

Commercial Space Line

MaxGain® 130

High Performance Microwave Cable Assemblies



MaxGain® Assemblies are high-performance, ultra-low-loss microwave coaxial cables. Built with our unique spiral outer conductor technology, this light-weight cable is a reliable, high frequency interconnect solution.

Features

- Sold as cable assemblies
- Low outgassing materials per ASTM E595
- Class 100,000 clean room manufacturing
- Vented connectors, if applicable
- Optimized for lowest attenuation
- Ultra stable performance with flexure
- Superior shielding effectiveness (>90 dB)
- Radiation Resistance: 30 MRads

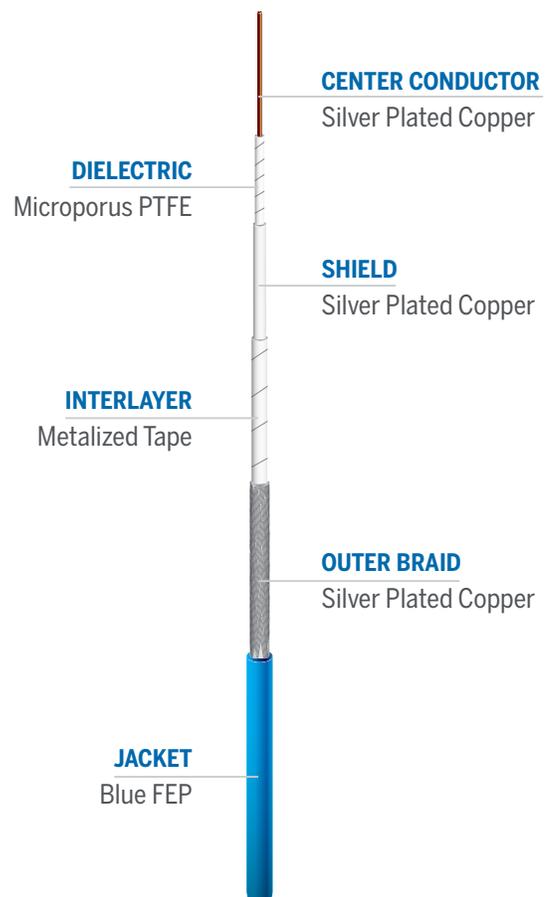
Specifications

Ω Impedance
50 Ohms

Op Temp
-67 to +302°F
-55 to +150°C

Units

| | Units | |
|-------------------------|--------------|--------------|
| Diameter | in (mm) | 0.130 (3.30) |
| Weight | lb/ft (g/m) | 0.018 (27) |
| Minimum Bend Radius | in (mm) | 0.625 (16) |
| Maximum Frequency | GHz | 53 |
| Velocity of Propagation | % | 80 |
| Capacitance | pF/ft (pF/m) | 25.4 (83.3) |
| Delay | ns/ft (ns/m) | 1.27 (4.17) |
| Shielding | dB | >90 |



Calculation

$$IL = (K1 \times v(f) + K2 \times f) \times \text{Cable Length} + \text{Connector Loss}$$

Cable Insertion Loss
f = Frequency (MHz)

Use K values with
matching length unit

| K values | dB/ft | dB/m |
|----------|----------|----------|
| K1 | 0.437597 | 1.435756 |
| K2 | 0.000146 | 0.000479 |

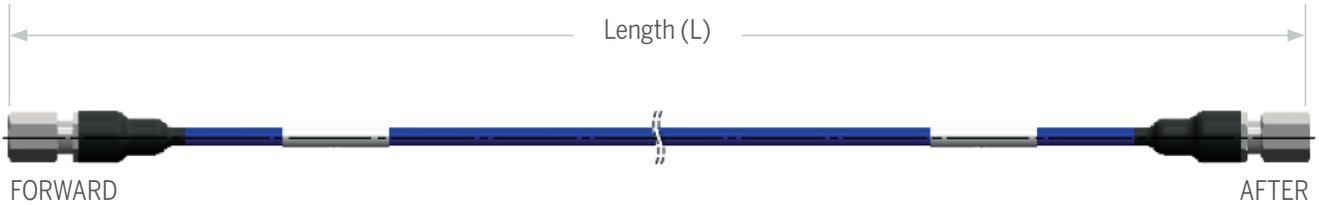
Insertion loss & VSWR @ 50GHz

| Stock Code | Max. Insertion Loss in dB | Max. VSWR |
|-------------|---------------------------|-----------|
| IE-00406-01 | 1.87 | 1.40 |
| IE-00406-02 | 2.64 | 1.40 |
| IE-00406-03 | 4.62 | 1.40 |
| IE-00406-04 | 6.60 | 1.40 |

