
- Tolerated radial  
misalignment .020,
- Tolerated axial  
misalignment .060

Corning Gilbert's GMS® connectors are 50Ω blindmateable with similar size and power handling capability as SMA type connectors. Their properties make them ideal for multiple mate and backplane applications. Designed for fast, easy and reliable engagement and disengagement, our GMS® products provide excellent mechanical and electrical performance characteristics over the range of frequencies from DC to 23 GHz.

With designed-in durability the GMS® components are a smart alternative to the OSP™, BMA, and some SMA connectors. Our GMS® design is unique with its interface construction. This design protects connector fingers that can be damaged during mating and de-mating. This ensures you'll receive consistent, reliable electrical performance in the laboratory, production or field applications.



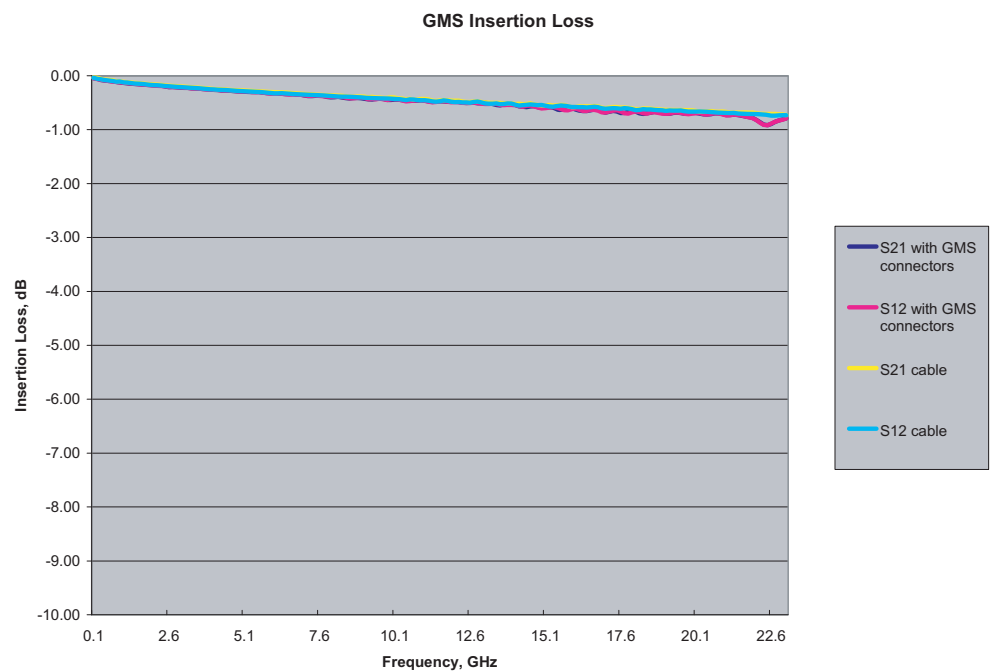
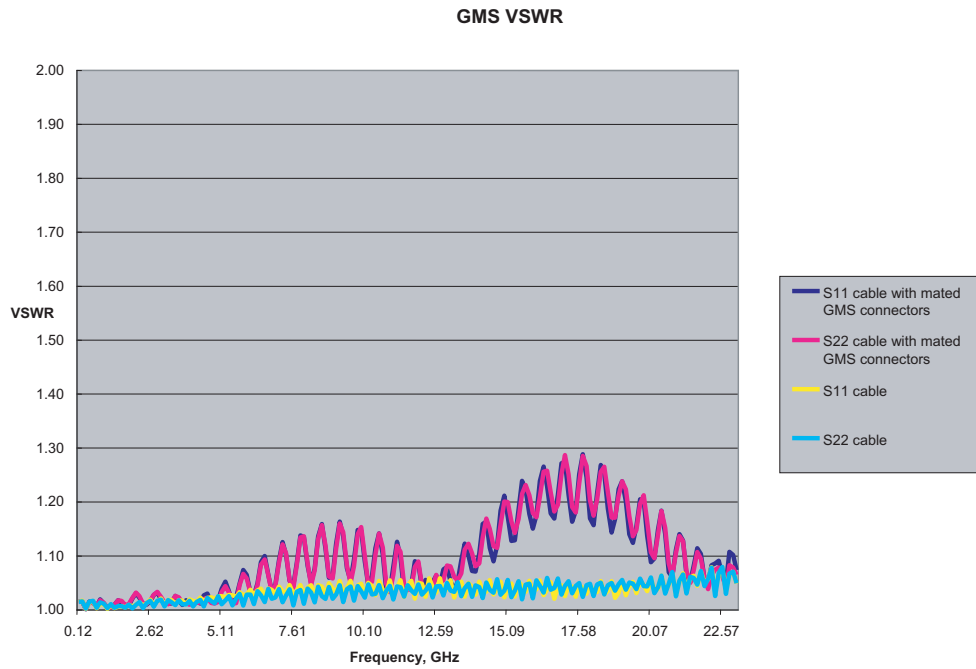
## GMS® Product Characteristics

- Perfect for use on components like rack mount equipment, microwave modules and card type packages.
- Used for years in satellites, missile systems, radar and other high reliability applications.
- Jack connector utilizes a shrouded interface that serves as a guide for the plug and as protection for internal contacts when unmated.
- Plug and play design allows for rapid assembly and testing.
- Eliminates the need for torque wrench allowing for increased package density, saving time and money.
- Lot acceptance tested in accordance with MIL-PRF-39012.
- Designed to exceed 5000 engagements with low mating forces.
- Electrical connection between jack and plug connectors utilizes a slotted outer conductor for ground connection and a socket contact inner conductor for signal connection.
- Plug connector allows radial misalignment up to 0.020" and axial misalignment up to 0.060" without compromising electrical performance.
- Jack connectors are designed to be fixed mounted and the plug connector is designed to float.
- A spring mechanism in the plug connector separates the interface from the housing. The spring then works to align the mated connectors.
- Some GMS® connectors are available in an ESD resistant version.
- Custom designed connectors are available.
- Ideal for use in both military and commercial applications.



