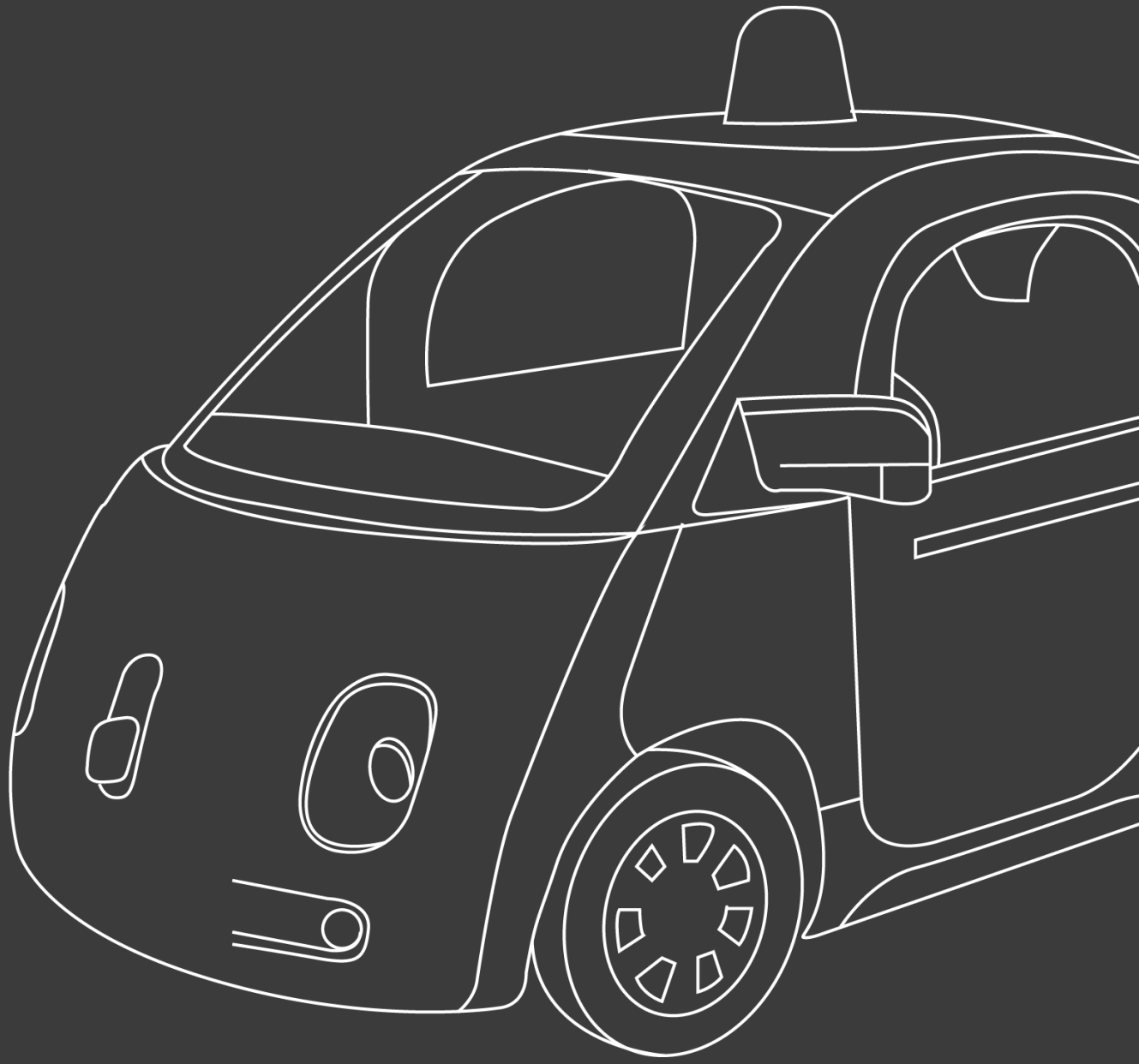
ERAFANT

NEXT GENERATION MILLIMETERWAVE COMPONENTS

COMPONENTS FOR MILLIMETERWAVE 5G & IOT SYSTEMS



CONTENTS

INTRODUCTION

Eravant designs and manufactures total solutions for microwave and millimeterwave applications covering 10 MHz to 220 GHz.

- **This presentation introduces Eravant's standard product offering in broadband for 5G and IoT System Applications.**
- Our full product offering, including Limited Run models, are listed on our website at www.eravant.com.

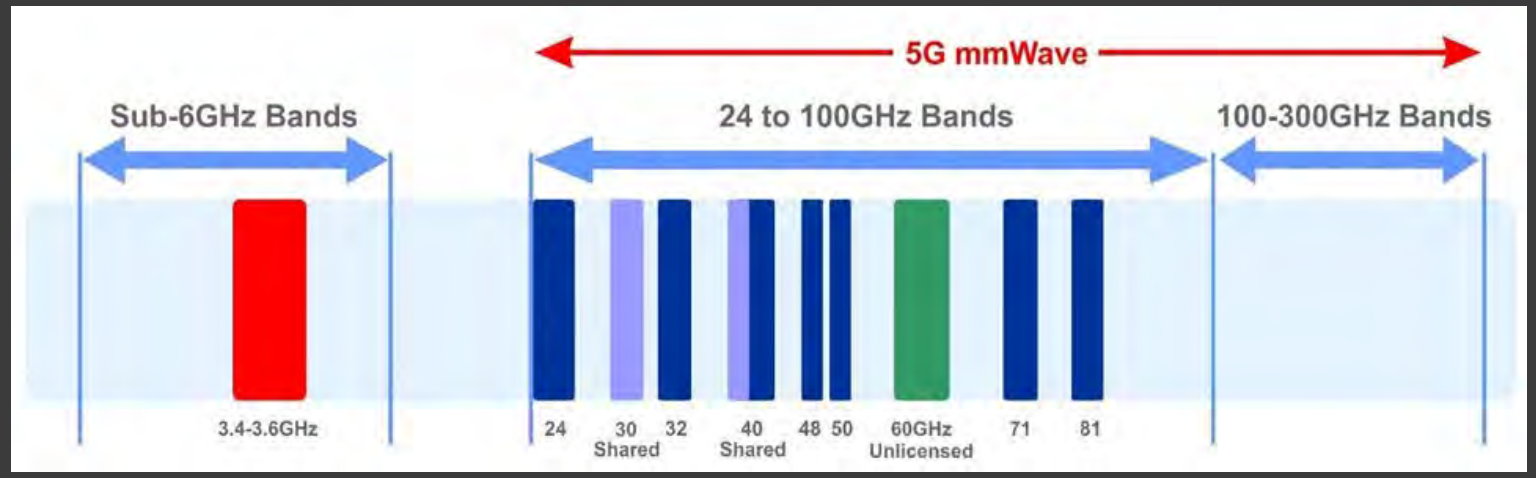
Additional products and presentations are available upon customer request:

- Custom models for components and subassemblies can be configured to customers' specifications.
- Presentations for specific applications like Instrumentation, Space, Communication, and Radar are also available.
- Presentations about Ka, Q, U, V, E, W, F and D-Bands are available.

5G FREQUENCY SPECTRUM

Millimeter 5G Frequency Bands

- Ka Band: 24 to 34 GHz
- Q Band: 37 to 53 GHz
- V Band: 55 to 76 GHz
- E Band: 81 to 86 GHz



ERAVANT PRODUCT OFFERINGS

- **Eravant** offers Total Product Solutions to configure any system application in the Frequency Range of DC to 220 GHz.
- Although the standard models are specified for full waveguide band operations, they can cover many Extended Millimeter Wave 5G Bands.
- While thousands of offered modules cover the Full Spectrum of the Millimeter Wave 5G Band, this presentation focuses on the products especially developed for Millimeter Wave 5G Spectrum. The examples are,
    - Beamforming, Omni-Directional, Dual Polarized Antennas
    - Broadband, Low Noise and Power Amplifiers
    - Frequency Converters and Multipliers
    - Control Devices
    - Ferrite Devices
    - Passive Components and Ferrite Devices

ERAVANT ANTENNAS

The focus of this presentation section is to introduce the **Eravant** antenna product family by highlighting some representative models. There are several hundred standard models available to satisfy all 5G system applications. The antenna family includes the following types:

- Rectangular Horn Antenna
- Circular Horn Antenna
- Scalar Feed Horn Antenna
- Choke Flange Feed Horn Antenna
- Lens Correct Horn Antenna
- Gaussian Optics Antenna
- Microstrip Patch Array Antenna
- Omni Directional Antenna
- Probe Antenna
- Polarizer
- Orthomode Transducer
- Slotted Waveguide Array Antenna
- Cassegrain Antenna

ANTENNAS

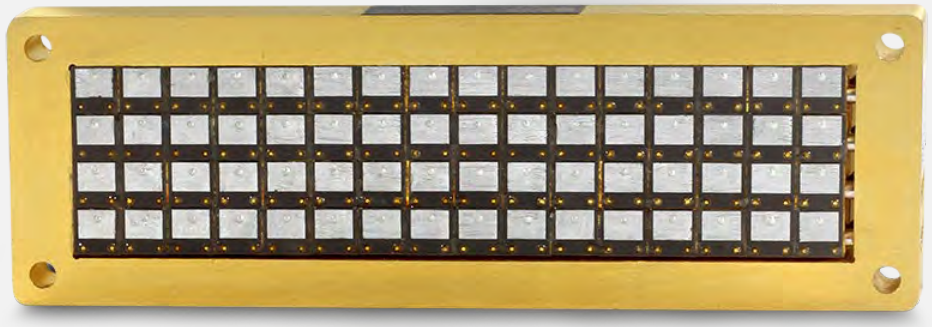
BEAMFORMING ANTENNA

SAM-2832830695-DM-L1-64C

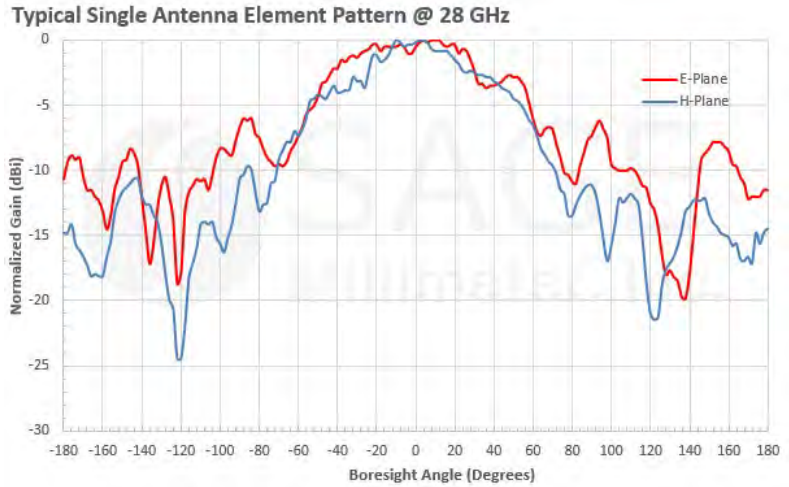
28 GHz

Features:

- 28 GHz
- Beamforming Feasibility
- 4 x 16 Elements
- Various Array Configurations



Parameter	Minimum	Typical	Maximum
Frequency		28.0 GHz	
Bandwidth		±0.1 GHz	
Single Patch Gain		6.0 dBi	
3 dB Beamwidth	50° (Vertical, E Plane) x 95° (Horizontal, H Plane)		
Sidelobe Level		-12 dB	
Array Gain (Fed in Phase)	24.0 dBi		
Array 3 dB Beamwidth (Fed in Phase)	4° (Vertical, E Plane) x 17° (Horizontal, H Plane)		
Array Sidelobe Level (Fed in Phase)	-12 dB		
Polarization	Linear		
Return Loss		6 dB	
Specification Temperature		+25 °C	
Operating Temperature	-40 °C		+85 °C



BEAMFORMING ANTENNA

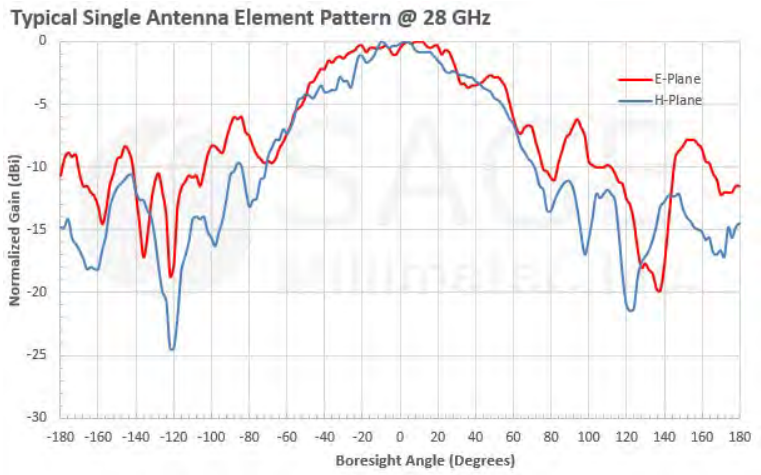
SAM-2832830695-DM-L1-32C-1

28 GHz

Features:

- 28 GHz
- Beamforming Feasibility
- 1 x 32 Elements
- Various Array Configurations

Parameter	Minimum	Typical	Maximum
Frequency		28.0 GHz	
Bandwidth		±0.1 GHz	
Single Patch Gain		6.0 dBi	
3 dB Beamwidth	50° (Vertical, E Plane) x 95° (Horizontal, H Plane)		
Sidelobe Level		-12 dB	
Array Gain (Fed in Phase)	21.0 dBi		
Array 3 dB Beamwidth (Fed in Phase)	50° (Vertical, E Plane) x 3° (Horizontal, H Plane)		
Array Sidelobe Level (Fed in Phase)	-12 dB		
Polarization	Linear		
Return Loss		6 dB	
Specification Temperature		+25 °C	
Operating Temperature	-40 °C		+85 °C



BEAMFORMING ANTENNA

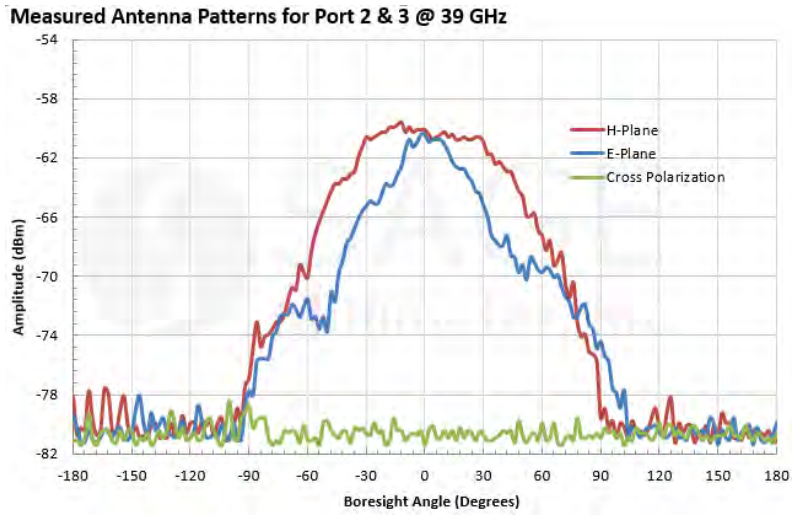
SAM-3934030695-2F-L1-4C

39 GHz

Features:

- 39 GHz
- Beamforming Feasibility
- 1 x 4 Elements
- Various Array Configurations

Parameter	Minimum	Typical	Maximum
Frequency Range	38.5 GHz		39.5 GHz
Gain		6.0 dBi	
3 dB Beamwidth	50° (Vertical, E Plane) x 95° (Horizontal, H Plane)		
Sidelobe Level		-12 dB	
Array Gain	12.0 dBi		
Array 3 dB Beamwidth	15° (Vertical, E Plane) x 95° (Horizontal, H Plane)		
Array Sidelobe Level	-12 dB		
Polarization	Linear		
Return Loss		10 dB	
Specification Temperature		+25 °C	
Operating Temperature	-40 °C		+85 °C



BEAMFORMING ANTENNA

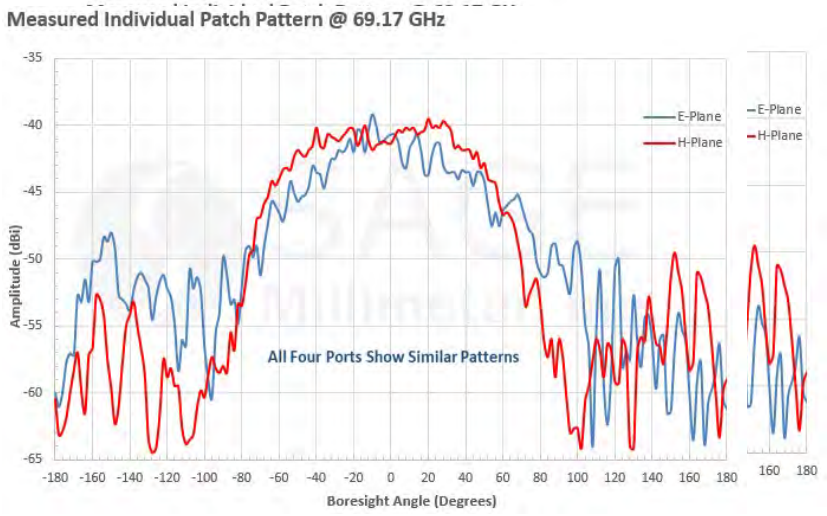
SAM-6837030395-15-L2-4W

69 GHz

Features:

- 69 GHz
- Beamforming Feasibility
- 2 x 2 Elements
- Various Array Configurations
- Many Models in V Band

Parameter	Minimum	Typical	Maximum
Frequency Range	68 GHz		70 GHz
Gain (Individual Patch)		4.0 dBi	
3 dB Beamwidth (Individual Patch)	50° (Vertical, E Plane) x 95° (Horizontal, H Plane)		
Sidelobe Level (Individual Patch)		-12 dB	
Array Gain (Fed in Phase)	12.0 dBi		
Array 3 dB Beamwidth (Fed in Phase)	60° (Vertical, E Plane) x 25° (Horizontal, H Plane)		
Array Sidelobe Level (Fed in Phase)	-12 dB		
Polarization	Linear		
Return Loss		8 dB	
Specification Temperature		+25 °C	
Operating Temperature	-40 °C		+85 °C



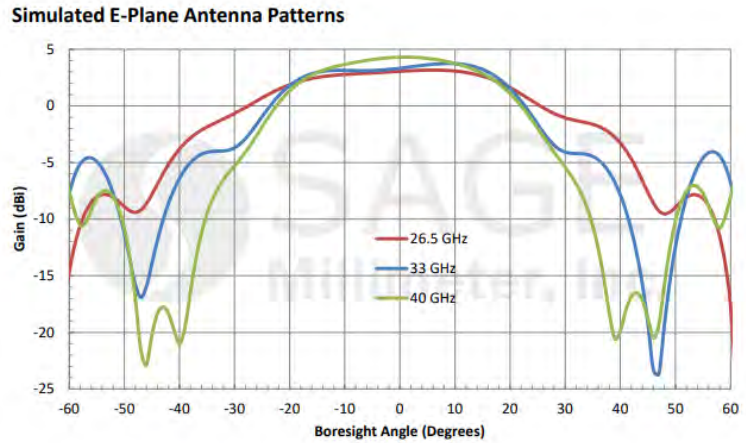
OMNI-DIRECTIONAL ANTENNA

SAO-2734030345-28-S1
Ka BAND

Features:

- 26.5 to 40 GHz
- 360° Azimuth Coverage
- 45° Vertical 3 dB Bandwidth
- Vertically Polarized
- Full Ka Band Bandwidth Operation

Parameter	Minimum	Typical	Maximum
Frequency Range	26.5 GHz		40.0 GHz
Gain		3 dBi	
Azimuth Gain Variation		±1 dB	
Azimuth Beamwidth		360˚	
3 dB Vertical Beamwidth		45˚	
Return Loss		10 dB	
Power Handling		150 W (CW)	200 W (CW)
Specification Temperature		+25 ˚C	
Operating Temperature	-40 ˚C		+85 ˚C



OMNI-DIRECTIONAL ANTENNA

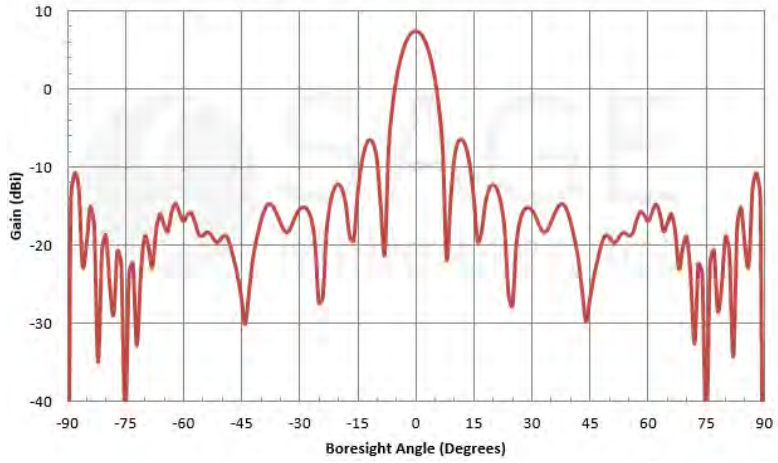
SAO-2734030810-28-S1
Ka BAND

Features:

- 26.5 to 40 GHz
- 360° Azimuth Coverage
- 10° Vertical 3 dB Bandwidth
- Vertically Polarized
- Full Ka Band Bandwidth Operation

Parameter	Minimum	Typical	Maximum
Frequency Range	24 GHz		40 GHz
Gain		7.5 dBi	
Azimuth Gain Variation		±1 dB	
Azimuth Beamwidth		360˚	
3 dB Vertical Beamwidth		10˚	
Return Loss		9 dB	
Power Handling		150 Watts	200 Watts
Specification Temperature		+25 ˚C	
Operating Temperature	-40 ˚C		+85 ˚C

Typical E-Plane Antenna Pattern @ 33.25 GHz



OMNI-DIRECTIONAL ANTENNA

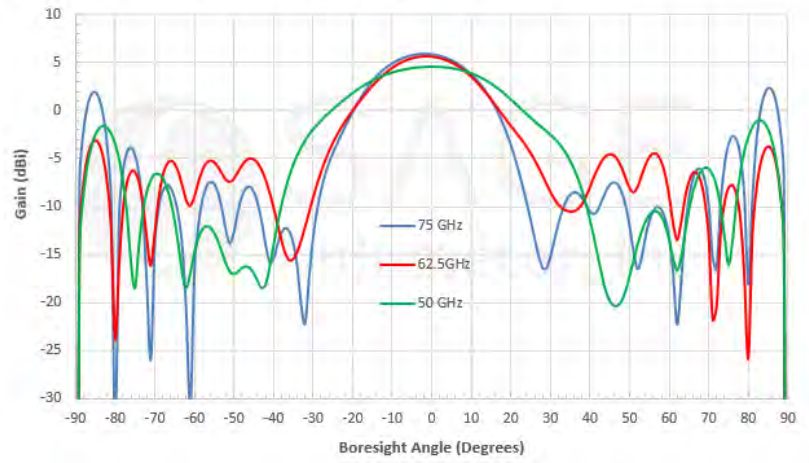
SAO-5037530230-15-S1
V BAND

Features:

- 50 to 75 GHz
- 360° Azimuth Coverage
- 30° Vertical 3 dB Bandwidth
- Vertically Polarized
- Full V Band Bandwidth Operation

Parameter	Minimum	Typical	Maximum
Frequency	50 GHz		75 GHz
Gain		2.0 dBi	
Azimuth Gain Variation		±2.0 dB	
Azimuth Beamwidth		360˚	
3 dB Vertical Beamwidth		30˚	
Return Loss		10 dB	
Power Handling		50 W (CW)	
Specification Temperature		+25 ˚C	
Operating Temperature	-40 ˚C		+85 ˚C