MaxGain® 130

High Performance Microwave Cable Assemblies

Ordering Guide



MGS130 - **SP014** **SP014** - **XX.X** **MM**

Forward Connector After Connector Length Units of measure
MM - Millimeters

| Stock Code | Part-Number | Length (L) in mm |
|-------------|----------------------|------------------|
| IE-00406-01 | MGS130-2.4M2.4M-0.3M | 300 |
| IE-00406-02 | MGS130-2.4M2.4M-0.5M | 500 |
| IE-00406-03 | MGS130-2.4M2.4M-1.0M | 1000 |
| IE-00406-04 | MGS130-2.4M2.4M-1.5M | 1500 |

| Connector Code | Description | Connector Body | Center Contact | Connector Loss (per pair) |
|----------------|-------------------------|-----------------------------|-------------------------------|-----------------------------|
| SP014 | Type 2.4mm (M) Straight | Stainless Steel, Passivated | Beryllium Copper, Gold Plated | 0.08 x v _f (GHz) |



Global manufacturing capability: US, and Asia.



Heritage—in the air and on the ground, thousands of assemblies built over decades.



Assembled and tested assemblies provide assured performance.

Rev.2: 3/6/2023

Commercial Space Line

MaxGain® 160

High Performance Microwave Cable Assemblies



MaxGain® Assemblies are high-performance, ultra-low-loss microwave coaxial cables. Built with our unique spiral outer conductor technology, this light-weight cable is a reliable, high frequency interconnect solution.

Features

- Sold as cable assemblies
- Low outgassing materials per ASTM E595
- Class 100,000 clean room manufacturing
- Vented connectors, if applicable
- Optimized for lowest attenuation
- Ultra stable performance with flexure
- Superior shielding effectiveness (>90 dB)
- Radiation Resistance: 30 MRads

Specifications

Ω Impedance
50 Ohms

Op Temp
-67 to +302°F
-55 to +150°C

| | Units | |
|-------------------------|--------------|--------------|
| Diameter | in (mm) | 0.160 (4.04) |
| Weight | lb/ft (g/m) | 0.026 (38) |
| Minimum Bend Radius | in (mm) | 0.750 (19.0) |
| Maximum Frequency | GHz | 40 |
| Velocity of Propagation | % | 80 |
| Capacitance | pF/ft (pF/m) | 25.4 (83.3) |
| Delay | ns/ft (ns/m) | 1.27 (4.17) |
| Shielding | dB | >90 |

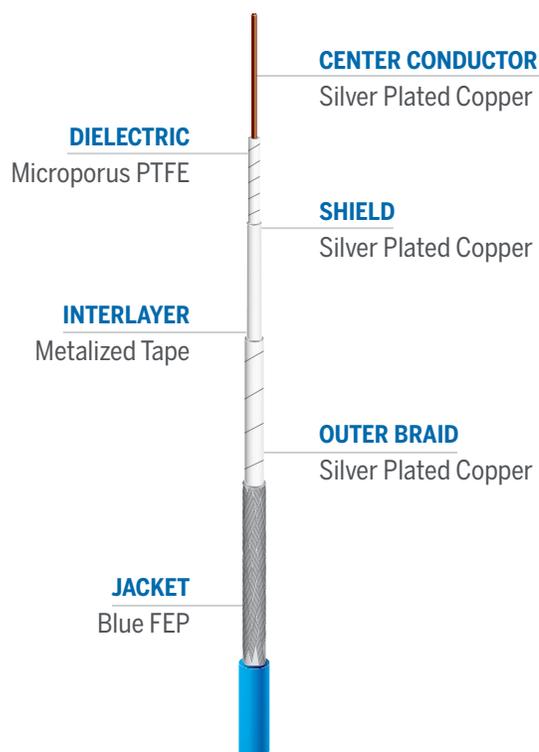
Calculation

$$IL = (K1 \times v(f) + K2 \times f) \times \text{Cable Length} + \text{Connector Loss}$$

Cable Insertion Loss
f = Frequency (MHz)