## Typical Electrical Data:

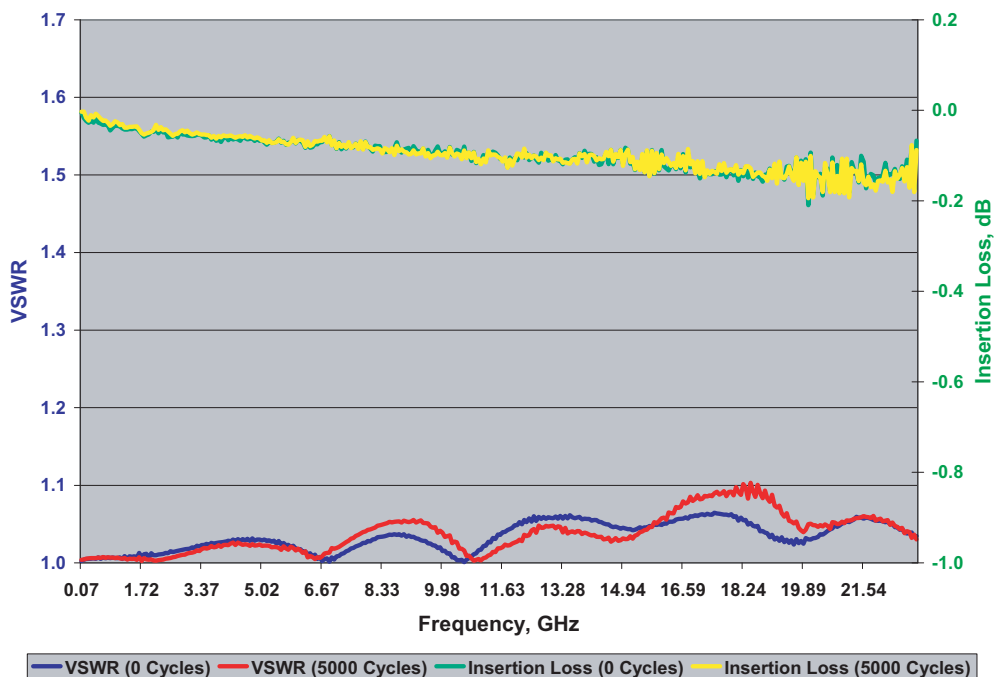
The graphs below show the electrical test data for some GMS<sup>®</sup> cable connectors that are representative of the product line. For comparison purposes the data also shows the test results of cable assemblies without GMS<sup>®</sup> connectors. We started the testing with serialized 12 inch SMA male to SMA male cable assemblies using standard .141" semi-rigid cable. We then tested and recorded the data for each cable assembly. The assemblies were then cut in half and connectorized with mating GMS<sup>®</sup> connectors available for .141" semi-rigid cable. The connectorized cable assemblies, with the GMS<sup>®</sup> connectors, were then tested and the data was recorded for each sample. For testing, a full two port calibration was used on an Agilent 8510C VNA. No gating or smoothing was applied to the recorded test data.





### Durability Data:

The following graph shows how little the electrical performance changes with usage. A new pair of GMS® to SMA adapters was tested, mated and unmated 5000 times, and then retested. The VSWR is shown by the blue and red traces at the bottom of the graph and the VSWR values are given on the left hand side of the graph. The Insertion Loss is shown by the green and yellow traces toward the top of the graph and the Insertion Loss values are given on the right hand side of the graph.



## GMS® Product Specifications

### General Characteristics

Impedance	50 ohms nominal
Frequency range	DC to 23 GHz
Temperature range	-55°C thru 165°C

### Electrical Characteristics

VSWR	1.05x .005x f(GHz) (typical mated pair)
Insertion loss	.03x $\sqrt{f}$ GHz
DWV@ Sea Level:	1,500 Vrms
Insulation resistance	1,000 megohms min.
Contact resistance	
Outer conductor	2 milliohms max.
Inner conductor	2.5 milliohms max.
RF leakage	-80 dB (typical mated pair)

### Mechanical Characteristics

Durability	5000+ mate/demate cycles
Force to engage/disengage	2.5 pounds max.
Tolerated misalignment	
Radial	.020
Axial	.060
Self-centering (male)*	

### Environmental Characteristics

Thermal Shock	MIL-STD-202, Method 107, Condition B
Salt Spray	MIL-STD-202, Method 101
Vibration	MIL-STD-202, Method 204
Shock	MIL-STD-202, Method 213, Condition I
Moisture resistance	MIL-STD-202, Method 106, except Step 7B

### Materials (typical)

Bodies	CRES 303 per ASTM A484 and ASTM A582 and or/ ASTM A555 and ASTM A581
Outer contacts	Beryllium Copper per ASTM B196 and or/ASTM B197
Center contacts	Beryllium Copper per ASTM B196 and or/ASTM B197
Insulators	PTFE Fluorocarbon per ASTM D1710 and ASTM D 1457
Springs	17-7 Stainless Steel per ASTM A313-95A

### Finish (typical)

Bodies	Passivate per MIL-F-14072 E300
Contacts	Gold plated per MIL-G-45204, Type I, Grade C, Class 1, Over Nickel Plate per QQ-N-290

**\*Note:**

Corning Gilbert male connectors  
have a full self-centering mechanism

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Microwave Products

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