Simulated H-Plane Antenna Pattern @ 50GHz, 62.5GHz, 75 GHz



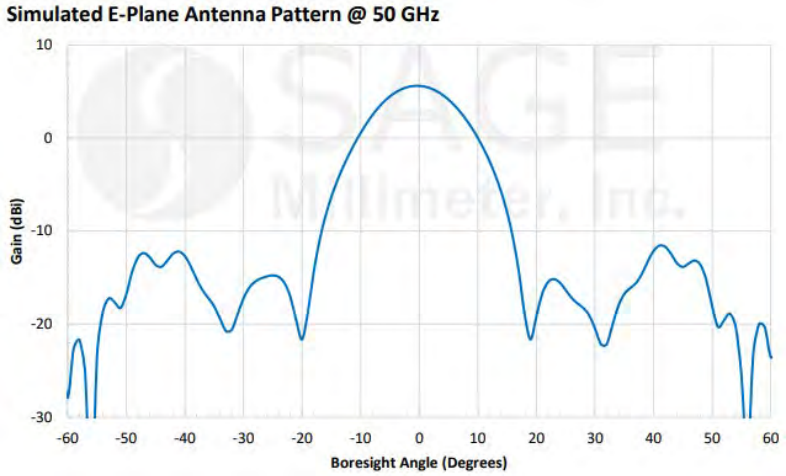
OMNI-DIRECTIONAL ANTENNA

SAO-4036030415-19-S1
U BAND

Features:

- 40 to 60 GHz
- 360° Azimuth Coverage
- 30° Vertical 3 dB Bandwidth
- Vertically Polarized
- Full V Band Bandwidth Operation

Parameter	Minimum	Typical	Maximum
Frequency	40 GHz		60 GHz
Gain		4 dBi	
Azimuth Gain Variation		±2 dBi	
Azimuth Beamwidth		360˚	
3 dB Vertical Beamwidth		15˚	
Return Loss		10 dB	
Power Handling		150 W (CW)	
Specification Temperature		+25 ˚C	
Operating Temperature	-40 ˚C		+85 ˚C



OMNI-DIRECTIONAL ANTENNA

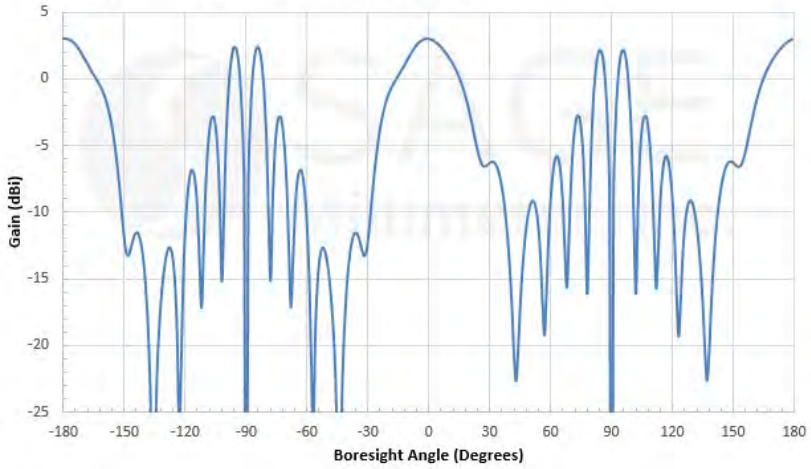
SAO-6039030230-12-S1
E BAND

Features:

- 60 to 90 GHz
- 360° Azimuth Coverage
- 30° Vertical 3 dB Bandwidth
- Vertically Polarized
- Full E Band Bandwidth Operation

Parameter	Minimum	Typical	Maximum
Frequency Range	60 GHz		90 GHz
Gain		2 dBi	
Gain Variation		±3 dB	
Azimuth		360˚	
3 dB Beamwidth, Vertical		30˚	
Return Loss		9 dB	
Specification Temperature		+25˚C	
Operating Temperature	-40˚C		+85˚C

Simulated E-Plane Antenna Pattern @ 75 GHz



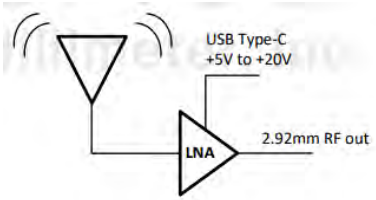
OMNI-DIRECTIONAL ANTENNA

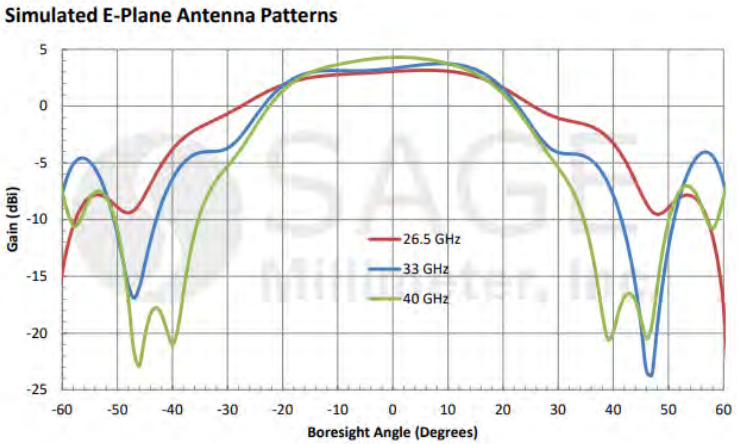
SAO-2734033045-KF-C1-BL
ACTIVE, Ka BAND

Features:

- 26.5 to 40 GHz
- 360° Azimuth Coverage
- 45° Vertical 3 dB Bandwidth
- Vertically Polarized
- Full Ka Band Bandwidth Operation

Parameter	Minimum	Typical	Maximum
Frequency Range	26.5 GHz		40.0 GHz
Gain at Center Frequency		30 dBi	
Noise Figure		5 dB	
Azimuth Gain Variation		±1 dB	
Azimuth Beamwidth		360°	
3 dB Vertical Beamwidth		45°	
P_{1dB}		+11 dBm	
Return Loss		10 dB	
RF Input Power			-8 dBm
Damage RF Input Power			-3 dBm
Supply Voltage	+4.8 V_{DC}	+5 V_{DC}	+20 V_{DC}
Supply Current		240 mA	
Specification Temperature		+25 °C	
Operating Temperature	-20 °C		+65 °C





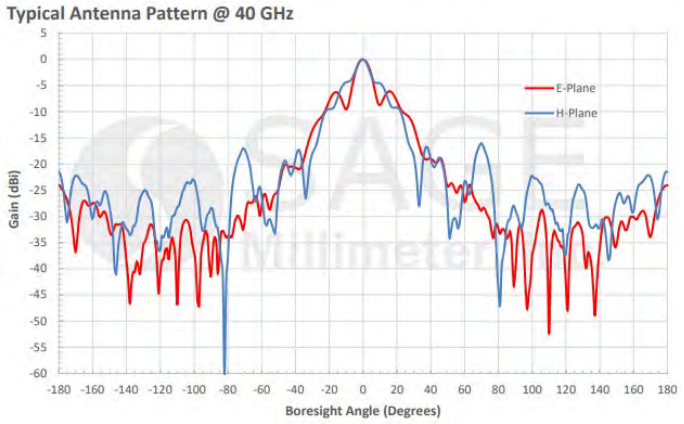
DUAL RIDGED ANTENNA

SAV-0434031427-KF-U5
4 to 40 GHz

Features:

- 4 to 40 GHz
- Linear Polarized
- 6 Models to Cover up to 110 GHz

Parameter	Minimum	Typical	Maximum
Frequency	4 GHz		40 GHz
Gain		14 dBi	
Polarization		Linear	
E-Plane 3 dB Beamwidth		27°	
H-Plane 3 dB Beamwidth		27°	
E-Plane Sidelobe Levels		-10 dB	
H-Plane Sidelobe Levels		-15 dB	
Return Loss		14 dB	
Cross Polarization	25 dB	30 dB	
Power Handling			10 W (CW)
Specification Temperature		+25˚C	
Operating Temperature	-40˚C		+85˚C

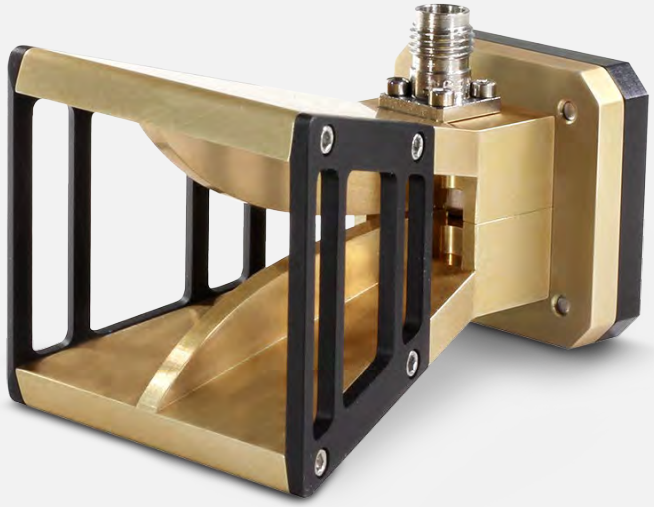


DUAL RIDGED ANTENNA

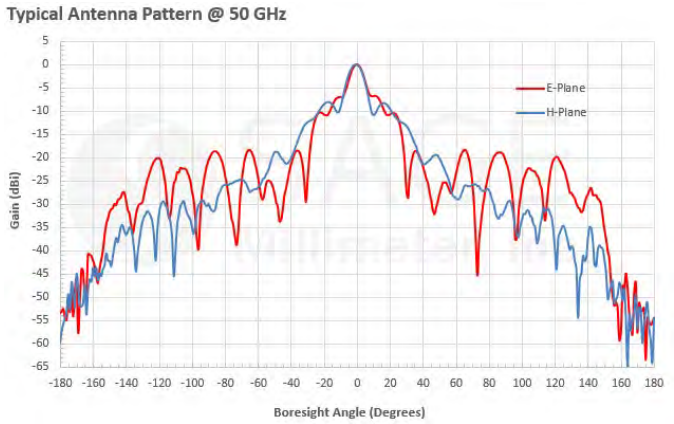
SAV-4525031429-2F-U5
4.5 to 50 GHz

Features:

- 4.5 to 50 GHz
- Linear Polarized
- 6 Models to Cover up to 110 GHz



Parameter	Minimum	Typical	Maximum
Frequency	4.5 GHz		50 GHz
Gain		14 dBi	
Polarization		Linear	
E-Plane 3 dB Beamwidth		29°	
H-Plane 3 dB Beamwidth		29°	
E-Plane Sidelobe Levels		-15 dB	
H-Plane Sidelobe Levels		-10 dB	
Return Loss		14 dB	
Cross Polarization	25 dB	30 dB	
Power Handling			10 W (CW)
Specification Temperature		+25˚C	
Operating Temperature	-40˚C		+85˚C



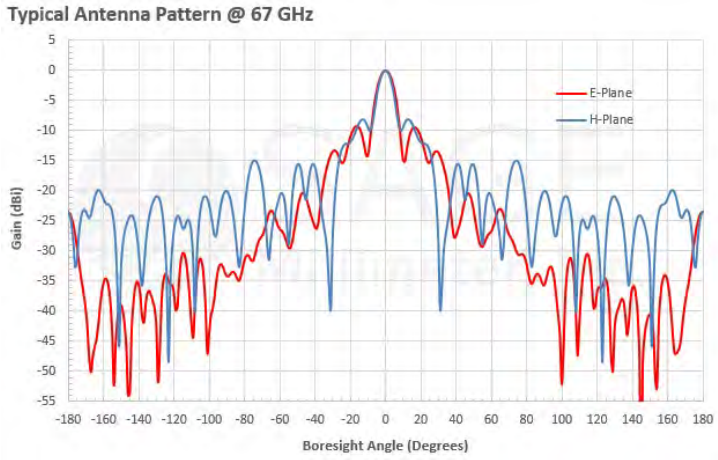
DUAL RIDGED ANTENNA

SAV-0636731522-VF-U5
6 to 67 GHz

Features:

- 6 to 67 GHz
- Linear Polarized
- 6 Models to Cover up to 110 GHz

Parameter	Minimum	Typical	Maximum
Frequency	6 GHz		67 GHz
Gain		15 dBi	
Polarization		Linear	
E-Plane 3 dB Beamwidth		22°	
H-Plane 3 dB Beamwidth		22°	
E-Plane Sidelobe Levels		-10 dB	
H-Plane Sidelobe Levels		-15 dB	
Return Loss		12 dB	
Cross Polarization	20 dB	25 dB	
Power Handling			5 W (CW)
Specification Temperature		+25˚C	
Operating Temperature	-40˚C		+85˚C

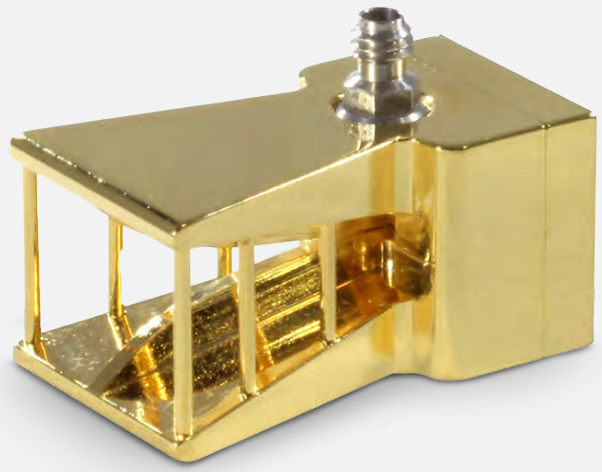


DUAL RIDGED ANTENNA

SAV-1431141535-1F-U5
14 to 110 GHz

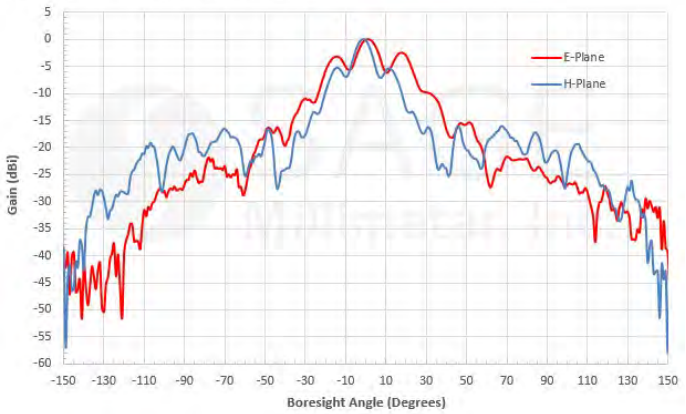
Features:

- 14 to 110 GHz
- Linear Polarized
- 6 Models to Cover up to 110 GHz



Parameter	Minimum	Typical	Maximum
Frequency	14 GHz		110 GHz
Gain		15 dBi	
Polarization		Linear	
E-Plane 3 dB Beamwidth		35°	
H-Plane 3 dB Beamwidth		35°	
E-Plane Sidelobe Levels		-10 dB	
H-Plane Sidelobe Levels		-15 dB	
Return Loss		10 dB	
Cross Polarization	23 dB	28 dB	
Power Handling			4 W (CW)
Specification Temperature		+25˚C	
Operating Temperature	-40˚C		+85˚C

Typical Antenna Pattern @ 110 GHz



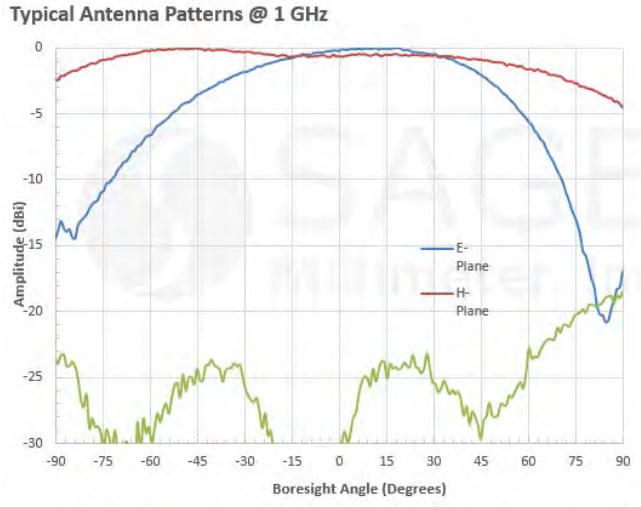
QUAD RIDGED, DUAL POLARIZED ANTENNA

SAV-0130430883-SF-U4-QR
1 to 4 GHz

Features:

- 1 to 4 GHz
- Dual Polarized
- 5 Models to Cover up to 50 GHz

Parameter	Minimum	Typical	Maximum
Frequency	1.0 GHz		4.0 GHz
Gain		8.0 dBi	
Polarization		Linear and Circular	
3 dB Beamwidth, E-Plane		68°	
3 dB Beamwidth, H-Plane		98°	
Side Lobes		-10 dB	
Port Isolation		20 dB	
Return Loss		9 dB	
Specification Temperature		+25 °C	
Operation Temperature	-45 °C		+85 °C



QUAD RIDGED, DUAL POLARIZED ANTENNA

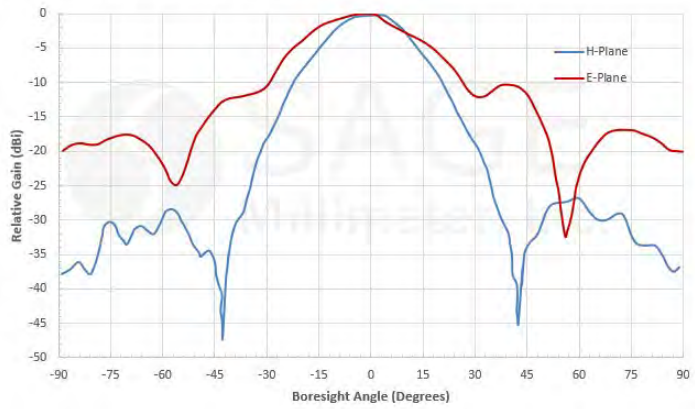
SAV-0632531431-SF-U3-QR
6 to 25 GHz

Features:

- 6 to 24.5 GHz
- Dual Polarized
- 5 Models to Cover up to 50 GHz

Parameter	Minimum	Typical	Maximum
Frequency	6.0 GHz		24.5 GHz
Gain		14 dBi	
Polarization		Circular and Linear	
E-Plane 3 dB Beamwidth		26°	
H-Plane 3 dB Beamwidth		36°	
Port to Port Isolation		35 dB	
E-Plane Sidelobe Levels		-17 dB	
H-Plane Sidelobe Levels		-20 dB	
Return Loss		8 dB	
Cross Polarization		-30 dB	
Power Handling			25 W (CW)
Specification Temperature		+25˚C	
Operating Temperature	-40˚C		+85˚C

Typical Antenna Pattern @ 24.5 GHz

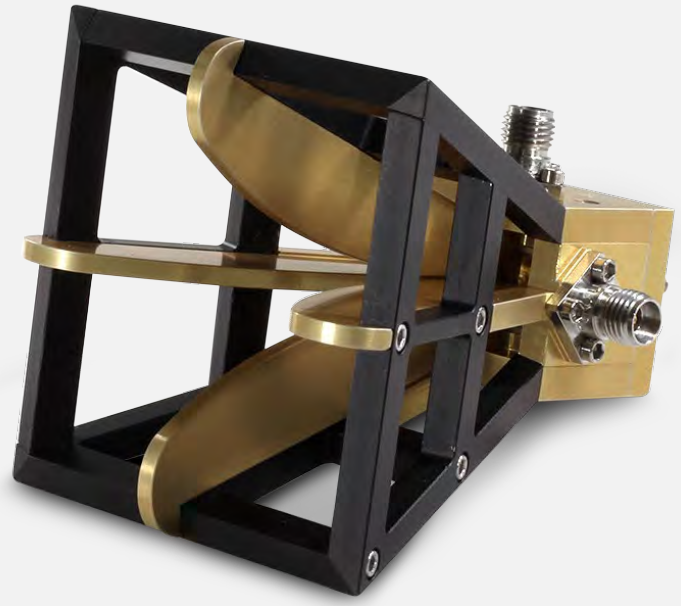


QUAD RIDGED, DUAL POLARIZED ANTENNA

SAV-0434031428-KF-U5-QR
4 to 40 GHz

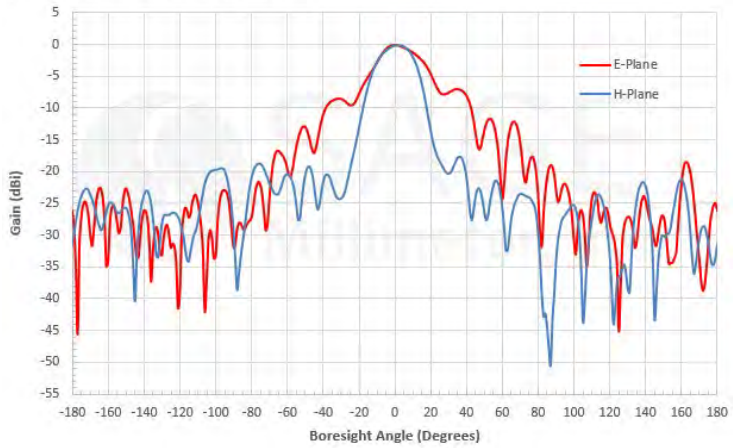
Features:

- 4 to 40 GHz
- Dual Polarized
- 5 Models to Cover up to 50 GHz



Parameter	Minimum	Typical	Maximum
Frequency	4 GHz		40 GHz
Gain		14 dBi	
Polarization		Linear and Circular	
E-Plane 3 dB Beamwidth		28°	
H-Plane 3 dB Beamwidth		28°	
Port to Port Isolation	28 dB	30 dB	
E-Plane Sidelobe Levels		-10 dB	
H-Plane Sidelobe Levels		-15 dB	
Return Loss		10 dB	
Cross Polarization	23 dB	28 dB	
Power Handling			10 W (CW)
Specification Temperature		+25˚C	
Operating Temperature	-40˚C		+85˚C

Typical Antenna Pattern @ 40 GHz

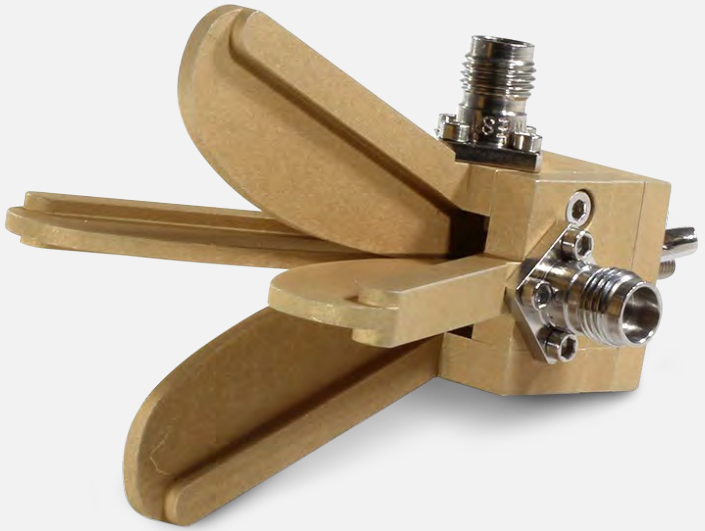


QUAD RIDGED, DUAL POLARIZED ANTENNA

SAV-0535031140-2F-U5-QR
5 to 50 GHz

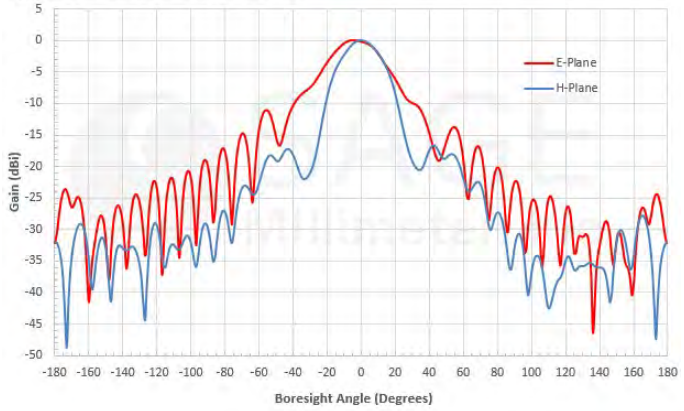
Features:

- 5 to 50 GHz
- Dual Polarized
- 5 Models to Cover up to 50 GHz



Parameter	Minimum	Typical	Maximum
Frequency	5 GHz		50 GHz
Gain		11 dBi	
Polarization		Linear and Circular	
E-Plane 3 dB Beamwidth		40°	
H-Plane 3 dB Beamwidth		40°	
Port to Port Isolation	28 dB	30 dB	
E-Plane Sidelobe Levels		-10 dB	
H-Plane Sidelobe Levels		-15 dB	
Return Loss		10 dB	
Cross Polarization	18 dB	25 dB	
Power Handling			5 W (CW)
Specification Temperature		+25˚C	
Operating Temperature	-40˚C		+85˚C

Typical Antenna Pattern @ 50 GHz

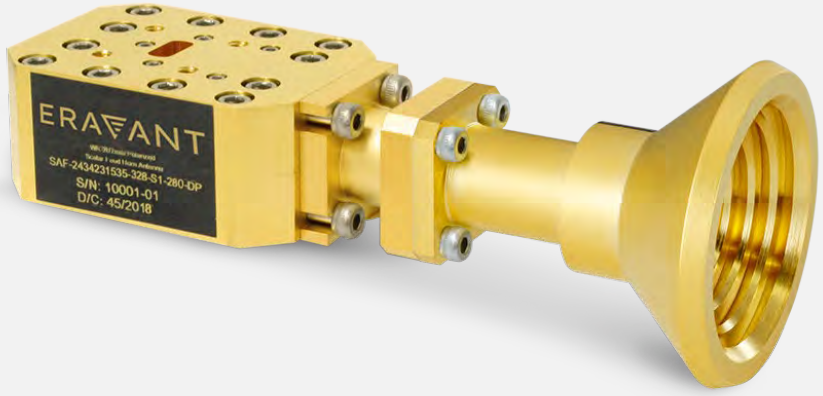


DUAL POLARIZED SCALAR HORN ANTENNA

SAF-2434231535-328-S1-280-DP
24 to 42 GHz

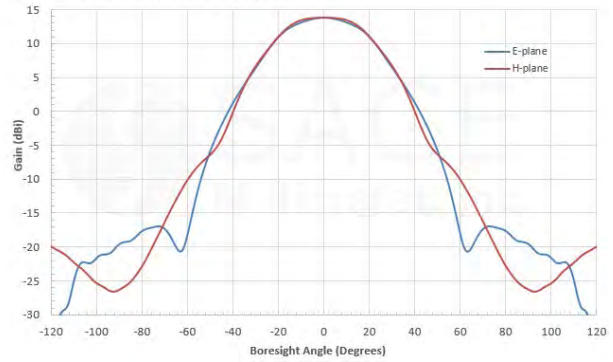
Features:

- 24 to 42 GHz
- Gain 15 dBi
- 3 dB Beamwidth 35°
- Dual Polarized
- 7 Models to Cover up to 110 GHz

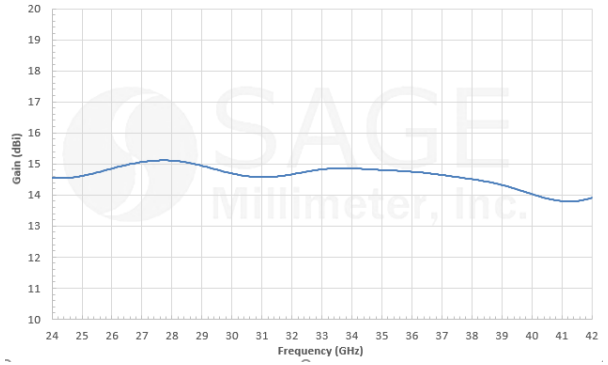


Parameter	Minimum	Typical	Maximum
Frequency	24 GHz		42 GHz
Gain		15 dBi	
3 dB Beamwidth, E-plane @ 33 GHz		35°	
3 dB Beamwidth, H-plane @ 33 GHz		35°	
Sidelobe Levels		-25 dB	
V and H Port Isolation		35 dB	
Cross Polarization Rejection		35 dB	
Port Return Loss		15 dB	
Specification Temperature		+25 ˚C	
Operating Temperature	-40 ˚C		+85 ˚C

Simulated Antenna Patterns @ 42 GHz



Simulated Gain vs. Frequency



DUAL POLARIZED SCALAR HORN ANTENNA

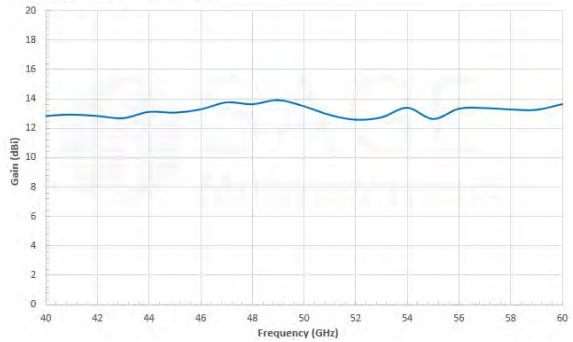
SAF-4036031340-219-S1-188-DP
40 to 60 GHz

Features:

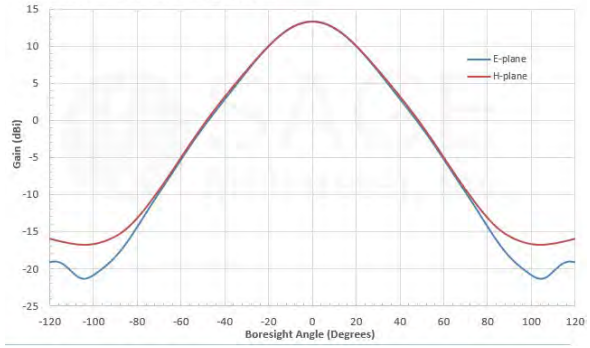
- 40 to 60 GHz
- Gain 13 dBi
- 3 dB Beamwidth 40°
- Dual Polarized
- 7 Models to Cover up to 110 GHz

Parameter	Minimum	Typical	Maximum
Frequency	40 GHz	50 GHz	60 GHz
Gain		13 dBi	
3 dB Beamwidth, E-plane		40°	
3 dB Beamwidth, H-plane		40°	
Sidelobe Levels		-25 dB	
V and H Port Isolation		35 dB	
Cross Polarization Rejection		30 dB	
Port Return Loss		15 dB	
Specification Temperature		+25 °C	
Operating Temperature	-40 °C		+85 °C

Measured Gain vs. Frequency



Simulated Antenna Patterns @ 50 GHz



DUAL POLARIZED SCALAR HORN ANTENNA

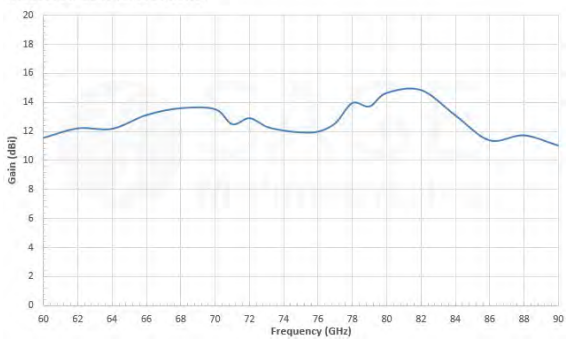
SAF-6039031340-141-S1-122-DP
60 to 90 GHz

Features:

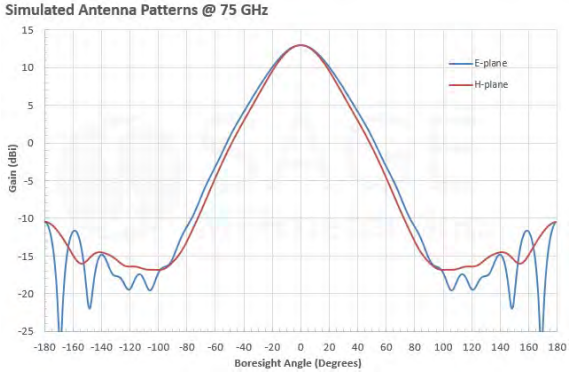
- 60 to 90 GHz
- Gain 13 dBi
- 3 dB Beamwidth 35°
- Dual Polarized
- 7 Models to Cover up to 110 GHz

Parameter	Minimum	Typical	Maximum
Frequency	60 GHz	75 GHz	90 GHz
Gain	11 dBi	13 dBi	16 dBi
3 dB Beamwidth, E-plane		40°	
3 dB Beamwidth, H-plane		40°	
Sidelobe Levels		-25 dB	-20 dB
V and H Port Isolation	30 dB	35 dB	
Cross Polarization Rejection		30 dB	
Port Return Loss	10 dB	15 dB	
Specification Temperature		+25 ˚C	
Operating Temperature	-40 ˚C		+85 ˚C

Measured Gain vs. Frequency



Simulated Antenna Patterns @ 75 GHz



DUAL POLARIZED SCALAR HORN ANTENNA

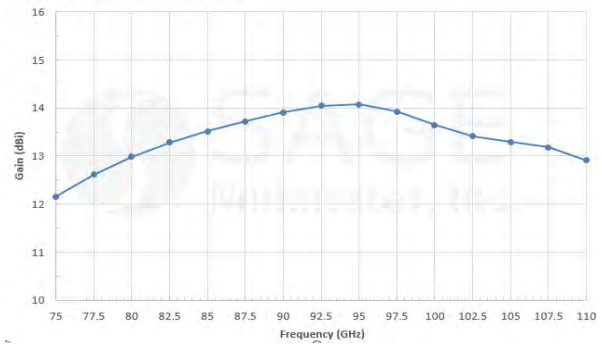
SAF-7531141340-110-S1-100-DP
75 to 110 GHz

Features:

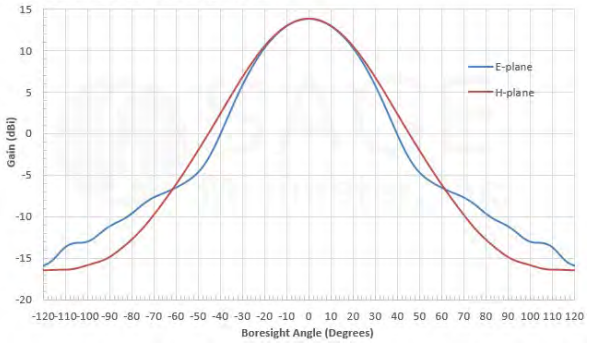
- 75 to 110 GHz
- Gain 13 dBi
- 3 dB Beamwidth 40°
- Dual Polarized
- 7 Models to Cover up to 110 GHz

Parameter	Minimum	Typical	Maximum
Frequency	75 GHz	92.5 GHz	110 GHz
Gain		13 dBi	
3 dB Beamwidth, E-plane		40°	
3 dB Beamwidth, H-plane		40°	
Sidelobe Levels		-25 dB	
V and H Port Isolation		30 dB	
Cross Polarization Rejection		30 dB	
Port Return Loss		15 dB	
Specification Temperature		+25 ˚C	
Operating Temperature	-40 ˚C		+85 ˚C

Simulated Gain vs. Frequency



Simulated Antenna Patterns @ 90 GHz

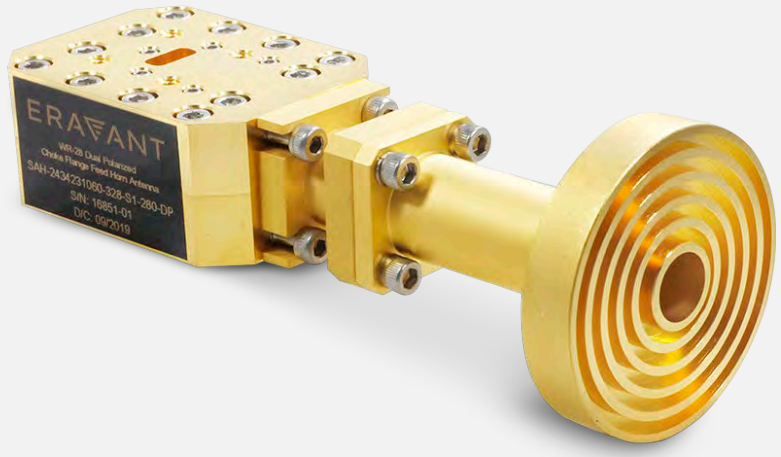


DUAL POLRIZED CHOKE FLANGE HORN ANTENNA

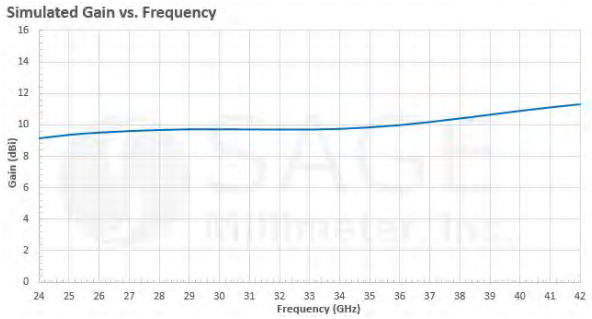
SAH-2434231060-328-S1-280-DP
24 to 42 GHz

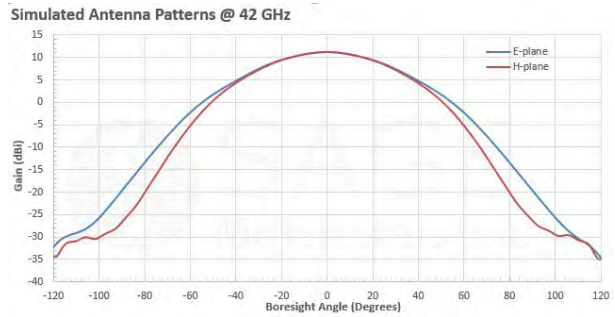
Features:

- 24 to 42 GHz
- Gain 10 dBi
- 3 dB Beamwidth 60°
- Dual Polarized
- 4 Models to Cover up to 110 GHz



Parameter	Minimum	Typical	Maximum
Frequency	24 GHz	33 GHz	42 GHz
Gain		10 dBi	
3 dB Beamwidth, E-plane @ 33 GHz		60°	
3 dB Beamwidth, H-plane @ 33 GHz		60°	
Sidelobes, E-plane		-25 dB	
Sidelobes, H-plane		-35 dB	
V and H Port Isolation		35 dB	
Cross Polarization Rejection		35 dB	
Port Return Loss		15 dB	
Specification Temperature		+25 ˚C	
Operating Temperature	-40 ˚C		+85 ˚C



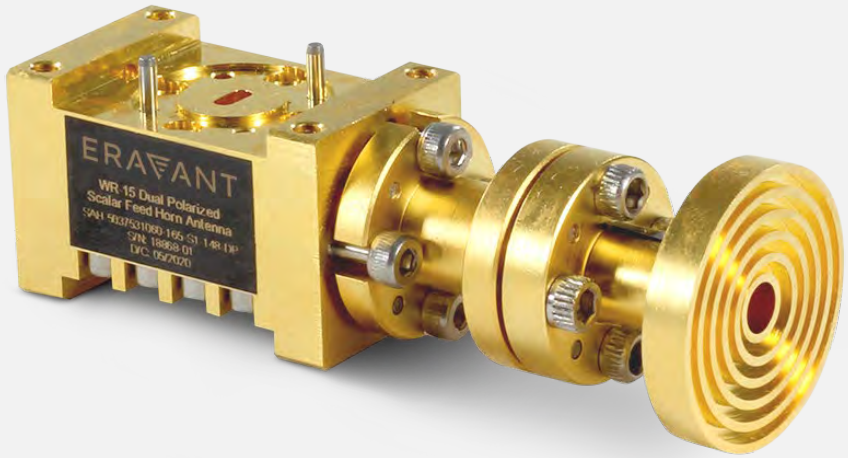


DUAL POLRIZED CHOKE FLANGE HORN ANTENNA

SAH-5037531060-165-S1-148-DP
50 to 75 GHz

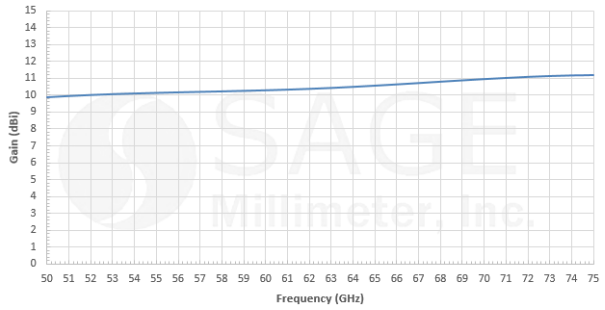
Features:

- 50 to 75 GHz
- Gain 10 dBi
- 3 dB Beamwidth 60°
- Dual Polarized
- 4 Models to Cover up to 110 GHz

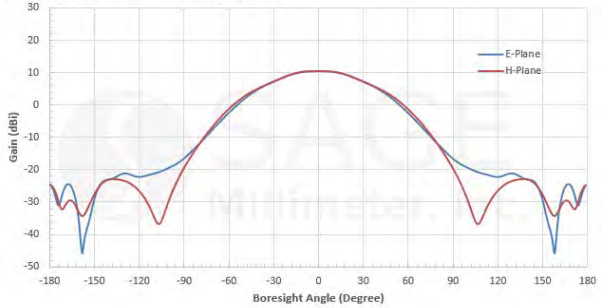


Parameter	Minimum	Typical	Maximum
Frequency	50 GHz		75 GHz
Gain		10 dBi	
3 dB Beamwidth, E-plane @ 62 GHz		60°	
3 dB Beamwidth, H-plane @ 62 GHz		60°	
Sidelobe Levels		-30 dB	
V and H Port Isolation		40 dB	
Cross Polarization Rejection		35 dB	
Port Return Loss		15 dB	
Specification Temperature		+25 ˚C	
Operating Temperature	-40 ˚C		+85 ˚C

Simulated Gain vs. Frequency



Simulated Antenna Patterns @ 62 GHz



AMPLIFIERS

ERAVANT AMPLIFIERS

The focus of this presentation section is to introduce the **Eravant** amplifier product family by highlighting some representative models. There are several hundred standard models available to satisfy all 5G system applications. The amplifier family includes the following types:

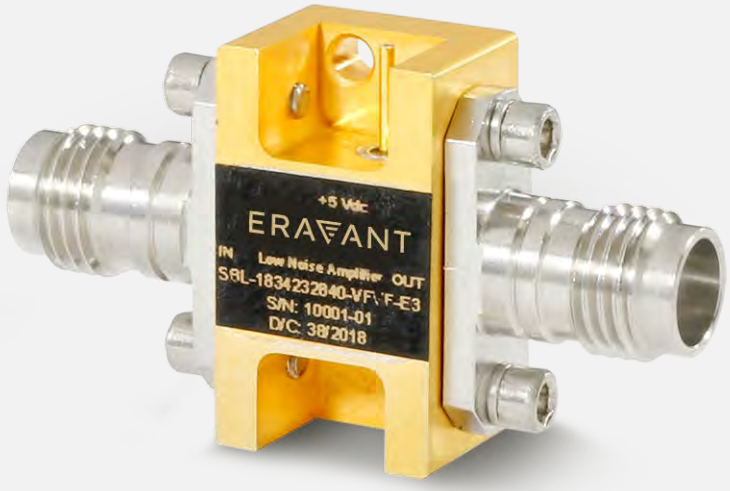
- Broad Bandwidth Amplifier
- Low Noise Amplifier
- Power Amplifier
- GaN Power Amplifier
- Bench Top Test Amplifier

BROADBAND AMPLIFIER

SBB-1834232815-KFKF-E3
18 to 42 GHz

Features:

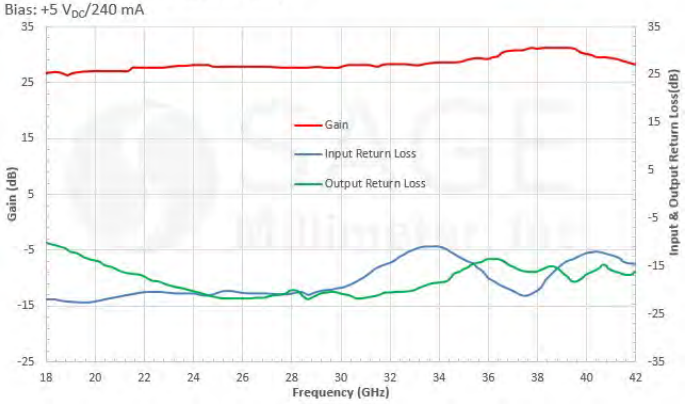
- 18 to 42 GHz
- 5G Band
- Gain 28 dBi
- SBB Family Has More than 50 Models



Parameter	Minimum	Typical	Maximum
Frequency	18 GHz		42 GHz
Gain	22 dB	28 dB	
P_{1dB}	+10 dBm	+15 dBm	
P_{sat}		+16 dBm	
Noise Figure		4.0 dB	6.0 dB
RF Input Power			-5 dBm
Damage RF Input Power			0 dBm
Input Return Loss		10 dB	
Output Return Loss		10 dB	
DC Voltage		+5 V_{DC}	+5.5 V_{DC}
DC Supply Current		240 mA	
Specification Temperature		+25 ˚C	
Operating Temperature	-40 ˚C		+85 ˚C

Typical Performance vs. Frequency

Bias: +5 V_{DC}/240 mA



BROADBAND LOW NOISE AMPLIFIER

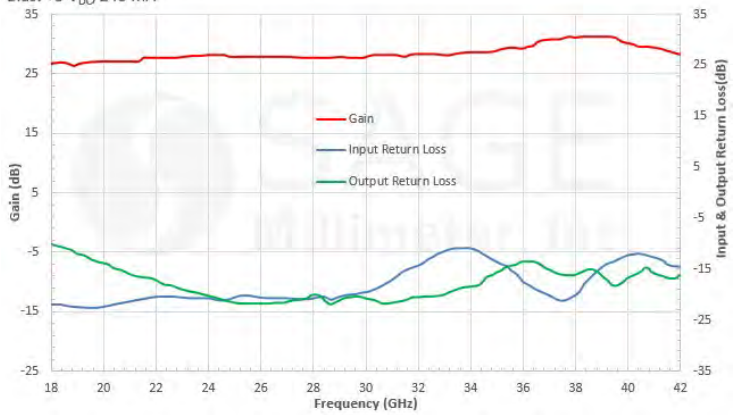
SBL-1834232840-KFKF-E3-U
18 to 42 GHz

Features:

- 18 to 42 GHz
- 5G Band
- Gain 28 dBi
- USB Powered

Parameter	Minimum	Typical	Maximum
Frequency	18 GHz		42 GHz
Gain		28 dB	
Noise Figure		4 dB	
P_{1dB}		+15 dBm	
RF Input Power			-5 dBm
Damage RF Input Power			0 dBm
Input Return Loss		10 dB	
Output Return Loss		10 dB	
DC Voltage		+5 V_{DC}	+20 V_{DC}
DC Supply Current		240 mA	
Specification Temperature		+25 ˚C	
Operating Temperature	0 ˚C		+60 ˚C