Use K values with
matching length unit

| K values | dB/ft | dB/m |
|----------|----------|----------|
| K1 | 0.368 | 1.136243 |
| K2 | 0.000146 | 0.000479 |



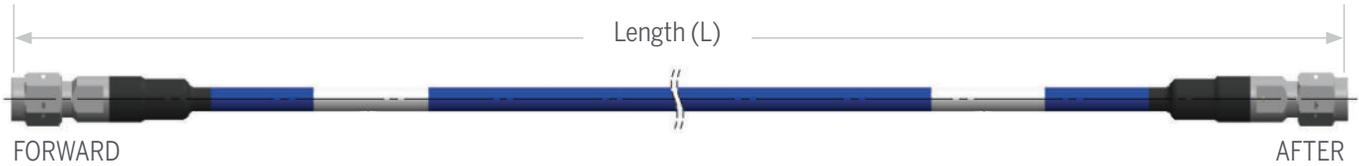
Insertion loss & VSWR

| Stock Code | Max. Insertion Loss in dB @ 40GHz | Max. VSWR @ 40GHz |
|-------------|-----------------------------------|-------------------|
| IE-00407-01 | 1.98 | 1.40 |
| IE-00407-02 | 3.41 | 1.40 |
| IE-00407-03 | 4.81 | 1.40 |
| IE-00407-04 | 6.27 | 1.40 |
| | Max. Insertion Loss in dB @ 22GHz | Max. VSWR @ 22GHz |
| IE-00408-01 | 1.43 | 1.35 |
| IE-00408-02 | 2.53 | 1.35 |
| IE-00408-03 | 3.52 | 1.35 |
| IE-00408-04 | 4.51 | 1.35 |

MaxGain® 160

High Performance Microwave Cable Assemblies

Ordering Guide

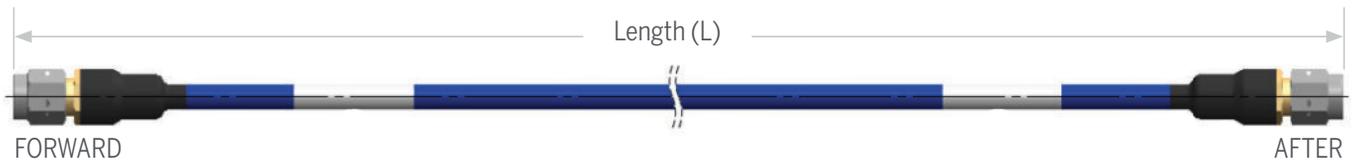


MGS160 - SPO29 SPO29 - XX.X MM

Forward Connector After Connector Length Units of measure
MM - Milimeters

| Stock Code | Part-Number | Length (L) in mm |
|-------------|------------------|------------------|
| IE-00407-01 | MGS160-KMKM-0.5M | 500 |
| IE-00407-02 | MGS160-KMKM-1.0M | 1000 |
| IE-00407-03 | MGS160-KMKM-1.5M | 1500 |
| IE-00407-04 | MGS160-KMKM-2.0M | 2000 |

| Connector Code | Description | Connector Body | Center Contact | Connector Loss (per pair) |
|----------------|--------------------------|-----------------------------|-------------------------------|---------------------------|
| SPO29 | Type 2.92mm (M) Straight | Stainless Steel, Passivated | Beryllium Copper, Gold Plated | 0.08 x vf (GHz) |



MGS160 - SPO07 SPO07 - XX.X MM

Forward Connector After Connector Length Units of measure
MM - Milimeters

| Stock Code | Part-Number | Length (L) in mm |
|-------------|------------------|------------------|
| IE-00408-01 | MGS160-SMSM-0.5M | 500 |
| IE-00408-02 | MGS160-SMSM-1.0M | 1000 |
| IE-00408-03 | MGS160-SMSM-1.5M | 1500 |
| IE-00408-04 | MGS160-SMSM-2.0M | 2000 |

| Connector Code | Description | Connector Body | Center Contact | Connector Loss (per pair) |
|----------------|-----------------------|------------------------------|-------------------------------|---------------------------|
| SPO07 | Type SMA (M) Straight | Stainless Steel, Gold Plated | Beryllium Copper, Gold Plated | 0.08 x vf (GHz) |



Global manufacturing capability: US, and Asia.



Heritage—in the air and on the ground, thousands of assemblies built over decades.



Assembled and tested assemblies provide assured performance.

Rev.2: 3/27/2023

Commercial Space Line

MaxGain® 200

High Performance Microwave Cable Assemblies



MaxGain® Assemblies are high-performance, ultra-low-loss microwave coaxial cables. Built with our unique spiral outer conductor technology, this light-weight cable is a reliable, high frequency interconnect solution.

Features

- Sold as cable assemblies
- Low outgassing materials per ASTM E595
- Class 100,000 clean room manufacturing
- Vented connectors, if applicable
- Optimized for lowest attenuation
- Ultra stable performance with flexure
- Superior shielding effectiveness (>90 dB)
- Radiation Resistance: 30 MRads

Specifications

Ω Impedance
50 Ohms

Op Temp
-67 to +302°F
-55 to +150°C

| | Units | |
|-------------------------|--------------|--------------|
| Diameter | in (mm) | 0.201 (5.10) |
| Weight | lb/ft (g/m) | 0.037 (55) |
| Minimum Bend Radius | in (mm) | 1.25 (31.8) |
| Maximum Frequency | GHz | 30 |
| Velocity of Propagation | % | 80 |
| Capacitance | pF/ft (pF/m) | 25.40 (83.3) |
| Delay | ns/ft (ns/m) | 1.27 (4.17) |
| Shielding | dB | >90 |

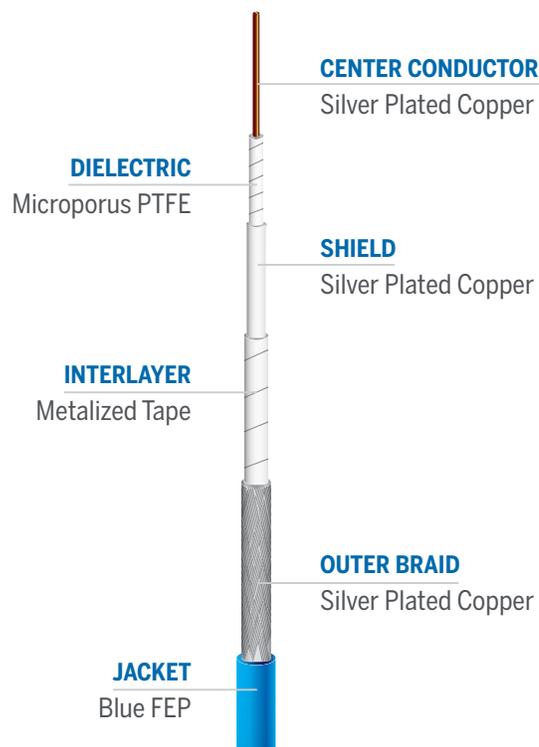
Calculation

$$IL = (K1 \times v(f) + K2 \times f) \times \text{Cable Length} + \text{Connector Loss}$$

Cable Insertion Loss
f = Frequency (MHz)

Use K values with
matching length unit

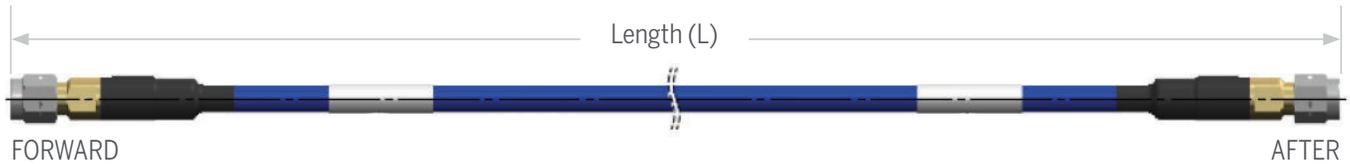
| K values | dB/ft | dB/m |
|----------|----------|----------|
| K1 | 0.2461 | 0.807454 |
| K2 | 0.000139 | 0.000456 |



Insertion loss & VSWR

| Stock Code | Max. Insertion Loss in dB @ 30GHz | Max. VSWR @ 30GHz |
|-------------|-----------------------------------|-------------------|
| IE-00409-01 | 1.43 | 1.35 |
| IE-00409-02 | 2.31 | 1.35 |
| IE-00409-03 | 4.07 | 1.35 |
| IE-00409-04 | 4.95 | 1.35 |
| | Max. Insertion Loss in dB @ 22GHz | Max. VSWR @ 22GHz |
| IE-00410-01 | 1.03 | 1.35 |
| IE-00410-02 | 1.76 | 1.35 |
| IE-00410-03 | 3.21 | 1.35 |
| IE-00410-04 | 3.94 | 1.35 |