Typical Performance vs. Frequency
Bias: +5 V_{DC}/240 mA

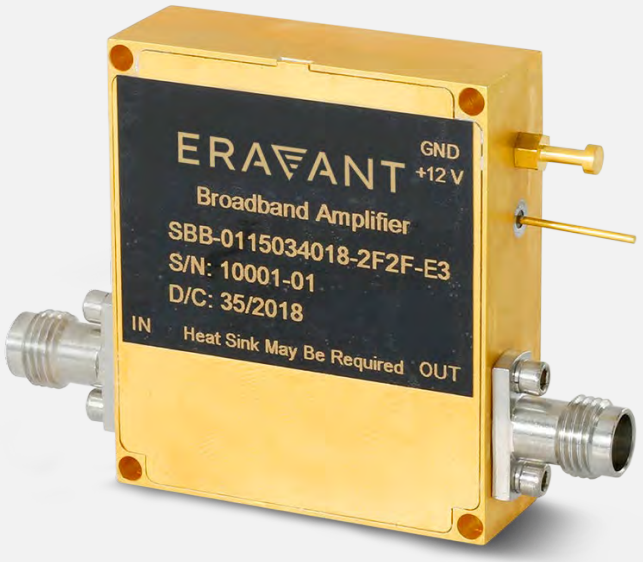


ULTRA BROADBAND AMPLIFIER

SBB-0117033015-VFVF-E3
10 MHz to 70 GHz

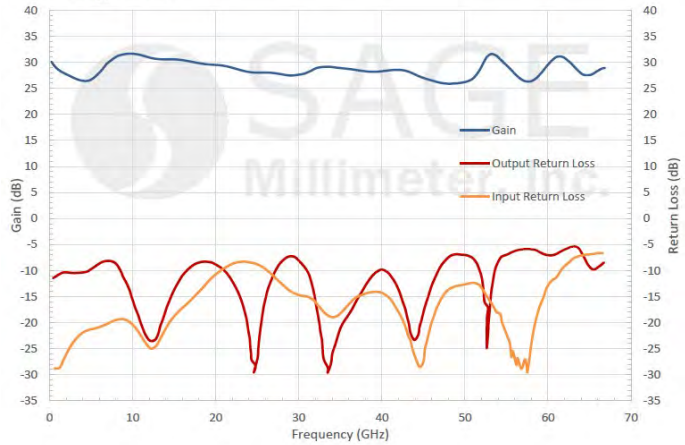
Features:

- 10 MHz to 70 GHz
- +16 dBm Psat
- 30 dB Nominal Gain
- SBB Family Covers up to 70 GHz



Parameter	Minimum	Typical	Maximum
Frequency Range	0.01 GHz		70 GHz
Gain		30 dB	
P_{1dB}		+15 dBm	
P_{sat}		+16 dBm	
Noise Figure		6.0 dB	
P_{in}			+5 dBm
Input Return Loss		10 dB	
Output Return Loss		10 dB	
DC Voltage		+12 V_{DC}	
DC Supply Current		600 mA	650 mA
Specification Temperature		+25 ˚C	
Operating Temperature	0 ˚C		+50 ˚C

Typical Gain and Return Loss vs. Frequency
Bias: +12 V_{DC}/600 mA



BROADBAND LOW NOISE AMPLIFIER

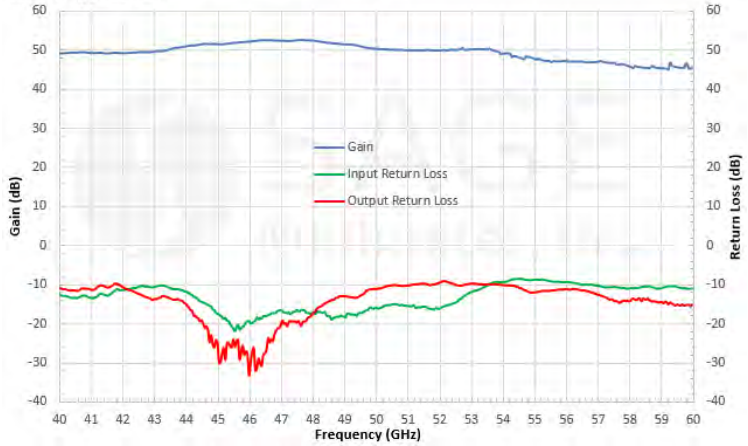
SBL-4036035060-1919-E1
40 to 60 GHz

Features:

- 40 to 60 GHz
- 6 dB Noise Figure
- 50 dB Nominal Gain
- SBL Family Covers up to 170 GHz

Parameter	Minimum	Typical	Maximum
Frequency	40 GHz		60 GHz
Gain		50 dB	
Noise Figure (40-53 GHz)		6 dB	
Noise Figure (53-60 GHz)		7 dB	
P_{1dB}		11 dB	
P_{in}			-15 dBm
Input Return Loss		10 dB	
Output Return Loss		10 dB	
DC Voltage		+6 V_{DC}	+15 V_{DC}
DC Supply Current		450 mA	
Specification Temperature		+25 ˚C	
Operating Temperature	0 ˚C		+50 ˚C

Typical Gain and Return Loss vs. Frequency
Bias: +8 V_{DC}/450 mA



BROADBAND LOW NOISE AMPLIFIER

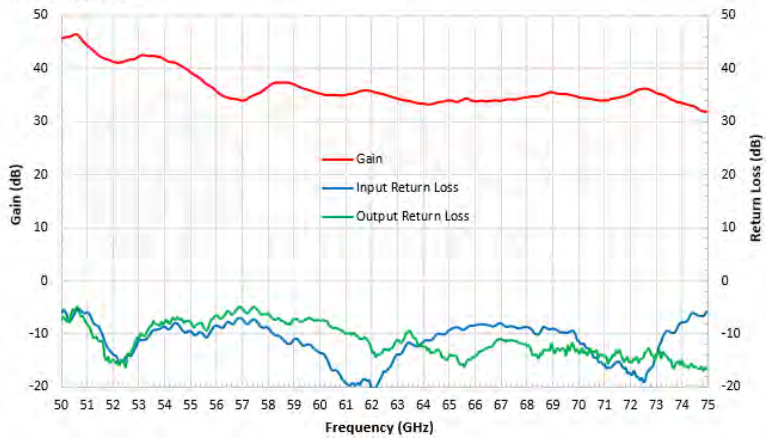
SBL-5037533550-1515-E1
50 to 75 GHz

Features:

- 50 to 75 GHz
- 5 dB Noise Figure
- 35 dB Nominal Gain
- SBL Family Covers up to 170 GHz

Parameter	Minimum	Typical	Maximum
Frequency	50 GHz		75 GHz
Gain		35 dB	
Noise Figure		5 dB	
P_{1dB}		+11 dBm	
P_{in}			-20 dBm
Input Return Loss		8 dB	
Output Return Loss		8 dB	
DC Voltage	+6 V_{DC}	+8 V_{DC}	+15 V_{DC}
DC Supply Current		150 mA	
Specification Temperature		+25 ˚C	
Operating Temperature	0 ˚C		+50 ˚C

Typical Gain and Return Loss vs. Frequency
Bias: +8 V_{DC}/150 mA



BROADBAND LOW NOISE AMPLIFIER

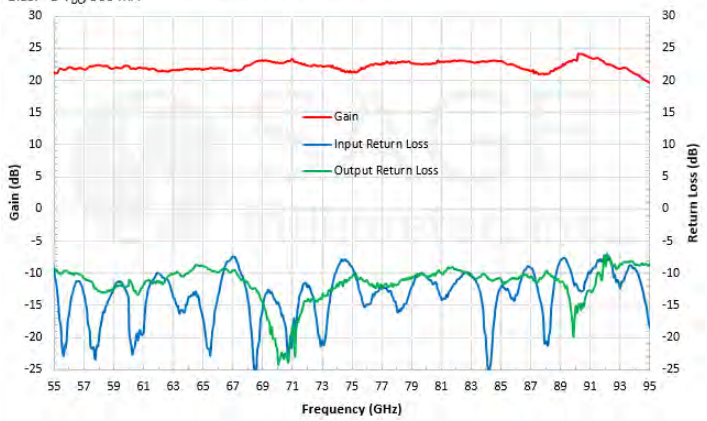
SBL-5539532560-1212-E1
55 to 95 GHz

Features:

- 55 to 95 GHz
- 6 dB Noise Figure
- 25 dB Nominal Gain
- SBL Family Cover up to 170 GHz

Parameter	Minimum	Typical	Maximum
Frequency	55 GHz		95 GHz
Gain		25 dB	
Noise Figure		6 dB	
P_{1dB}		+12 dBm	
P_{sat}		+16 dBm	
P_{in}			+15 dBm
Input Return Loss		10 dB	
Output Return Loss		10 dB	
DC Voltage	+6 V_{DC}	+8 V_{DC}	+15 V_{DC}
DC Supply Current		300 mA	
Specification Temperature		+25 ˚C	
Operating Temperature	0 ˚C		+50 ˚C

Typical Gain and Return Loss vs. Frequency
Bias: +8 V_{DC}/300 mA



BROADBAND LOW NOISE AMPLIFIER

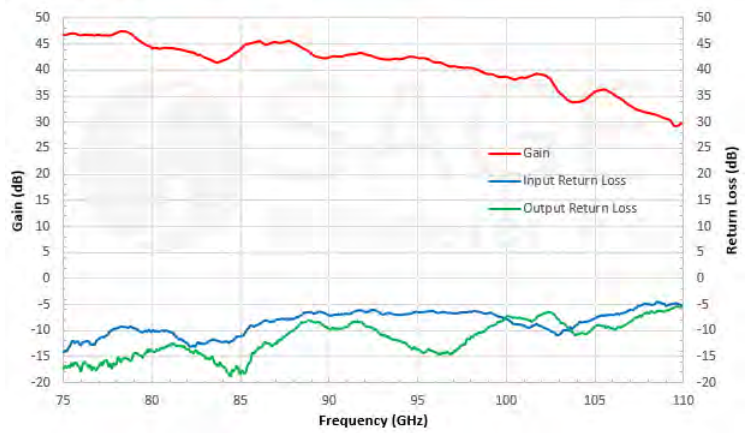
SBL-7531143550-1010-E1
75 to 110 GHz

Features:

- 75 to 110 GHz
- 5 dB Noise Figure
- 35 dB Nominal Gain
- SBL Family Cover up to 170 GHz

Parameter	Minimum	Typical	Maximum
Frequency	75 GHz		110 GHz
Gain		35 dB	
Noise Figure		5 dB	
P_{1dB}		-5 dBm	
P_{in}			+15 dBm
Input Return Loss		6 dB	
Output Return Loss		8 dB	
DC Voltage	+6 V_{DC}	+8 V_{DC}	+15 V_{DC}
DC Supply Current		100 mA	
Specification Temperature		+25 ˚C	
Operating Temperature	0 ˚C		+50 ˚C

Typical Gain and Return Loss vs. Frequency
Bias: +8 V_{DC}/69 mA



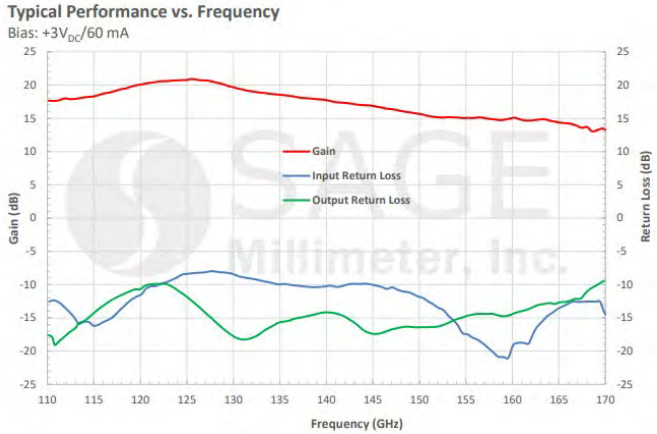
BROADBAND LOW NOISE AMPLIFIER

SBL-1141741860-0606-EI
110 to 170 GHz

Features:

- 110 to 170 GHz
- 18 dB Nominal Gain
- 6 dB Noise Figure
- SBL Family Covers up to 170 GHz

Parameter	Minimum	Typical	Maximum
Frequency	110 GHz		170 GHz
Gain		18 dB	
Noise Figure		6 dB	
*P_{1dB}		-5 dBm	
P_{in}			-25 dBm
Input Return Loss		6 dB	
Output Return Loss		6 dB	
DC Voltage		+3 V_{DC}	+5 V_{DC}
DC Supply Current		30 mA	
Specification Temperature		+25 ˚C	
Operating Temperature	0 ˚C		+50 ˚C

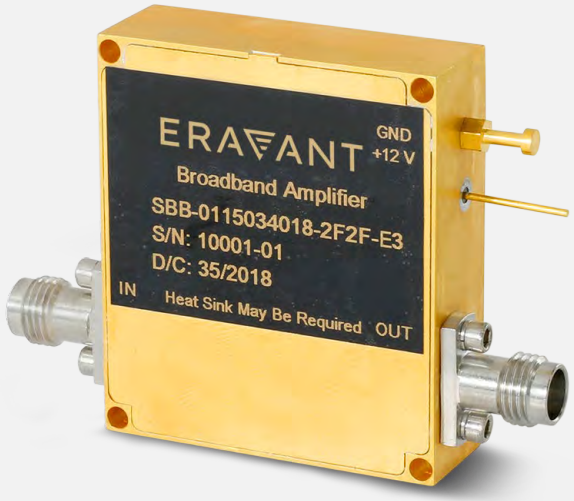


BROADBAND POWER AMPLIFIER

SBP-1834331824-KFKF-E3
18 to 43 GHz

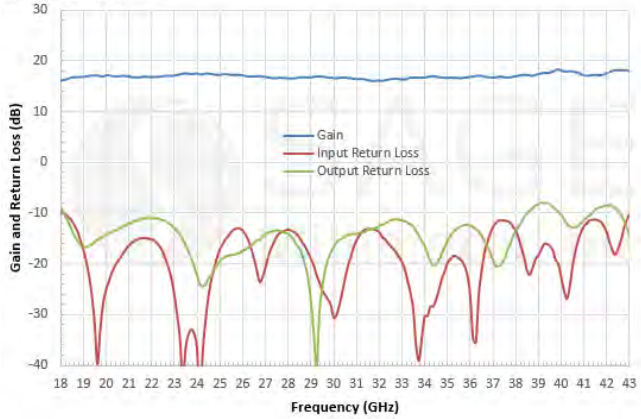
Features:

- 18 to 43 GHz
- +25 dBm Psat
- 18 dB Nominal Gain
- SBP Family Covers up to 110 GHz



Parameter	Minimum	Typical	Maximum
Frequency	18 GHz		43 GHz
Gain	15 dB	18 dB	
P_{1dB}	+23 dBm	+24 dBm	
P_{sat}		+25 dBm	
Output IP3		+30 dBm	
P_{in}		+5 dBm	+10 dBm
Input Return Loss		8 dB	
Output Return Loss		8 dB	
DC Voltage	+8 V_{DC}	+12 V_{DC}	+15 V_{DC}
DC Supply Current		250 mA	
Specification Temperature		+25 ˚C	
Case Temperature	0 ˚C		+50 ˚C

Typical Gain and Return Loss vs. Frequency
Bias: +12 Vdc/230 mA

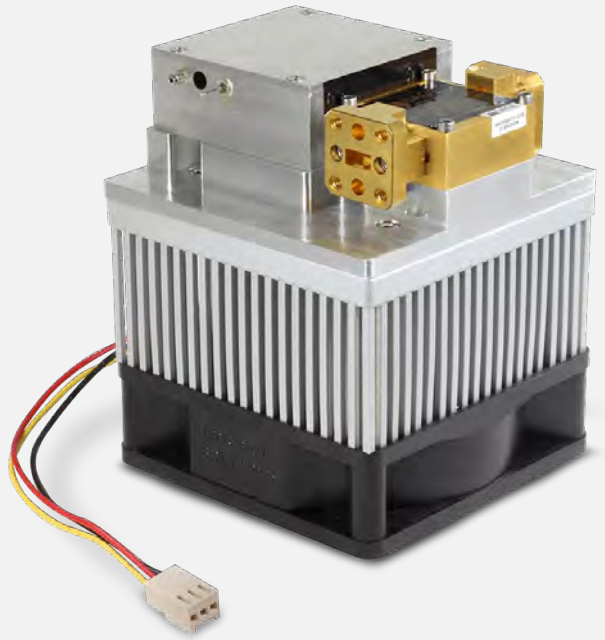


HIGH POWER AMPLIFIER

SBP-3133834034-KFKF-C1-2
31 to 38 GHz

Features:

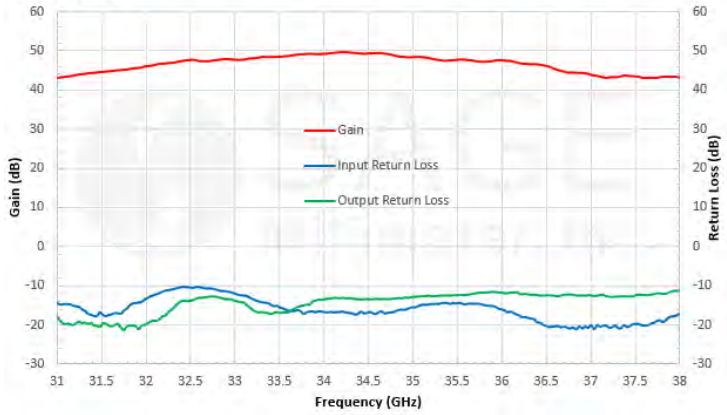
- 31 to 38 GHz
- +35 dBm Psat
- 40 dB Nominal Gain
- SBP Family Covers up to 110 GHz



Parameter	Minimum	Typical	Maximum
Frequency	31 GHz		38 GHz
Gain		40 dB	
P_{1dB}		+34 dBm	
P_{sat}		+35 dBm	
P_{in}			+20 dBm
Input Return Loss		10 dB	
Output Return Loss		10 dB	
DC Voltage		+8 V_{DC}	
DC Supply Current (Under RF Drive)		4 A	
Supply Voltage to Fan		+12 V_{DC}	
Specification Temperature		+25 ˚C	
Operating Temperature	0 ˚C		+50 ˚C

Typical Gain and Return Loss vs. Frequency

V_{IN}: +8 V_{DC}/2.4 A



HIGH POWER AMPLIFIER

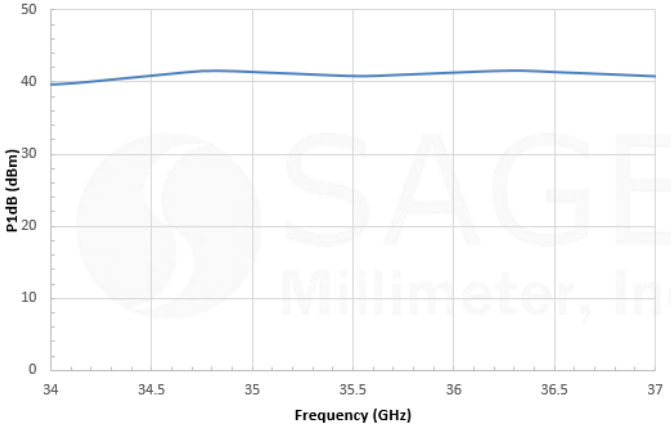
SBP-3433735038-KFKF-E3
34 to 37 GHz

Features:

- 34 to 37 GHz
- +40 dBm Psat
- 50 dB Nominal Gain
- SBP Family Covers up to 110 GHz

Parameter	Minimum	Typical	Maximum
Frequency	34 GHz		37 GHz
Gain		50 dB	
P_{1dB}		+38 dBm	
P_{sat}		+40 dBm	
Damage P_{in}			+5 dBm
Input Return Loss		10 dB	
Output Return Loss		10 dB	
DC Voltage		+12 V_{DC}	
DC Supply Current		10 A	15 A
Specification Temperature		+25 ˚C	
Operating Temperature	0 ˚C		+50 ˚C

Typical P1dB vs Frequency
DC Bias: +12V / 10A

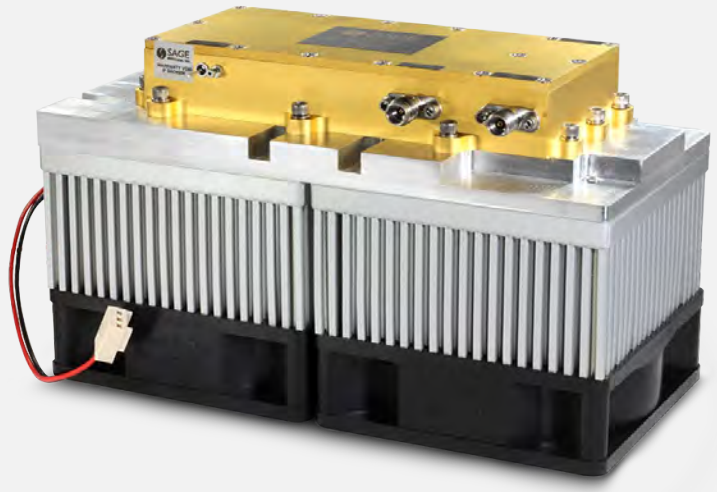


HIGH POWER GaN AMPLIFIER

SBP-3233831838-KFKF-E1-HR
32 to 38 GHz

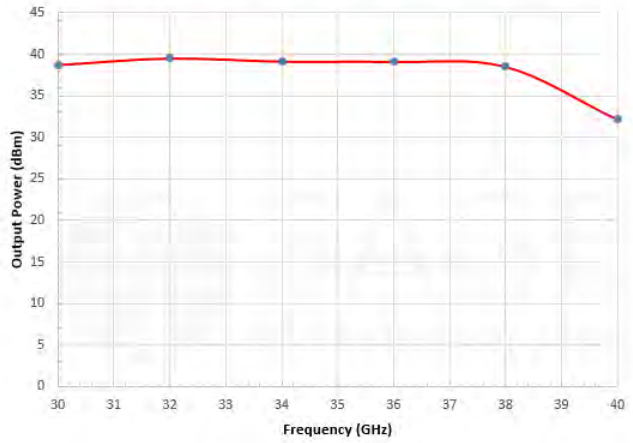
Features:

- 32 to 38 GHz
- +38 dBm Psat
- 18 dB Nominal Gain
- SBP Family Covers up to 110 GHz



Parameter	Minimum	Typical	Maximum
Frequency	32 GHz		38 GHz
Gain		18 dB	
P_{sat}		+38 dBm	
P_{in}			+30 dBm
Input Return Loss		15 dB	
Output Return Loss		10 dB	
DC Voltage		+30 V_{DC}	+48 V_{DC}
DC Supply Current		2 A	
Supply Voltage to Fan		+12 V_{DC}	
Specification Temperature		+25˚C	
Operating Temperature	0˚C		+50˚C

Typical Output Power Psat Vs. Frequency
Bias = +48 V_{DC} / 2 A



HIGH POWER AMPLIFIER

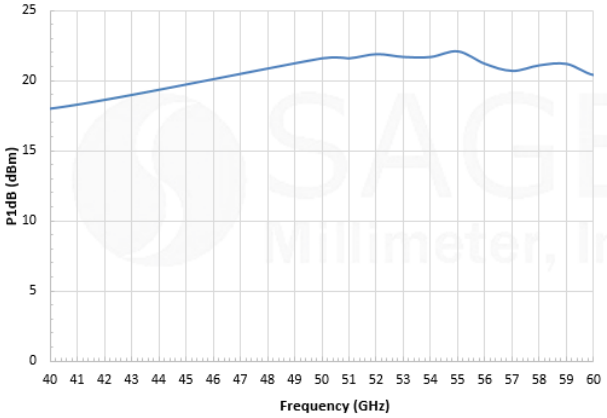
SBP-4036033519-1919-E1
40 to 60 GHz

Features:

- 40 to 60 GHz
- +20 dBm Psat
- 35 dB Nominal Gain
- SBP Family Covers up to 110 GHz

Parameter	Minimum	Typical	Maximum
Frequency	40 GHz		60 GHz
Gain		35 dB	
P_{1dB}		+19 dBm	
P_{sat}		+20 dBm	
P_{in}			+20 dBm
Input Return Loss		10 dB	
Output Return Loss		10 dB	
DC Voltage		+8 V_{DC}	+12 V_{DC}
DC Supply Current		650 mA	
Specification Temperature		+25 ˚C	
Operating Temperature	0 ˚C		+50 ˚C

Typical Output Power vs. Frequency
Bias: +8 V_{DC}/850 mA



HIGH POWER AMPLIFIER

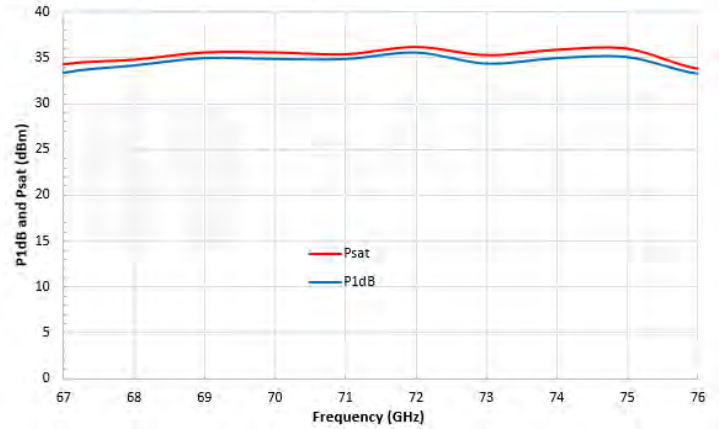
SBP-6737633534-1212-E1
67 to 76 GHz

Features:

- 67 to 76 GHz
- +35 dBm Psat
- 35 dB Nominal Gain
- SBP Family Covers up to 110 GHz

Parameter	Minimum	Typical	Maximum
Frequency	67 GHz		76 GHz
Gain		35 dB	
P_{1dB}		+34 dBm	
P_{sat}		+35 dBm	
P_{in}			+15 dBm
Input Return Loss		10 dB	
Output Return Loss		10 dB	
DC Voltage	+6 V_{DC}	+8 V_{DC}	+15 V_{DC}
DC Supply Current		7 A	
Specification Temperature		+25 ˚C	
Operating Temperature	0 ˚C		+50 ˚C

Typical P_{1dB} and P_{sat} vs. Frequency
Bias: +8 V_{DC}/9.5 A



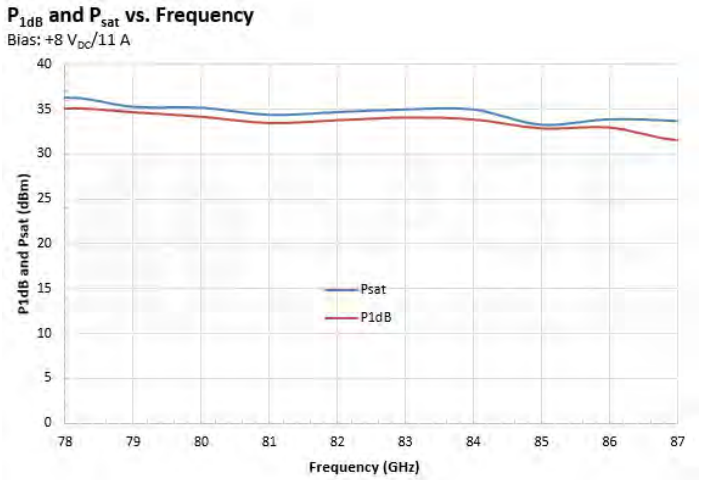
HIGH POWER AMPLIFIER

SBP-8138632833-1212-E1
81 to 86 GHz

Features:

- 81 to 86 GHz
- +34 dBm Psat
- 28 dB Nominal Gain
- SBP Family Covers up to 110 GHz

Parameter	Minimum	Typical	Maximum
Frequency	81 GHz		86 GHz
Gain		28 dB	
P_{1dB}		+33 dBm	
P_{sat}		+34 dBm	
P_{in}			+15 dBm
Input Return Loss		10 dB	
Output Return Loss		10 dB	
DC Voltage	+6 V_{DC}	+8 V_{DC}	+15 V_{DC}
DC Supply Current		9 A	
Specification Temperature		+25 ˚C	
Operating Temperature	0 ˚C		+50 ˚C



HIGH POWER AMPLIFIER

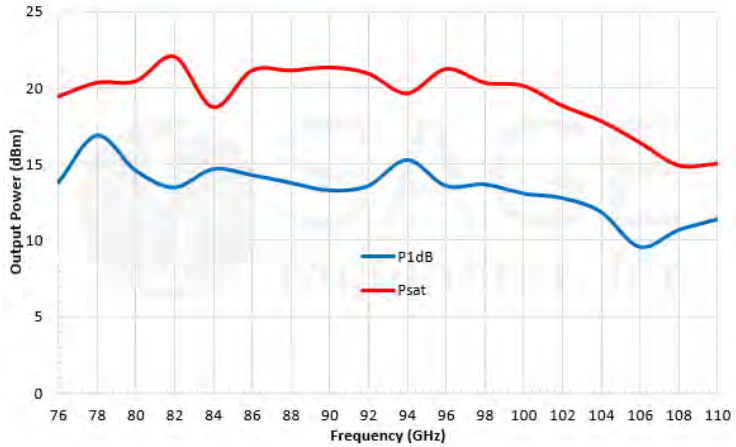
SBP-7531142515-1010-E1
75 to 110 GHz

Features:

- 75 to 110 GHz
- +20 dBm Psat
- 25 dB Nominal Gain
- SBP Family Covers up to 110 GHz

Parameter	Minimum	Typical	Maximum
Frequency	75 GHz		110 GHz
Gain		25 dB	
P_{1dB}		+15 dBm	
P_{sat}		+20 dBm	
P_{in}			0 dBm
Input Return Loss		10 dB	
Output Return Loss		10 dB	
DC Voltage	+13 V_{DC}	+15 V_{DC}	+16 V_{DC}
DC Supply Current		190 mA	
Specification Temperature		+25 ˚C	
Operating Temperature	0 ˚C		+50 ˚C

Typical Output Power vs. Frequency
Bias: +15 V_{DC}/190 mA



CONVERTERS

ERAVANT FREQUENCY CONVERTERS

The focus of this presentation section is to introduce the **Eravant** frequency conversion product family by highlighting some representative models. There are several hundred standard models available to satisfy all 5G system applications. The frequency converter family includes the following types:

- Balanced Mixer
- I/Q Mixer
- Subharmonically Pumped Mixer
- Harmonic Mixer
- Upconverter
- Amplitude Detector
- Active Multiplier
- Passive Multiplier

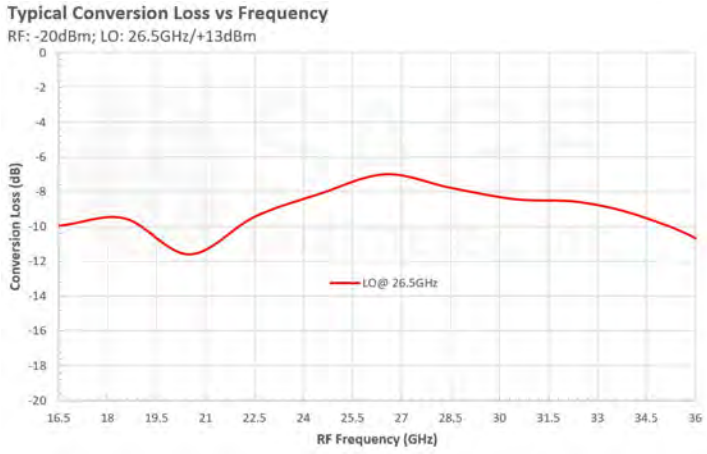
BALANCED MIXER

SFB-11340312-KFKFSF-N1-M
11 to 40 GHz

Features:

- 11 to 40 GHz
- 12 dB Conversion Loss
- Balanced Configuration
- SFB Family Has More than 30 Models

Parameter	Minimum	Typical	Maximum
RF Frequency	11 GHz		40 GHz
LO Frequency	11 GHz		40 GHz
IF Frequency	DC		10 GHz
LO Pumping Power	+13 dBm	+15 dBm	+18 dBm
Conversion Loss		12 dB	
Input P-1dB		+9 dBm	
RF to LO Isolation		30 dB	
LO to IF Isolation		25 dB	
RF to IF Isolation		25 dB	
Combined LO and RF Power			+21 dBm
Specification Temperature		+25 ˚C	
Operating Temperature	-40 ˚C		+85 ˚C

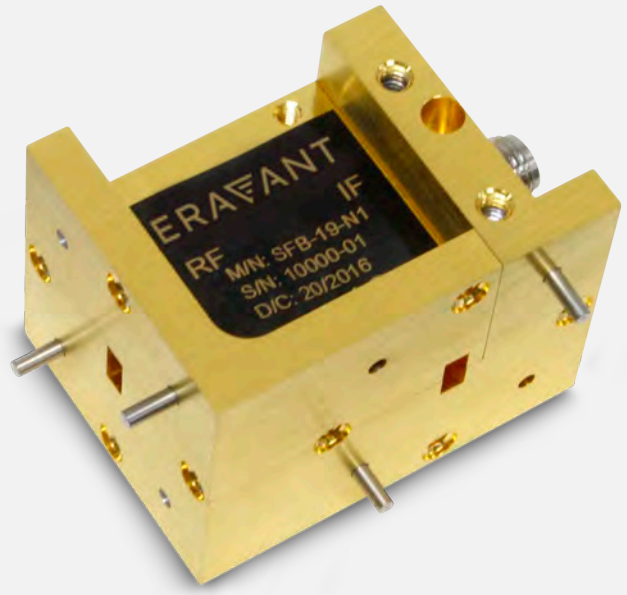


BALANCED MIXER

SFB-19-N1
40 to 60 GHz

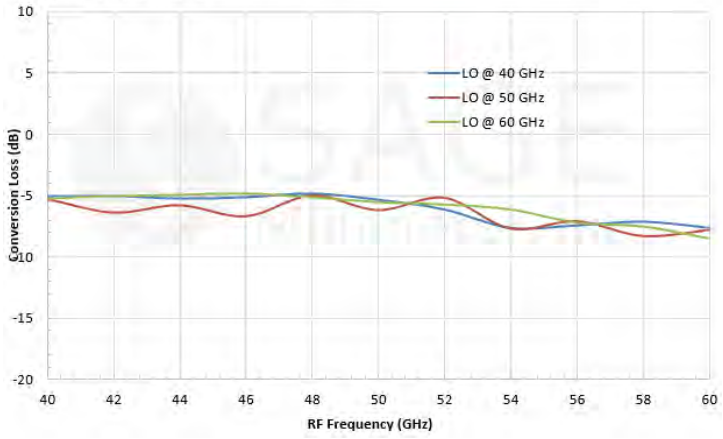
Features:

- 40 to 60 GHz
- 8 dB Conversion Loss
- Balanced Configuration
- SFB Family Has More than 30 Models



Parameter	Minimum	Typical	Maximum
RF Frequency	40 GHz		60 GHz
LO Frequency	40 GHz		60 GHz
IF Frequency	DC		20 GHz
LO Pumping Power	+10 dBm	+13 dBm	+15 dBm
Conversion Loss		8 dB	10 dB
Input P-1dB		-3 dBm	
RF to LO Isolation		30 dB	
Combined RF and LO Power			+18 dBm
Specification Temperature		+25°C	
Operating Temperature	-40°C		+85°C

Typical Conversion Loss vs. Frequency
RF: -20 dBm; LO: +12 dBm



BALANCED MIXER

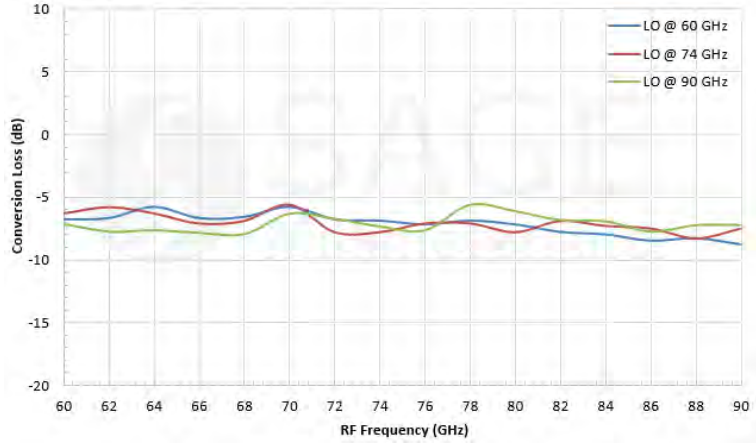
SFB-12-N1
60 to 90 GHz

Features:

- 60 to 90 GHz
- 9 dB Conversion Loss
- Balanced Configuration
- SFB Family Has More than 30 Models

Parameter	Minimum	Typical	Maximum
RF Frequency	60 GHz		90 GHz
LO Frequency	60 GHz		90 GHz
IF Frequency	DC		30 GHz
LO Pumping Power	+10 dBm	+13 dBm	+15 dBm
Conversion Loss		9 dB	12 dB
Input P_{1dB}		-3 dBm	
RF to LO Isolation		30 dB	
Combined RF and LO Power			+18 dBm
Specification Temperature		+25 °C	
Operating Temperature	-40 °C		+85 °C

Typical Conversion Loss vs. Frequency
RF: -20 dBm; LO: +13 dBm



I/Q MIXER

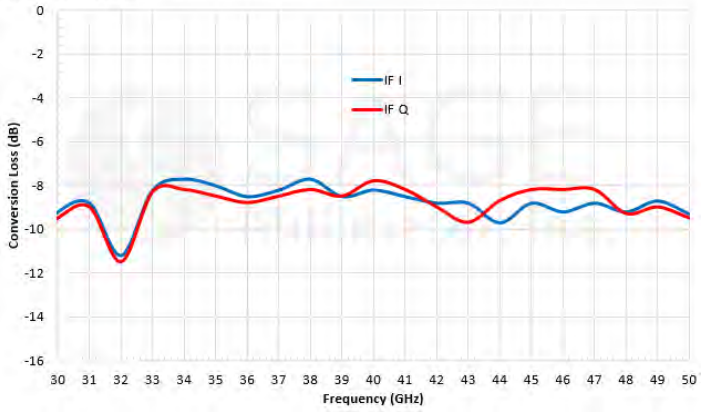
SFQ-30350313-2F2FSF-N1-M
30 to 50 GHz

Features:

- 30 to 50 GHz
- 9 dB Conversion Loss
- Balanced Configuration
- SFQ Family Has More than 30 Models

Parameter	Minimum	Typical	Maximum
RF Frequency	30 GHz		50 GHz
LO Frequency	30 GHz		50 GHz
LO Pumping Power	+16 dBm	+17 dBm	+20 dBm
IF Frequency	DC		2.0 GHz
Conversion Loss		13 dB	15 dB
I/Q Phase Unbalance		±15°	
I/Q Amplitude Unbalance		±1.0 dB	
LO to RF Port Isolation	20 dB	30 dB	
LO to IF Port Isolation		15 dB	
RF to IF Port Isolation		20 dB	
IP1dB		+4 dBm	
IP3dB		+13 dBm	
Combined RF & LO Power			+20 dBm

Typical Conversion Loss vs. Frequency
LO Power: +17 dBm



I/Q MIXER

SFQ-60390315-1212SF-E1-M
60 to 90 GHz

Features:

- 60 to 90 GHz
- 15 dB Conversion Loss
- Balanced Configuration
- SFQ Family Has More than 30 Models

Parameter	Minimum	Typical	Maximum
RF Frequency Range	60 GHz		90 GHz
RF Input P-1		5 dBm	
LO Frequency Range	60 GHz		90 GHz
LO Pumping Power		+10 dBm	+12 dBm
IF Frequency Range	DC	2 GHz	
Conversion Loss		15 dB	20 dB
I/Q Phase Unbalance		±15°	
I/Q Amplitude Unbalance		±1.5 dB	
LO to RF Port Isolations	20 dB	40 dB	
Operating Temperature	0 °C		+50 °C

Typical Convertion Loss vs. Frequency

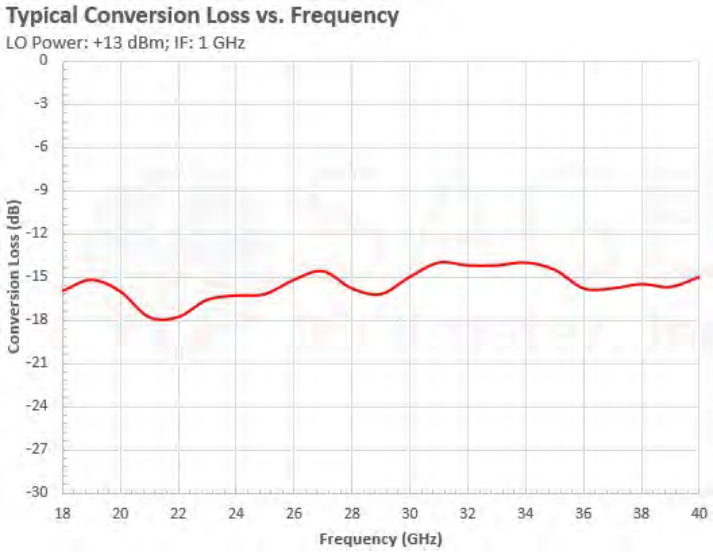
SUBHARMONICALLY PUMPED MIXER

SFS-18340315-KFSFSF-N1-M
18 to 40 GHz

Features:

- 18 to 40 GHz
- 15 dB Conversion Loss
- Balanced Configuration
- SFS Family Covers up to 110 GHz

Parameter	Minimum	Typical	Maximum
RF Frequency	18 GHz		40 GHz
LO Frequency	9 GHz		20 GHz
IF Frequency	1.0 GHz		2.0 GHz
LO Pumping Power		+13 dBm	
Conversion Loss		15 dB	
LO to IF Isolation		50 dB	
RF to LO Isolation		20 dB	
Combined RF & LO Damage Power			+23 dBm
Specification Temperature		+25 ˚C	
Operating Temperature	0 ˚C		+50 ˚C

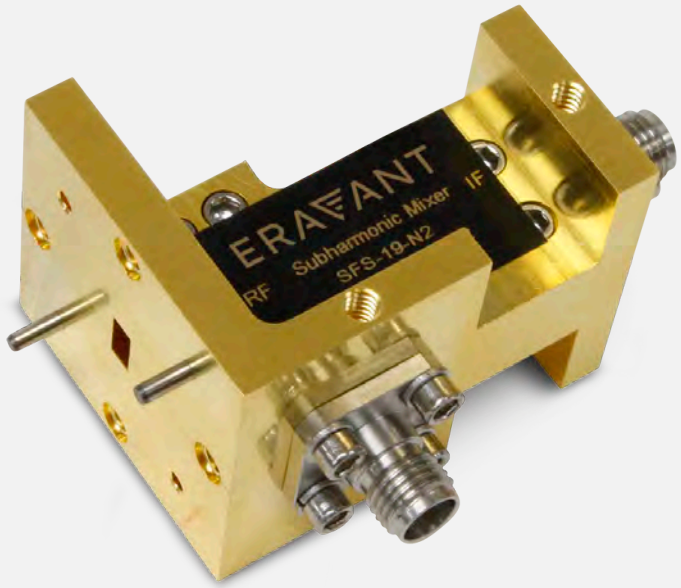


SUBHARMONICALLY PUMPED MIXER

SFS-19-N3
40 to 60 GHz

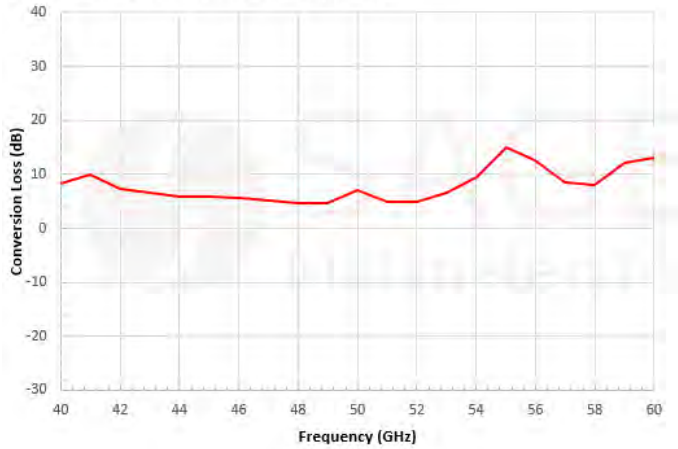
Features:

- 40 to 60 GHz
- 14 dB Conversion Loss
- Balanced Configuration
- SFS Family Covers up to 110 GHz



Parameter	Minimum	Typical	Maximum
RF Frequency	40 GHz		60 GHz
LO Frequency	20 GHz		30 GHz
IF Frequency	DC		5.0 GHz
LO Pumping Power		+15 dBm	
Conversion Loss		14 dB	
LO to IF Isolation		30 dB	
RF to LO Isolation		15 dB	
Combined RF and LO Power			+18 dBm
Specification Temperature		+25 °C	
Operating Temperature	+0 °C		+50 °C

Typical Conversion Loss vs. Frequency



HARMONIC MIXER

SFH-28SFSF-A3
26.5 to 40 GHz

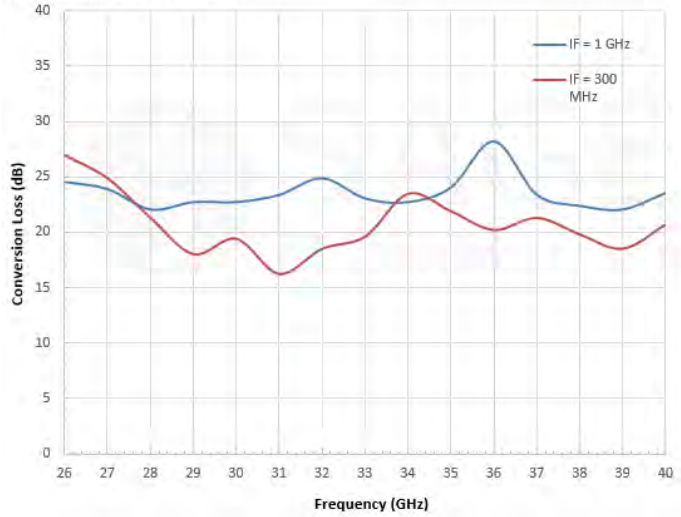
Features:

- 26.5 to 40 GHz
- 30 dB Conversion Loss
- Balanced Configuration
- Even Harmonic Mixing
- SFH Family Covers up to 170 GHz

Parameter	Minimum	Typical	Maximum
RF Frequency	26.5 GHz		40 GHz
LO Frequency	3.0 GHz		6.1 GHz
IF Frequency	DC		1.3 GHz
Required LO Pumping Power		+16 dBm	+19 dBm
Conversion Loss		30 dB	
Combined Damage RF and LO Power			+20 dBm
Number of Harmonics*		8	
Specification Temperature		+25 ˚C	
Operation Temperature	-40 ˚C		+85 ˚C

*Note: Other even harmonics can be used.