Ordering Guide

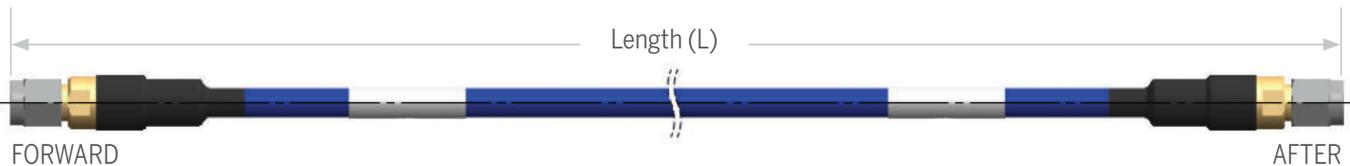


MGS200 - SP013 SP013 - XX.X MM

Forward Connector After Connector Length Units of measure
MM - Milimeters

| Stock Code | Part-Number | Length (L) in mm |
|-------------|------------------|------------------|
| IE-00409-01 | MGS200-KMKM-0.5M | 500 |
| IE-00409-02 | MGS200-KMKM-1.0M | 1000 |
| IE-00409-03 | MGS200-KMKM-2.0M | 2000 |
| IE-00409-04 | MGS200-KMKM-2.5M | 2500 |

| Connector Code | Description | Connector Body | Center Contact | Connector Loss (per pair) |
|----------------|---------------------|-----------------------------|-------------------------------|-----------------------------|
| SP013 | Type K (M) Straight | Stainless Steel, Passivated | Beryllium Copper, Gold Plated | 0.06 x v _f (GHz) |



MGS200 - SP018 SP018 - XX.X MM

Forward Connector After Connector Length Units of measure
MM - Milimeters

| Stock Code | Part-Number | Length (L) in mm |
|-------------|------------------|------------------|
| IE-00410-01 | MGS200-SMSM-0.5M | 500 |
| IE-00410-02 | MGS200-SMSM-1.0M | 1000 |
| IE-00410-03 | MGS200-SMSM-2.0M | 2000 |
| IE-00410-04 | MGS200-SMSM-2.5M | 2500 |

| Connector Code | Description | Connector Body | Center Contact | Connector Loss (per pair) |
|----------------|-----------------------|-----------------------------|-------------------------------|-----------------------------|
| SP018 | Type SMA (M) Straight | Stainless Steel, Passivated | Beryllium Copper, Gold Plated | 0.06 x v _f (GHz) |

 Global manufacturing capability: US, and Asia.

 Heritage—in the air and on the ground, thousands of assemblies built over decades.

 Assembled and tested assemblies provide assured performance.

Rev.2: 3/6/2023

Commercial Space Line

MaxGain® 300

High Performance Microwave Cable Assemblies



MaxGain® Assemblies are high-performance, ultra-low-loss microwave coaxial cables. Built with our unique spiral outer conductor technology, this light-weight cable is a reliable, high frequency interconnect solution.

Features

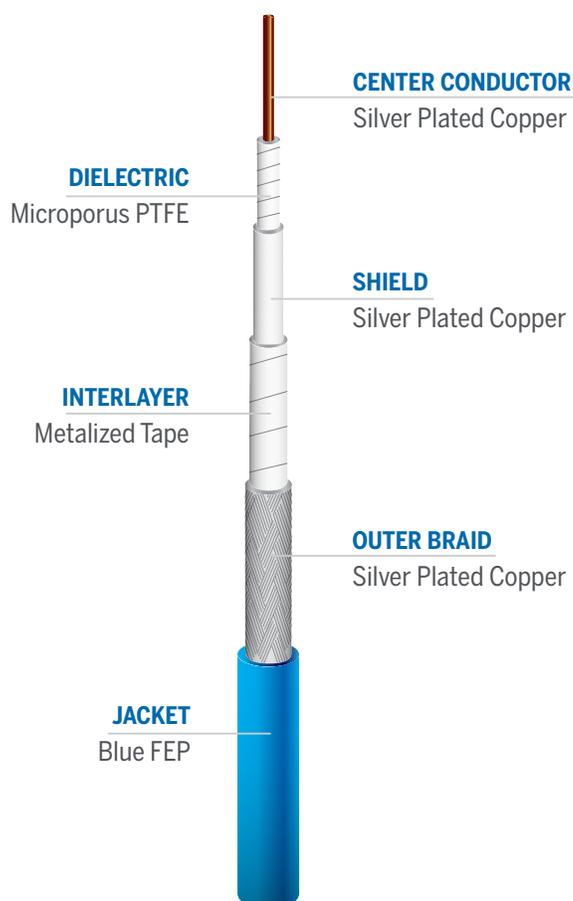
- Sold as cable assemblies
- Low outgassing materials per ASTM E595
- Class 100,000 clean room manufacturing
- Vented connectors, if applicable
- Optimized for lowest attenuation
- Ultra stable performance with flexure
- Superior shielding effectiveness (>90 dB)
- Radiation Resistance: 30 MRads

Specifications

Ω Impedance
50 Ohms

Op Temp
-67 to +302°F
-55 to +150°C

| | Units | |
|-------------------------|--------------|---------------|
| Diameter | in (mm) | 0.314 (7.98) |
| Weight | lb/ft (g/m) | 0.093 (138) |
| Minimum Bend Radius | in (mm) | 1.750 (44.45) |
| Maximum Frequency | GHz | 18.0 |
| Velocity of Propagation | % | 81 |
| Capacitance | pF/ft (pF/m) | 24.8 (81.2) |
| Delay | ns/ft (ns/m) | 1.25 (4.10) |
| Shielding | dB | >90 |



Calculation

$$IL = (K1 \times v(f) + K2 \times f) \times \text{Cable Length} + \text{Connector Loss}$$

Cable Insertion Loss
f = Frequency (MHz)

Use K values with
matching length unit

| K values | dB/ft | dB/m |
|----------|----------|----------|
| K1 | 0.1413 | 0.463605 |
| K2 | 0.000102 | 0.000335 |

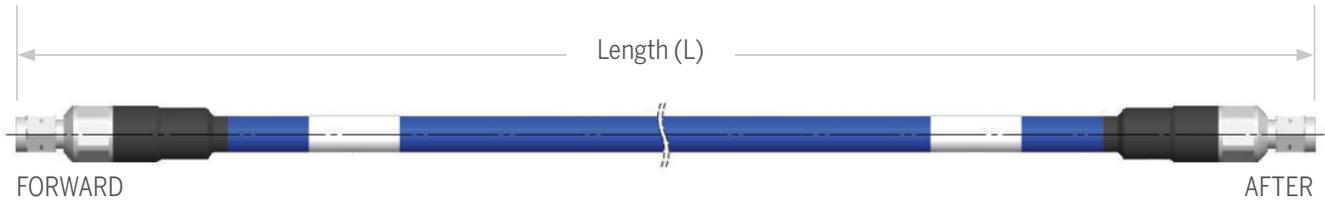
Insertion loss & VSWR @ 18GHz

| Stock Code | Max. Insertion Loss in dB | Max. VSWR |
|-------------|---------------------------|-----------|
| IE-00411-01 | 1.21 | 1.25 |
| IE-00411-02 | 2.09 | 1.25 |
| IE-00411-03 | 2.64 | 1.25 |
| IE-00411-04 | 2.86 | 1.25 |

MaxGain® 300

High Performance Microwave Cable Assemblies

Ordering Guide



MGS300 - **SP052** **SP052** - **XX.X** **MM**

Forward Connector After Connector Length Units of measure
MM - Milimeters

| Stock Code | Part-Number | Length (L) in mm |
|-------------|------------------|------------------|
| IE-00411-01 | MGS300-SMSM-1.0M | 1000 |
| IE-00411-02 | MGS300-SMSM-2.0M | 2000 |
| IE-00411-03 | MGS300-SMSM-2.5M | 2500 |
| IE-00411-04 | MGS300-SMSM-3.0M | 3000 |

| Connector Code | Description | Connector Body | Center Contact | Connector Loss (per pair) |
|----------------|-----------------------|-----------------------------|-------------------------------|-----------------------------|
| SP052 | Type SMA (M) Straight | Stainless Steel, Passivated | Beryllium Copper, Gold Plated | 0.06 x v _f (GHz) |



Global manufacturing capability: US, and Asia.



Heritage—in the air and on the ground, thousands of assemblies built over decades.



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Rev.2: 3/6/2023