Typical Conversion Loss vs. Frequency
RF = -20 dBm, LO = +16 dBm



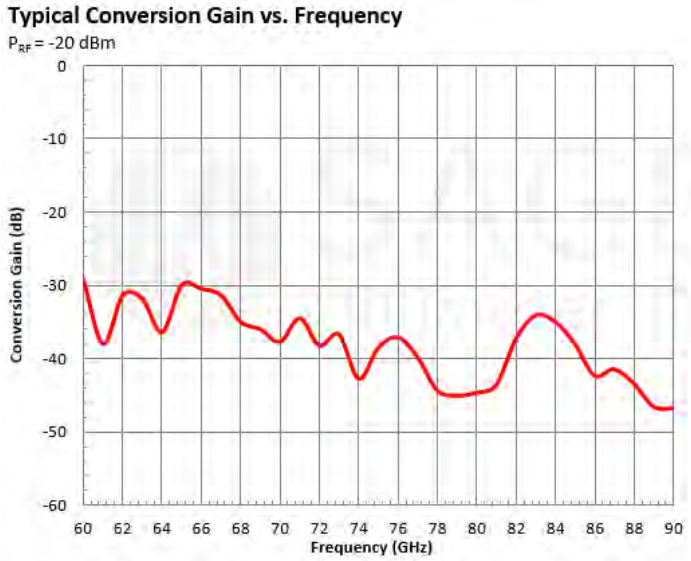
HARMONIC MIXER

SFH-15SFSF-A3
50 to 75 GHz

Features:

- 50 to 75 GHz
- 40 dB Conversion Loss
- Balanced Configuration
- Even Harmonic Mixing
- SFH Family Covers up to 170 GHz

Parameter	Minimum	Typical	Maximum
RF Frequency	60 GHz		90 GHz
LO Frequency	3.0 GHz		6.1 GHz
IF Frequency	DC		1.3 GHz
Input Power		+16 dBm	+19 dBm
Harmonic Number		16	
Conversion Loss		45 dB	
Specification Temperature		+25 ˚C	
Operation Temperature	-40 ˚C		+85 ˚C



HARMONIC MIXER

SFH-12SFSF-A3
60 to 90 GHz

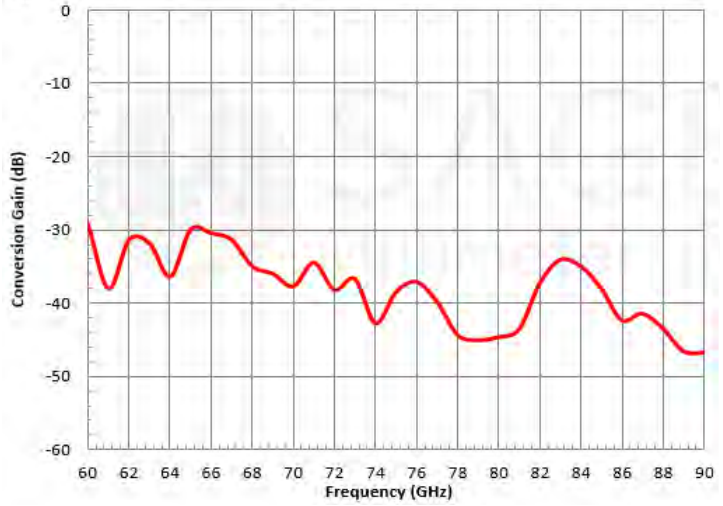
Features:

- 60 to 90 GHz
- 30 dB Conversion Loss
- Balanced Configuration
- Even Harmonic Mixing
- SFH Family Covers up to 170 GHz

Parameter	Minimum	Typical	Maximum
RF Frequency	60 GHz		90 GHz
LO Frequency	3.0 GHz		6.1 GHz
IF Frequency	DC		1.3 GHz
Input Power		+16 dBm	+19 dBm
Harmonic Number		16	
Conversion Loss		45 dB	
Specification Temperature		+25 ˚C	
Operation Temperature	-40 ˚C		+85 ˚C

Typical Conversion Gain vs. Frequency

P_{RF} = -20 dBm



UPCONVERTER

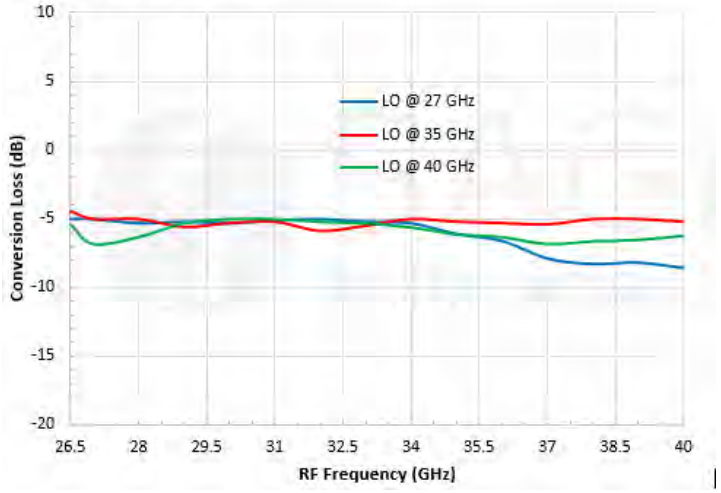
SFU-28-N1
26.6 to 40 GHz

Features:

- 26.5 to 40 GHz
- 7.5 dB Conversion Loss
- Balanced Configuration
- No Bias Needed
- SFU Family Covers up to 170 GHz

Parameter	Minimum	Typical	Maximum
RF Frequency	26.5 GHz		40 GHz
LO Frequency	26.5 GHz		40 GHz
IF Frequency	DC		13.5 GHz
LO Pumping Power	+10 dBm	+13 dBm	+15 dBm
Conversion Loss		7.5 dB	9.0 dB
RF to LO Isolation		30 dB	
Combined IF and LO Power			+18 dBm
Specification Temperature		+25 °C	
Operation Temperature	-40 °C		+85 °C

Typical Conversion Loss vs. Frequency
LO: +13 dBm, RF: -20 dBm

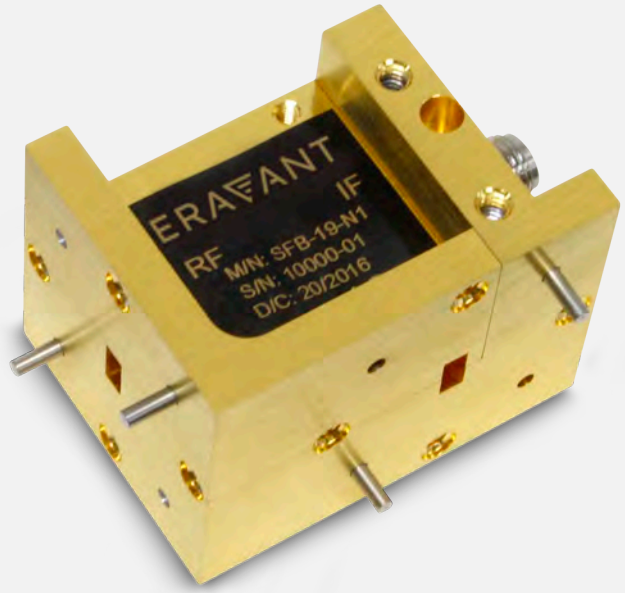


UPCONVERTER

SFU-19-N1
40 to 60 GHz

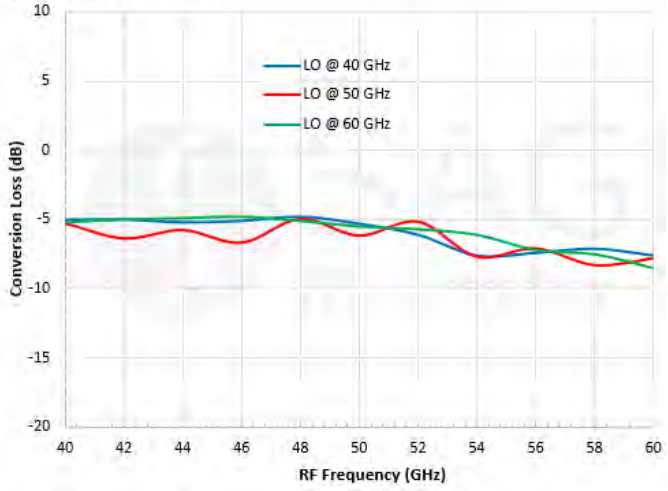
Features:

- 40 to 60 GHz
- 8.0 dB Conversion Loss
- Balanced Configuration
- No Bias Needed
- SFU Family Covers up to 170 GHz



Parameter	Minimum	Typical	Maximum
RF Frequency	40 GHz		60 GHz
LO Frequency	40 GHz		60 GHz
IF Frequency	DC		20 GHz
LO Pumping Power	+10 dBm	+13 dBm	+15 dBm
Conversion Loss		8 dB	10 dB
RF to LO Isolation		30 dB	
Combined IF and LO Power			+18 dBm
Specification Temperature		+25 °C	
Operation Temperature	-40 °C		+85°C

Typical Conversion Loss vs. Frequency
LO: +13 dBm, RF: -20 dBm

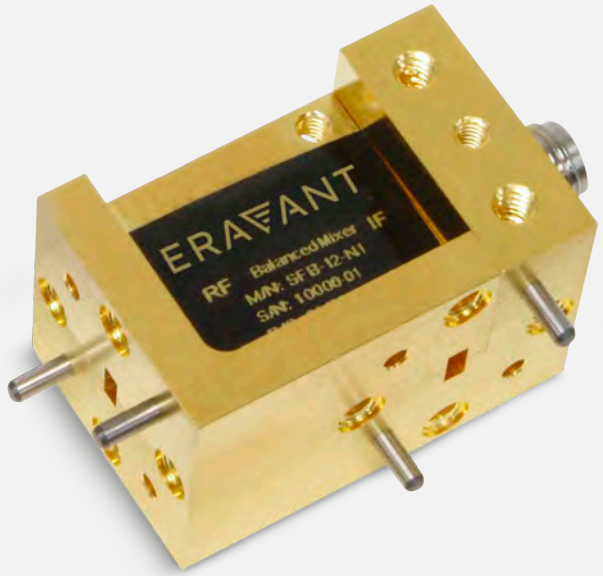


UPCONVERTER

SFU-12-N1
60 to 90 GHz

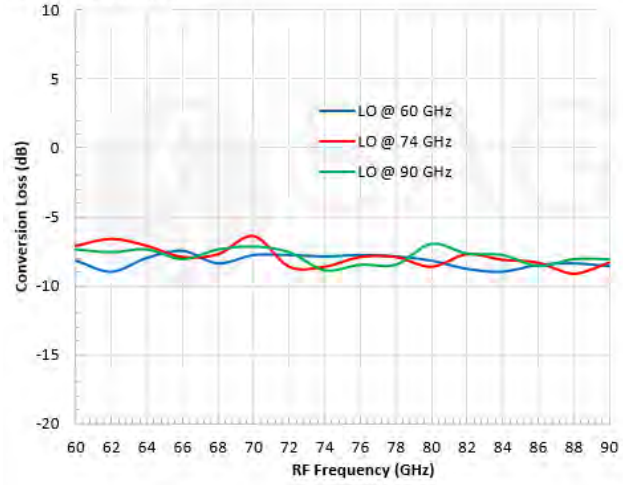
Features:

- 60 to 90 GHz
- 9.0 dB Conversion Loss
- Balanced Configuration
- No Bias Needed
- SFU Family Covers up to 170 GHz



Parameter	Minimum	Typical	Maximum
RF Frequency	60 GHz		90 GHz
LO Frequency	60 GHz		90 GHz
IF Frequency	DC		30 GHz
LO Pumping Power	+10 dBm	+13 dBm	+15 dBm
Conversion Loss		9 dB	12 dB
RF to LO Isolation		30 dB	
Combined IF and LO Power			+18 dBm
Specification Temperature		+25 °C	
Operation Temperature	-40 °C		+85 °C

Typical Conversion Loss vs. Frequency
LO: +13 dBm, IF: -20 dBm



AMPLITUDE DETECTOR

SFD-333503-22SF-N1
33 to 50 GHz

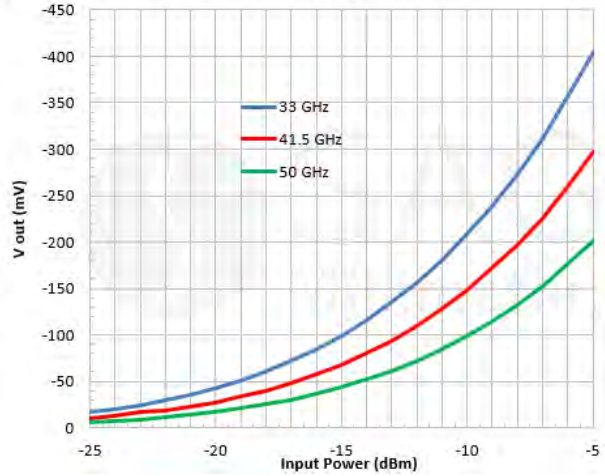
Features:

- 33 to 50 GHz
- 1,000 mV/mW Sensitivity
- No Tuning
- Positive or Negative Models
- SFD Family Covers up to 170 GHz

Parameter	Minimum	Typical	Maximum
Frequency	33 GHz		50 GHz
Sensitivity*		1200 mV/mW	
Sensitivity Flatness		±2.0 dB	
RF Input Power		-20 dBm	
RF Power Handling			+17 dBm
Video Bandwidth		10 MHz	
Detection Speed, Raise Time (50 Ohm Load)		5 Nano Second	
Output Voltage Polarity		Negative	
Specification Temperature		+25 ˚C	
Operating Temperature	-40 ˚C		+85 ˚C

*Note: The sensitivity is for the input signal level -20 dBm or below.

Typical Detected Voltage vs. Input Power



AMPLITUDE DETECTOR

SFD-503753-15SF-N1
50 to 75 GHz

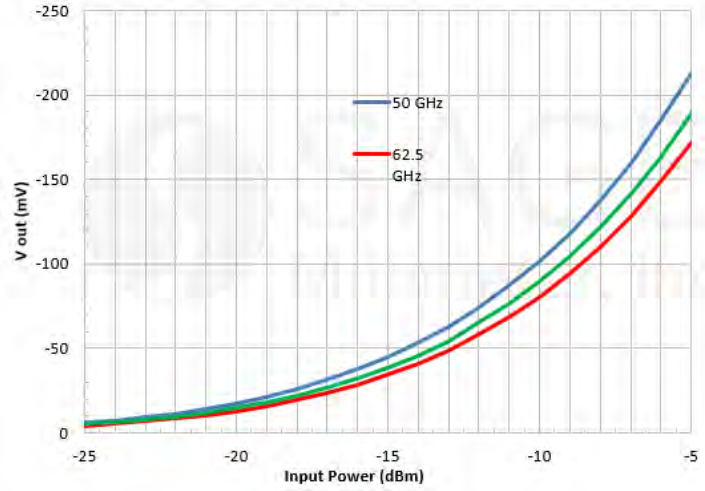
Features:

- 50 to 75 GHz
- 1,000 mV/mW Sensitivity
- No Tuning
- Positive or Negative Models
- SFD Family Covers up to 170 GHz

Parameter	Minimum	Typical	Maximum
Frequency	50 GHz		75 GHz
Sensitivity*		1,000 mV/mW	
Sensitivity Flatness		±2.0 dB	
RF Input Power		-20 dBm	
RF Power Handling			+17 dBm
Video Bandwidth		10 MHz	
Detection Speed, Raise Time (50 Ohm Load)		5 Nano Second	
Output Voltage Polarity		Negative	
Specification Temperature		+25 ˚C	
Operating Temperature	-40 ˚C		+85 ˚C

*Note: The sensitivity is for the input signal level -20 dBm or below.

Typical Detected Voltage vs. Input Power



AMPLITUDE DETECTOR

SFD-603903-12SF-N1
60 to 90 GHz

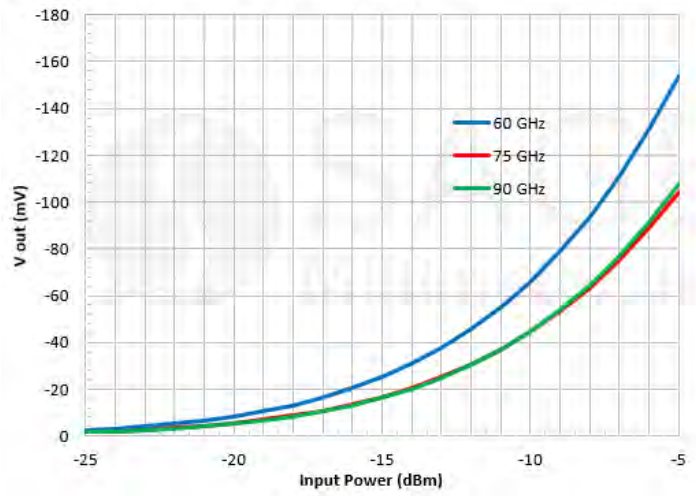
Features:

- 60 to 90 GHz
- 900 mV/mW Sensitivity
- No Tuning
- Positive or Negative Models
- SFD Family Covers up to 170 GHz

Parameter	Minimum	Typical	Maximum
Frequency	60 GHz		90 GHz
Sensitivity*		900 mV/mW	
Sensitivity Flatness		±2.0 dB	
RF Input Power		-20 dBm	
RF Power Handling			+17 dBm
Video Bandwidth		10 MHz	
Detection Speed, Raise Time (50 Ohm Load)		5 Nano Second	
Output Voltage Polarity		Negative	
Specification Temperature		+25 ˚C	
Operating Temperature	-40 ˚C		+85 ˚C

*Note: The sensitivity is for the input signal level -20 dBm or below.

Typical Detected Voltage vs. Input Power



ACTIVE MULTIPLIER

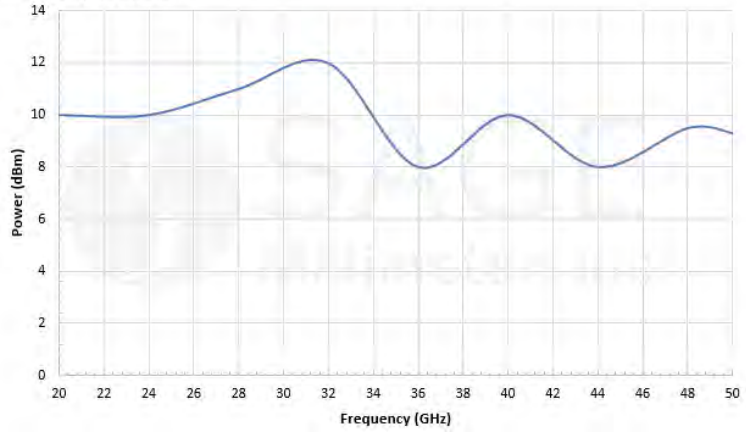
SFA-203503410-2FSF-S1
20 to 50 GHz

Features:

- 20 to 50 GHz
- X4 Multiplying Factor
- +10 dBm Output Power
- SFA Family Has More than 75 Models

Parameter	Minimum	Typical	Maximum
Input Frequency	5.0 GHz		12.5 GHz
Input Power	-5 dBm	+5 dBm	+15 dBm
Output Frequency	20.0 GHz		50.0 GHz
Output Power		+10 dBm	
Harmonic Suppression		-15 dBc	
Spurious		-60 dBc	
Port Return Loss		10 dB	
DC Voltage	+6 V_{DC}	+8 V_{DC}	+12 V_{DC}
DC Supply Current		500 mA	
Specification Temperature		+25 ˚C	
Operating Temperature	0 ˚C		+50 ˚C

Typical Output Power vs. Frequency
Pin= +3 dBm, 12 Vdc/460 mA



ACTIVE MULTIPLIER

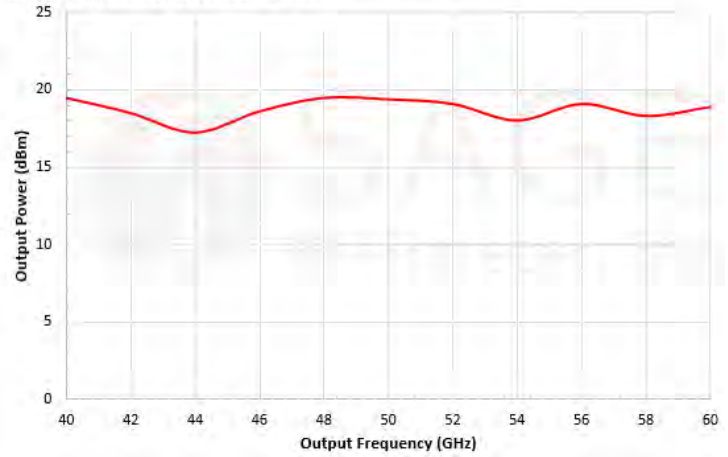
SFA-194SF-S1
40 to 60 GHz

Features:

- 40 to 60 GHz
- X2 or X4 Multiplying Factor
- +18 dBm Output Power
- SFA Family Has More than 75 Models

Parameter	Minimum	Typical	Maximum
Input Frequency	10 GHz		15 GHz
Input Power		0 dBm	+20 dBm
Output Frequency	40 GHz		60 GHz
Output Power		+18 dBm	
Harmonic Suppression		-15 dBc	
Spurious		-60 dBc	
Port Return Loss		15 dB	
DC Voltage	+6 V_{DC}	+8 V_{DC}	+9 V_{DC}
DC Supply Current		800 mA	
Specification Temperature		+25 ˚C	
Operating Temperature	0 ˚C		+50 ˚C

Typical Output Power vs. Output Frequency
Bias: +8 V_{DC}/800 mA; Input Power: 0 dBm



ACTIVE MULTIPLIER

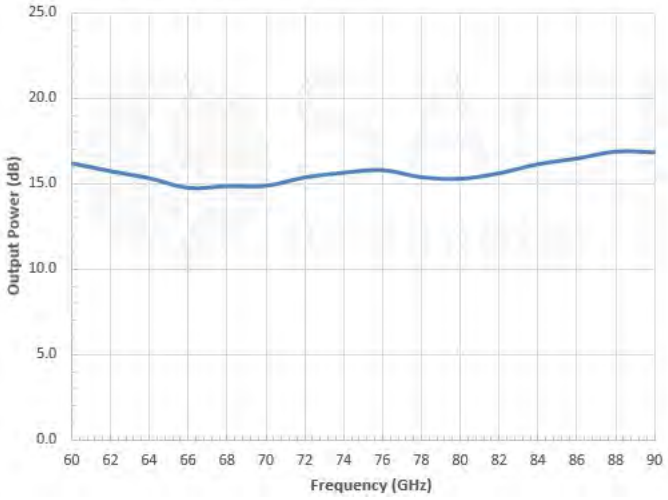
SFA-603903816-12SF-S1
60 to 90 GHz

Features:

- 60 to 90 GHz
- X2, X4, X6 or X8 Multiplying Factor
- +16 dBm Output Power
- SFA Family Has More than 75 Models

Parameter	Minimum	Typical	Maximum
Input Frequency	10 GHz		15 GHz
Input Power		+3 dBm	+20 dBm
Output Frequency	60 GHz		90 GHz
Output Power		+16 dBm	
Harmonic Suppression		-20 dBc	
Spurious		-60 dBc	
Port Return Loss		10 dB	
DC Voltage	+6 V_{DC}	+8 V_{DC}	+16 V_{DC}
DC Supply Current		650 mA	
Specification Temperature		+25 ˚C	
Operating Temperature	0 ˚C		+50 ˚C

Typical Output Power vs. Frequency
Bias: +8 V_{DC}/650 mA, Input Power: +3 dBm



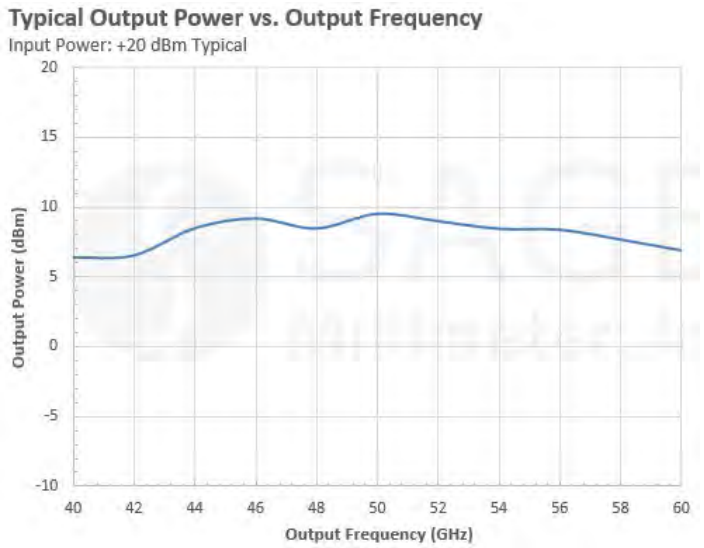
PASSIVE MULTIPLIER

SFP-192KF-S1
40 to 60 GHz

Features:

- 40 to 60 GHz
- X2 and X3 Multiplying Factor
- +5 dBm Output Power
- SFP Family Covers up to 220 GHz

Parameter	Minimum	Typical	Maximum
Input Frequency	20 GHz		30 GHz
Output Frequency	40 GHz		60 GHz
Input Power		+20 dBm	
Damage Input Power			+23 dBm
Output Power		+6 dBm	
Fundamental Rejection		40 dB	
Harmonic Suppression		20 dB	
Specification Temperature		+25 °C	
Operating Temperature	0 °C		+50 °C



PASSIVE MULTIPLIER

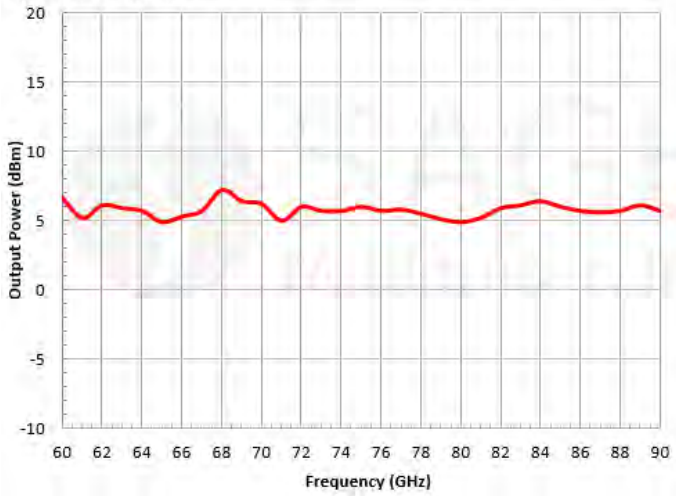
SFP-1222F-S1
60 to 90 GHz

Features:

- 60 to 90 GHz
- X2 and X3 Multiplying Factor
- +5 dBm Output Power
- SFP Family Covers up to 220 GHz

Parameter	Minimum	Typical	Maximum
Input Frequency	30 GHz		45 GHz
Output Frequency	60 GHz		90 GHz
Input Power		+20 dBm	
Damage Input Power			+22 dBm
Output Power		+5 dBm	
Fundamental Rejection		40 dB	
Harmonic Suppression		20 dB	
Specification Temperature		+25 °C	
Operating Temperature	0 °C		+50 °C

Typical Output Power vs. Output Frequency
Input Power: +20 dBm



CONTROL DEVICES

ERAVANT CONTROL DEVICES

The focus of this presentation section is to introduce the **Eravant** control device product family by highlighting some representative models. There are several hundred standard models available to satisfy all 5G system applications. The control device family can be found here and here and includes the following types:

- Electrical Attenuator
- SPST PIN Diode Switch
- SPDT PIN Diode Switch
- SP4T PIN Diode Switch
- SP8T PIN Diode Switch
- Waveguide Level Setting Attenuator
- Waveguide Direct Reading Attenuator
- Waveguide Programable Attenuator
- Coaxial Programmable Attenuator
- Electro-Mechanical Switch

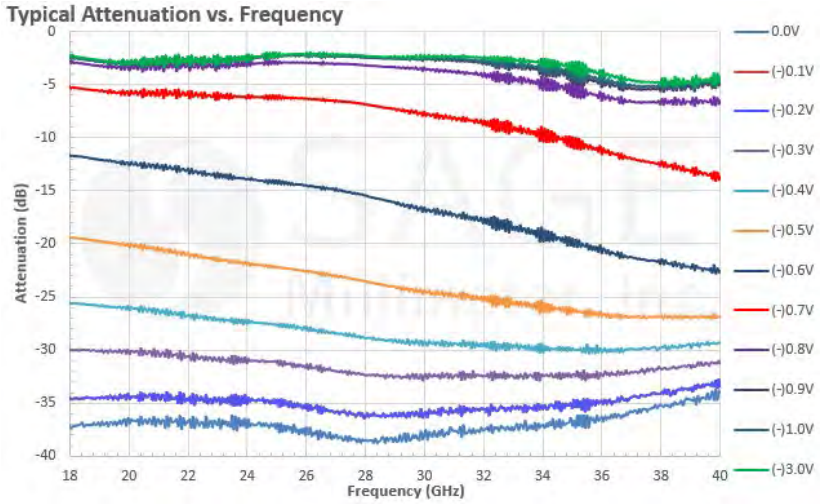
ELECTRICAL ATTENUATOR

SKA-1834033537-KFKF-A1-M
18 to 40 GHz

Features:

- 18 to 40 GHz
- 35 dB Dynamic Range
- High Speed
- SKA Family Covers up to 110 GHz

Parameter	Minimum	Typical	Maximum
Frequency	18 GHz		40 GHz
Insertion Loss		3.5 dB	
Attenuation Range		37 dB	
Input P_{1dB}		+10 dBm	
Damage RF Power Level			+30 dBm
Control Voltage		0 to -3 V_{DC}	
Damage Control Voltage Level			-5 V_{DC}
Input Return Loss		8 dB	
Output Return Loss		9 dB	
Specification Temperature		+25 °C	
Operating Temperature	0 °C		+50 °C

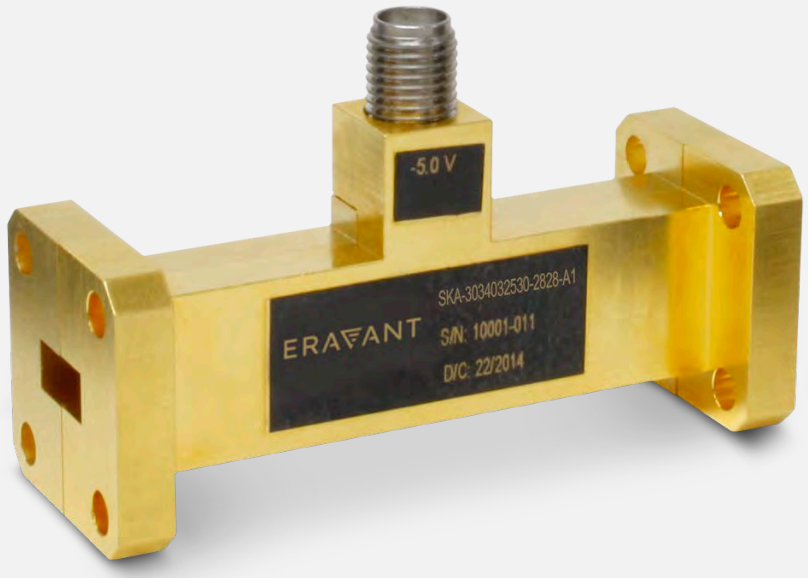


ELECTRICAL ATTENUATOR

SKA-2734032530-2828-A1
26.5 to 40 GHz

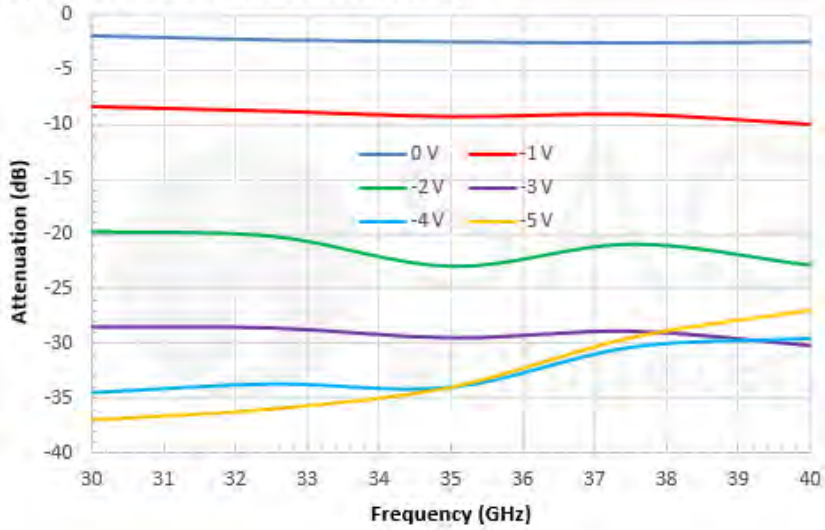
Features:

- 26.5 to 40 GHz
- 30 dB Dynamic Range
- High Speed
- SKA Family Covers up to 110 GHz



Parameter	Minimum	Typical	Maximum
Frequency	26.5 GHz		40 GHz
Insertion Loss		2.5 dB	3.0 dB
Attenuation		30 dB	
Power Handling		+20 dBm	+23 dBm
Control Voltage		0 to -5 V_{DC}	
Control Current		10 mA	
Control Speed		100 ns	
Specification Temperature		+25 °C	
Operating Temperature	-40 °C		+85 °C

Typical Attenuation vs. Frequency



ELECTRICAL ATTENUATOR

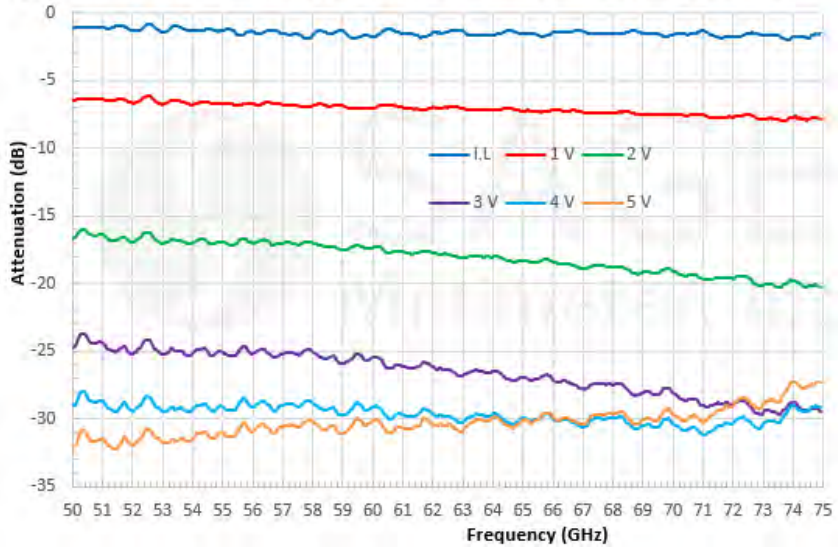
SKA-5037533030-1515-A1
50 to 75 GHz

Features:

- 50 to 75 GHz
- 33 dB Dynamic Range
- High Speed
- SKA Family Covers up to 110 GHz

Parameter	Minimum	Typical	Maximum
Frequency	50 GHz		75 GHz
Insertion Loss		2.5 dB	3.0 dB
Attenuation	2.5 dB	30 dB	
Power Handling		+20 dBm	+23 dBm
Control Voltage		0 to -5 V_{DC} /5 mA	0 to -6 V_{DC} /8 mA
Control Speed		100 ns	
Specification Temperature		+25 °C	
Operating Temperature	-40 °C		+85 °C

Typical Attenuation vs. Frequency at Various Control Voltage Value



SPST PIN SWITCH

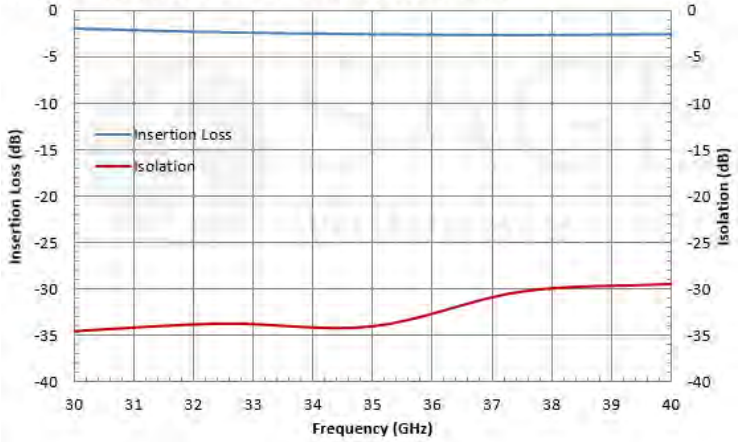
SKS-3034032030-KFKF-A1-M
30 to 40 GHz

Features:

- 30 to 40 GHz
- 30 dB Control Range
- 100 ns Switching Speed
- SKS Family Covers up to 110 GHz

Parameter	Minimum	Typical	Maximum
Frequency	30 GHz		40 GHz
Insertion Loss		2.0 dB	
Isolation		30 dB	
Return Loss		9 dB	
Power Handling			+23 dBm
Bias Voltage		±5 V_{DC}	
Bias Current		25 mA	
Control Signal		TTL	
Switching Speed		100 nS	
Switch Type		Absorptive	
Specification Temperature		+25 °C	
Operating Temperature	-25 °C		+65 °C

Typical Insertion Loss and Isolation vs. Frequency

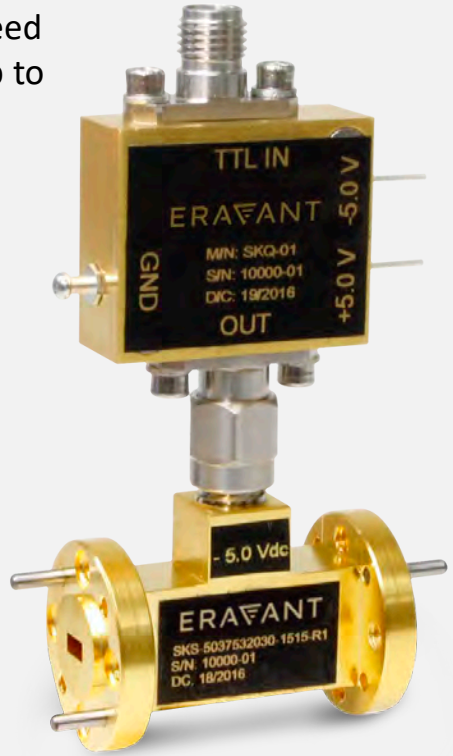


SPST PIN SWITCH

SKS-5037533030-1515-R1
50 to 75 GHz

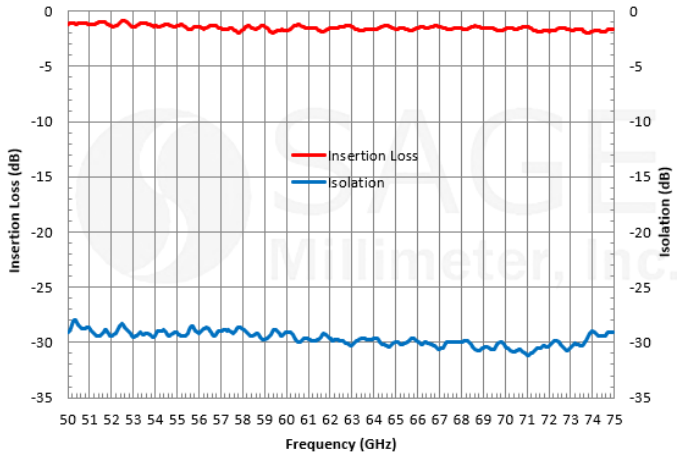
Features:

- 50 to 75 GHz
- 30 dB Control Range
- 100 ns Switching Speed
- SKS Family Covers up to 110 GHz



Parameter	Minimum	Typical	Maximum
Frequency	50 GHz		75 GHz
Insertion Loss		2.0 dB	3.0 dB
Isolation	25 dB	30 dB	
Power Handling		+20 dBm	+23 dBm
Bias Voltage		±5 V_{DC}	
Bias Current		10 mA	
Control Signal		TTL	
Switching Speed		100 ns	
Specification Temperature		+25 °C	
Operating Temperature	-25 °C		+65 °C

Typical Insertion Loss and Isolation vs. Frequency



SPST PIN SWITCH

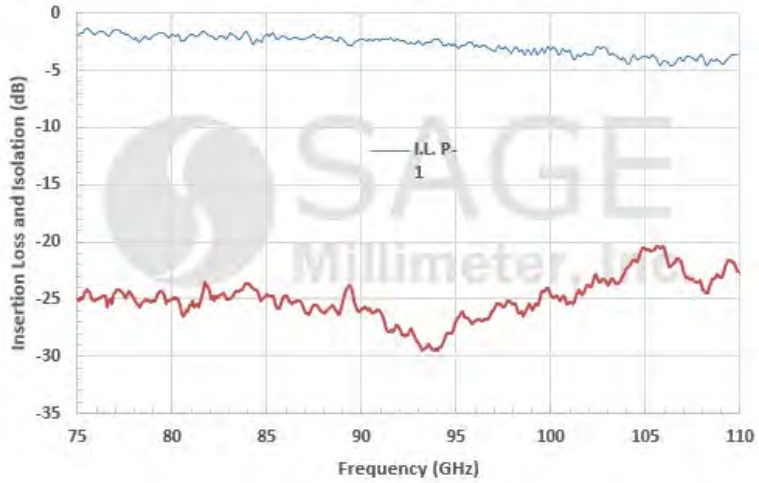
SKS-7531142520-1010-R1
75 to 110 GHz

Features:

- 75 to 110 GHz
- 25 dB Control Range
- 100 ns Switching Speed
- SKS Family Covers up to 110 GHz

Parameter	Minimum	Typical	Maximum
RF Frequency	75 GHz		110 GHz
Insertion Loss		2.5 dB	
Isolation		15 dB	
Power Handling		+20 dBm	+23 dBm
Bias Voltage		±5 V_{DC}	
Bias Current		10 mA	
Control Signal		TTL	
Switching Speed		100 ns	
Specification Temperature		+25 °C	
Operating Temperature	-40 °C		+85 °C

Typical Insertion Loss and Isolation vs. Frequency



SPDT PIN SWITCH

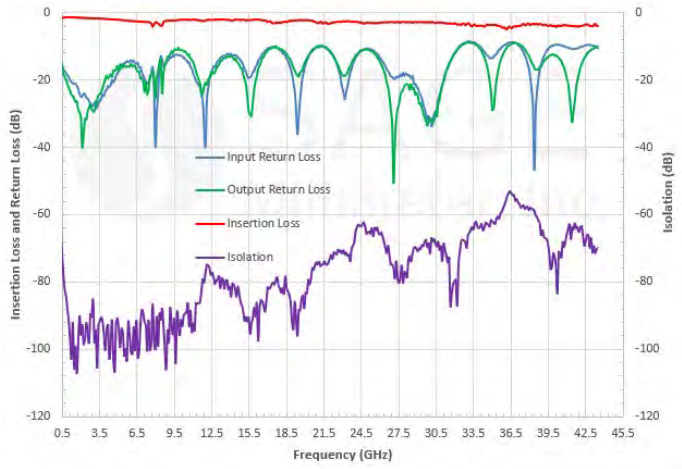
SKD-0524334560-KFKF-A3
75 to 110 GHz

Features:

- 0.5 to 43 GHz
- 60 dB Control Range
- 100 ns Switching Speed
- SKD Family Covers up to 110 GHz

Parameter	Minimum	Typical	Maximum
Frequency	0.5 GHz		43.0 GHz
Insertion Loss		4.5 dB	
Return Loss		10 dB	
Isolation		60 dB	
Operational RF Input Power			+20 dBm
Damage RF Input Power			+27 dBm
Bias Voltage		±5 V_{DC}	
Bias Current		100/50 mA	
Control		TTL	
Switching Speed		100 ns	
Specification Temperature		+25 °C	
Operation Temperature	-45 °C		+85 °C

Typical Performance vs. Frequency

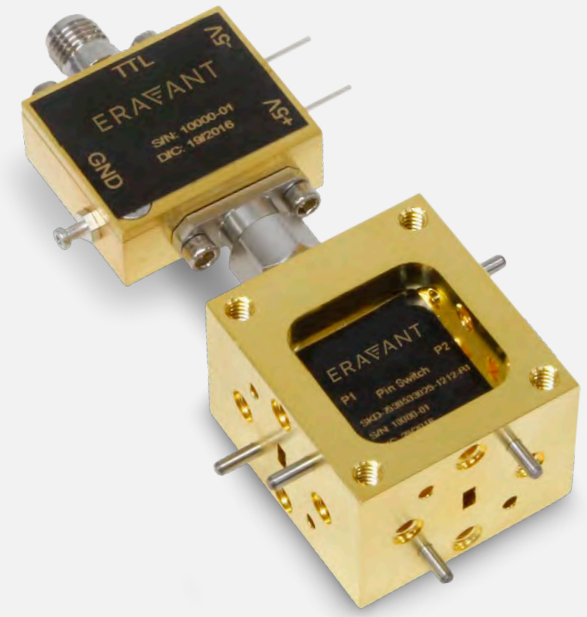


SPDT PIN SWITCH

SKD-6039033025-1212-R1-N
60 to 90 GHz

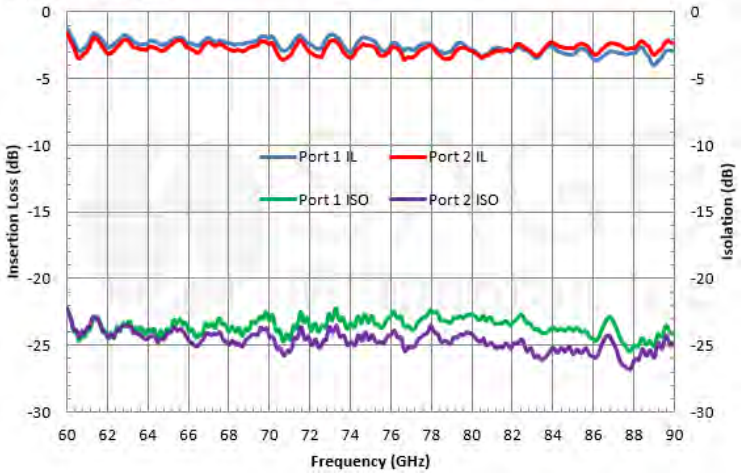
Features:

- 60 to 90 GHz
- 25 dB Control Range
- 100 ns Switching Speed
- SKD Family Covers up to 110 GHz



Parameter	Minimum	Typical	Maximum
Frequency	60 GHz		90 GHz
Insertion Loss		3.0 dB	
Isolation		25 dB	
Power Handling		+20 dBm	+23 dBm
Bias Voltage		±5 V_{DC}	
Bias Current		10 mA	
Switching Speed		100 ns	
Specification Temperature		+25 ˚C	
Operating Temperature	-25 ˚C		+65 ˚C

Typical Insertion Loss and Isolation vs Frequency
Input Power +/- 5 Vdc



SPDT PIN SWITCH

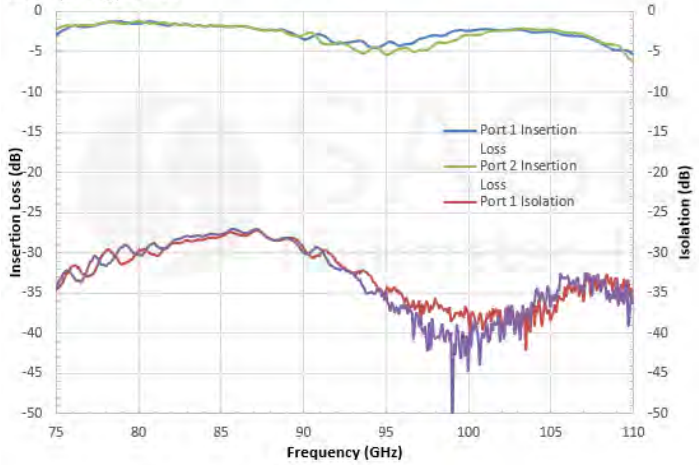
SKD-7531143530-1010-R1-M
75 to 110 GHz

Features:

- 75 to 110 GHz
- 30 dB Control Range
- 100 ns Switching Speed
- SKD Family Covers up to 110 GHz

Parameter	Minimum	Typical	Maximum
Frequency	75 GHz		110 GHz
Insertion Loss		3.5 dB	
Isolation	25 dB	30 dB	
Maximum Input Power			+30 dBm
Control Signal		TTL	
Switching Speed		100 ns	
Bias Voltage		±5 V_{DC}	
Bias Current		10 mA	
Specification Temperature		+25˚C	
Operating Temperature	0˚C		+50˚C

Typical Performance vs. Frequency
Bias: +/-5 V_{DC}/12 mA

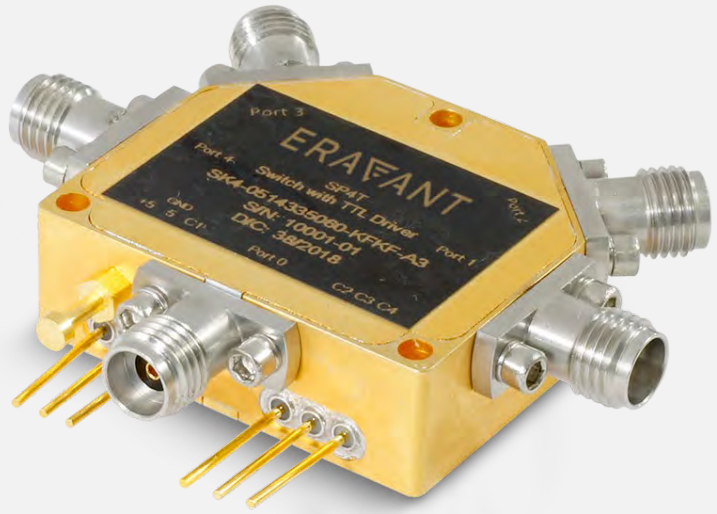


SP4T PIN SWITCH

SK4-0524335060-KFKF-A3
0.5 to 43 GHz

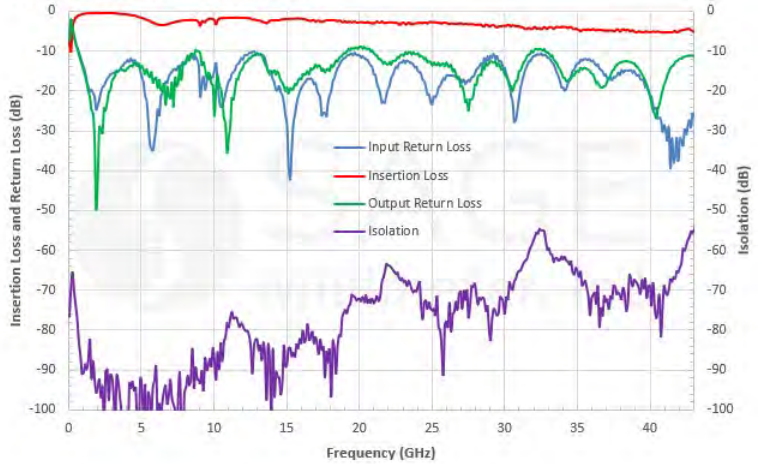
Features:

- 0.5 to 43 GHz
- 60 dB Control Range
- 100 ns Switching Speed
- SK4 Family Covers up to 110 GHz



Parameter	Minimum	Typical	Maximum
Frequency	0.5 GHz		43 GHz
Insertion Loss		5.0 dB	
Return Loss		10 dB	
Isolation	45 dB	60 dB	
Operational RF Input Power			+20 dBm
Damage RF Input Power			+27 dBm
Bias Voltage		±5 V_{DC}	
Bias Current		100/50 mA	
Control		TTL	
Switching Speed		100 ns	
Specification Temperature		+25 °C	
Operation Temperature	0 °C		+50 °C

Typical Performance vs. Frequency

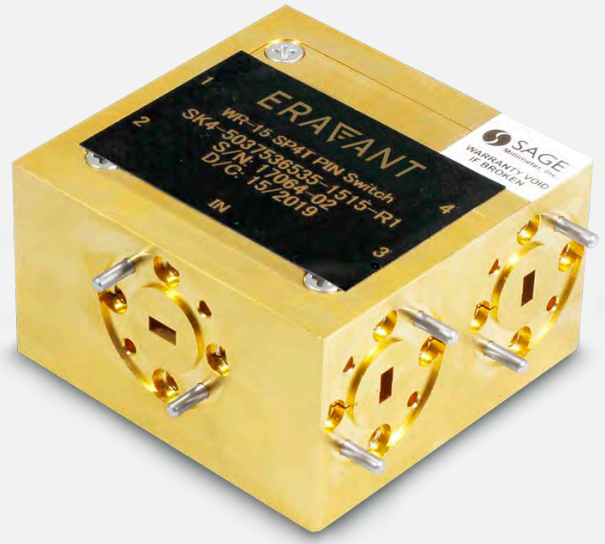


SP4T PIN SWITCH

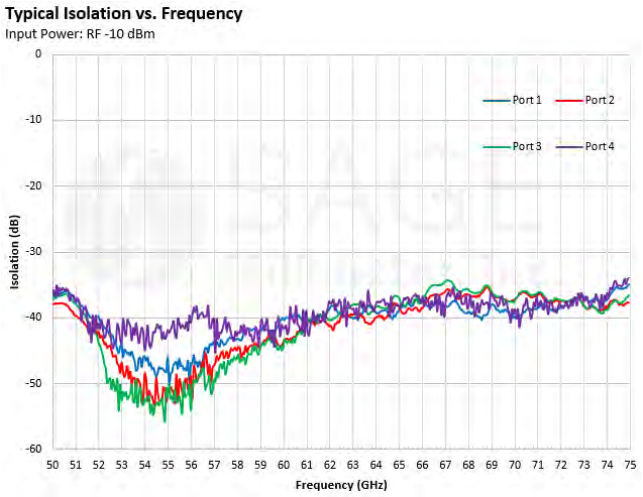
SK4-5037536535-1515-R1-M
50 to 75 GHz

Features:

- 50 to 75 GHz
- 35 dB Control Range
- 100 ns Switching Speed
- SK4 Family Covers up to 110 GHz



Parameter	Minimum	Typical	Maximum
Frequency	50 GHz		75 GHz
Insertion Loss		6.5 dB	
Return Loss		5 dB	
Isolation		35 dB	
Maximum Input RF Power		+20 dBm	+23 dBm
Bias Voltage		±5 V_{DC}	±6 V_{DC}
Bias Current		100 mA	
Control		TTL	
Switching Speed		100 nS	
Specification Temperature		+25 °C	
Operation Temperature	0 °C		+50 °C

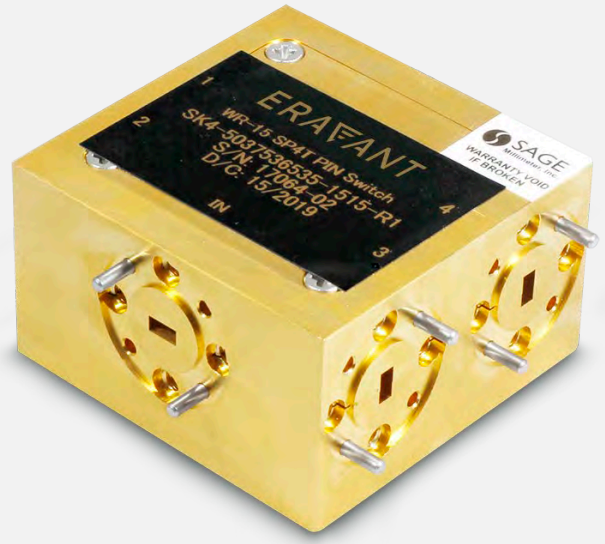


SP4T PIN SWITCH

SK4-6039038030-1212-R1-M
60 to 90 GHz

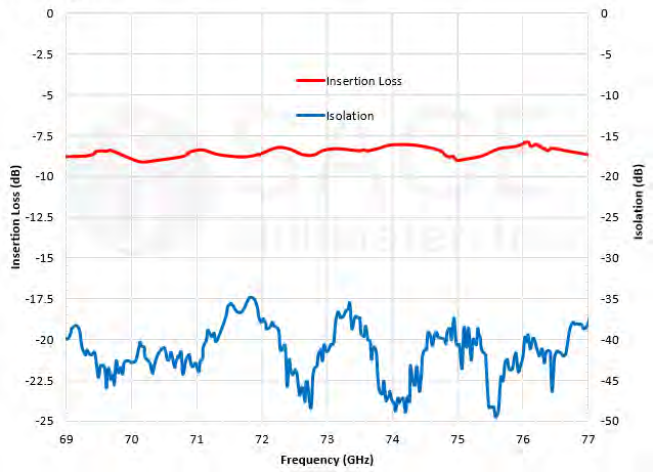
Features:

- 60 to 90 GHz
- 30 dB Control Range
- 100 ns Switching Speed
- SK4 Family Covers up to 110 GHz



Parameter	Minimum	Typical	Maximum
Frequency	60 GHz		90 GHz
Insertion Loss		8 dB	
Return Loss		10 dB	
Isolation		30 dB	
Maximum Input RF Power		+20 dBm	+23 dBm
Bias Voltage		±5 V_{DC}	
Bias Current		30 mA	
Control		TTL	
Switching Speed		100 nS	
Specification Temperature		+25 °C	
Operation Temperature	0 °C		+50 °C

Typical Insertion Loss and Isolation vs. Frequency
Bias: ±5 V_{DC}/30 mA

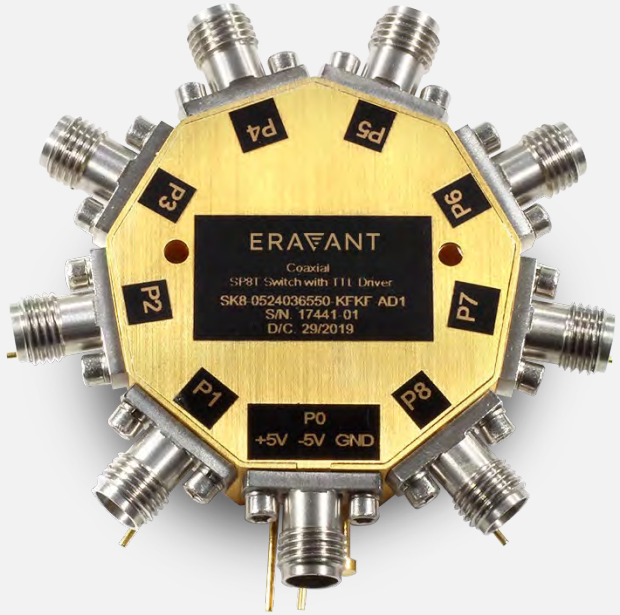


SP8T PIN SWITCH

SK8-0524036550-KFKF-AD1
0.5 to 40 GHz

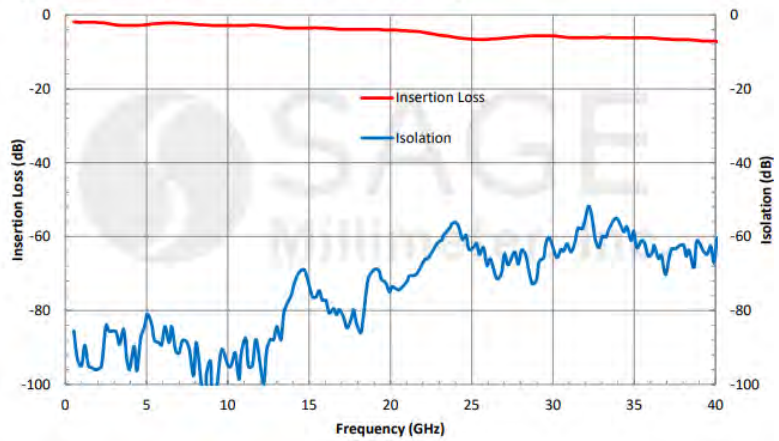
Features:

- 0.5 to 40 GHz
- 50 dB Control Range
- 50 ns Switching Speed
- SK8 Family Covers up to 110 GHz



Parameter	Minimum	Typical	Maximum
Frequency	0.5 GHz		40 GHz
Insertion Loss		6.5 dB	8.5 dB
Isolation	50 dB		
Return Loss		7 dB	6 dB
Input RF Power		+20 dBm	+23 dBm
Bias Voltage	-5 V_{DC}		+5 V_{DC}
Bias Current	30 mA		100 mA
Control		TTL	
Switching Speed		50 ns	
Switch Type		Absorptive	
Specification Temperature		+25 °C	
Operating Temperature	0 °C		+50 °C

Typical Insertion Loss and Isolation vs. Frequency



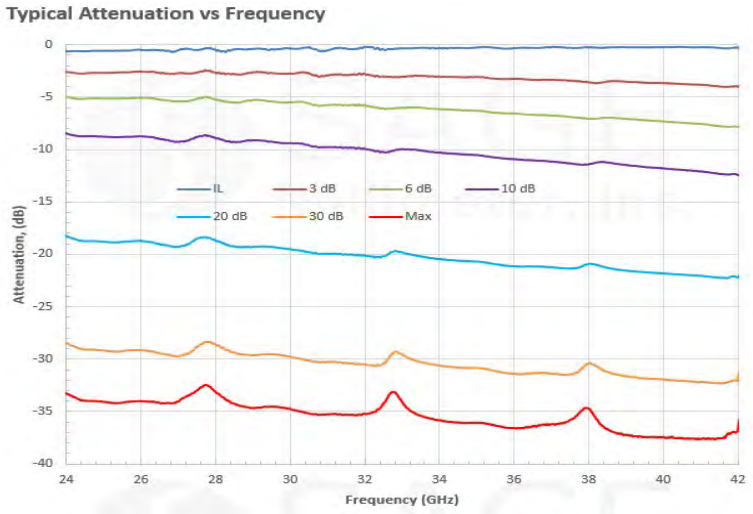
WAVEGUIDE LEVEL SETTING ATTENUATOR

STA-30-28-M1-L-3.0
26.5 to 40 GHz

Features:

- 26.5 to 40 GHz
- 30 dB Control Range
- Micrometer Driven
- Level Setting
- Level Setting Covers up to 330 GHz

Parameter	Minimum	Typical	Maximum
Frequency	24 GHz		42 GHz
Insertion Loss		0.4 dB	
Attenuation	25 dB	30 dB	
Return Loss		20 dB	
Power Handling		1 W	1.2 W
Specification Temperature		+25 ˚C	
Operating Temperature	-40 ˚C		+85 ˚C



WAVEGUIDE DIRECT READING ATTENUATOR

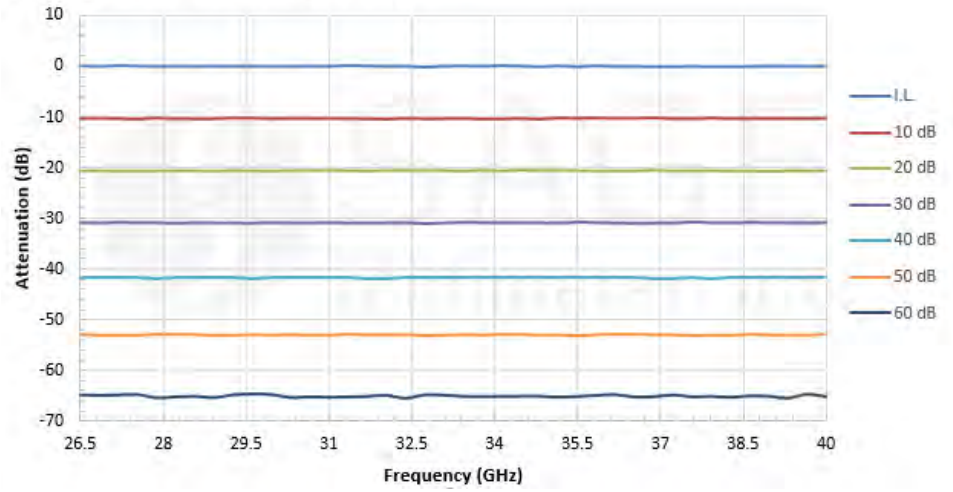
STA-60-28-D1
26.5 to 40 GHz

Features:

- 26.5 to 40 GHz
- 60 dB Control Range
- Dial Driven
- Accurate Setting and Direct Reading
- The Family Covers up to 330 GHz

Parameter	Minimum	Typical	Maximum
RF Frequency Range	26.5 GHz		40.0 GHz
Insertion Loss			0.5 dB
Attenuation Range	0 dB		60 dB
Attenuation Accuracy	0.1 dB or 3% of reading, whichever is larger, up to 40 dB		
VSWR			1.15:1
Power Handling		50 mW	100 mW

Typical Attenuation vs. Frequency



WAVEGUIDE PROGAMMABLE ATTENUATOR

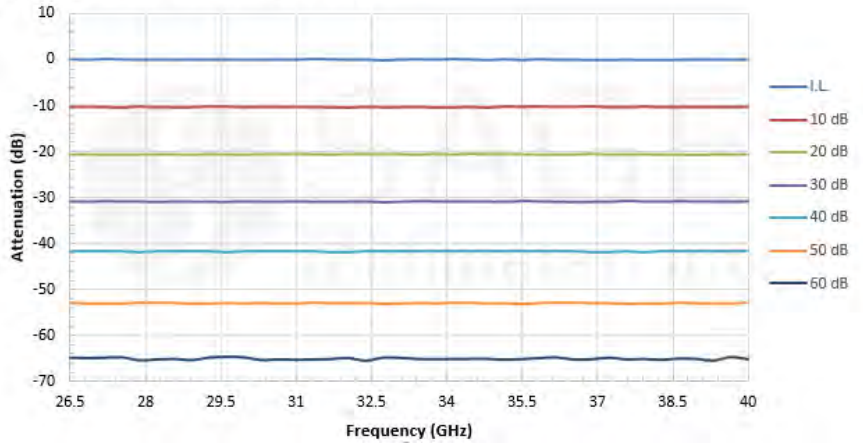
STA-60-28-P1
26.5 to 40 GHz

Features:

- 26.5 to 40 GHz
- 60 dB Control Range
- Dial Driven
- Accurate Setting and Direct Reading
- The Family Covers up to 330 GHz

Parameter	Minimum	Typical	Maximum
RF Frequency Range	26.5 GHz		40 GHz
Insertion Loss		0.5 dB	
Attenuation Range	0 dB		70 dB
Attenuation Accuracy	0.1 dB or 3% of reading, whichever is larger, up to 40 dB		
Attenuation Step Size	0.05 dB from 0 to 20 dB and 0.10 dB from 20 to 70 dB		
Control Resolution	0.01 dB from 0 to 70 dB		
Return Loss		22 dB	
Operating Voltage	+24 V_{DC} (100 to 240 V_{AC} Adapter is Supplied)		
Power Handling		1 W	2.5 W (CW)
Absolute Maximum Power			5.0 W (CW)
Specification Temperature		+25 ˚C	
Operating Temperature	0 ˚C		+50 ˚C

Typical Attenuation vs. Frequency



WAVEGUIDE MOTORIZED SWITCH

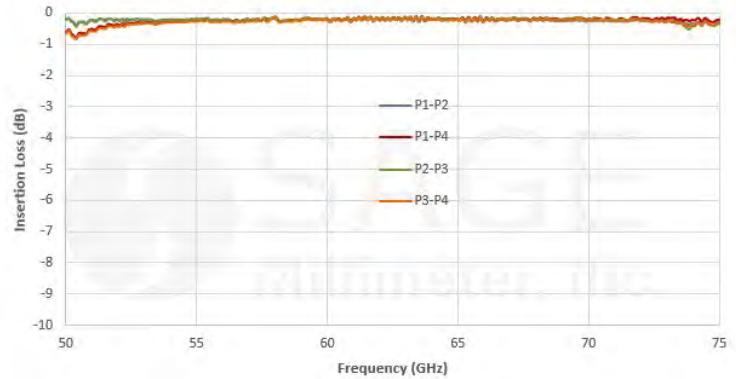
SWJ-15-TS
50 to 75 GHz

Features:

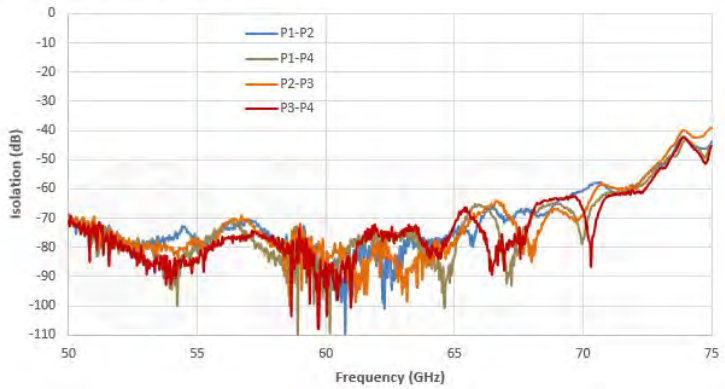
- 50 to 75 GHz
- 50 dB Control Range
- Motorized and Manual
- Low Insertion Loss and High Isolation
- The Family Covers up to 110 GHz

Parameter	Minimum	Typical	Maximum
Frequency	50 GHz		75 GHz
Insertion Loss		0.6 dB	
Isolation		50 dB	
Return Loss		20 dB	
Control Signal		TTL	
Switching Speed		125 ms	
Cycle Time	250,000	1,000,000	
Power Handling			100 W (CW)
Bias Voltage		+28 V_{DC}	
Bias Current		250 mA	
Specification Temperature		+25°C	
Operating Temperature	-25°C		+65°C

Typical Insertion Loss vs Frequency



Typical Isolation vs Frequency



FERRITE DEVICES

ERAVANT FERRITE DEVICES

The focus of this presentation section is to introduce the **Eravant** ferrite device product family by highlighting some representative models. There are about one-hundred standard models available to satisfy all 5G system applications. The ferrite device family includes the following types:

- Full Band Coaxial Isolator and Circulator
- Full Band Waveguide Junction Isolator and Circulator
- Waveguide Junction Isolator and Circulator
- Faraday Isolator

FULL WAVEGUIDE BAND COAXIAL ISOLATOR

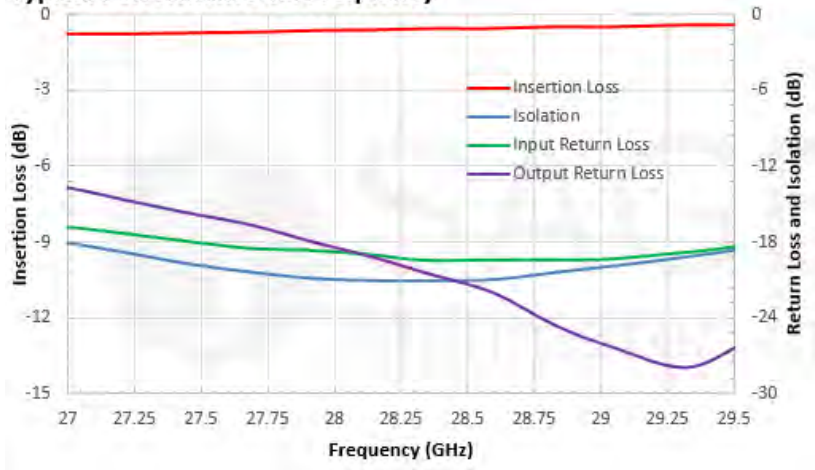
SNC-2734031614-KFKF-I7
26.5 to 40 GHz

Features:

- 26.5 to 40 GHz
- Full Waveguide Bandwidth Coverage
- 18 to 26.5 GHz and 22 to 33 GHz Models
- Total 8 Models to Support 5G Bands

Parameter	Minimum	Typical	Maximum
RF Frequency	27 GHz		29.5 GHz
Insertion Loss		1.6 dB	
Isolation		14 dB	
Return Loss		12 dB	
Forward Power Handling			10 W (CW)
Reverse Power Handling			1 W (CW)
Impedance		50 Ω	
Specification Temperature		+25 ˚C	
Operating Temperature	-40 ˚C		+80 ˚C

Typical Performance vs. Frequency



FULL WAVEGUIDE BAND COAXIAL CIRCULATOR

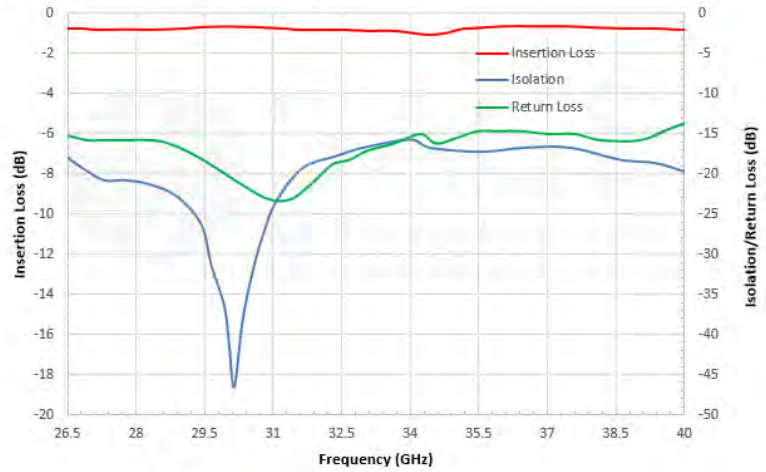
SNC-2734031614-KFKFKF-C7
26.5 to 40 GHz

Features:

- 26.5 to 40 GHz
- Full Waveguide Bandwidth Coverage
- 18 to 26.5 GHz and 22 to 33 GHz Models
- Total 8 Models to Support 5G Bands

Parameter	Minimum	Typical	Maximum
Frequency	26.5 GHz		40 GHz
Insertion Loss		1.6 dB	
Isolation		14 dB	
Return Loss		13 dB	
Impedance		50 Ω	
Power Handling			10 W (CW)
Specification Temperature		+25 ˚C	
Operating Temperature	-40 ˚C		+80 ˚C

Typical Performance vs. Frequency



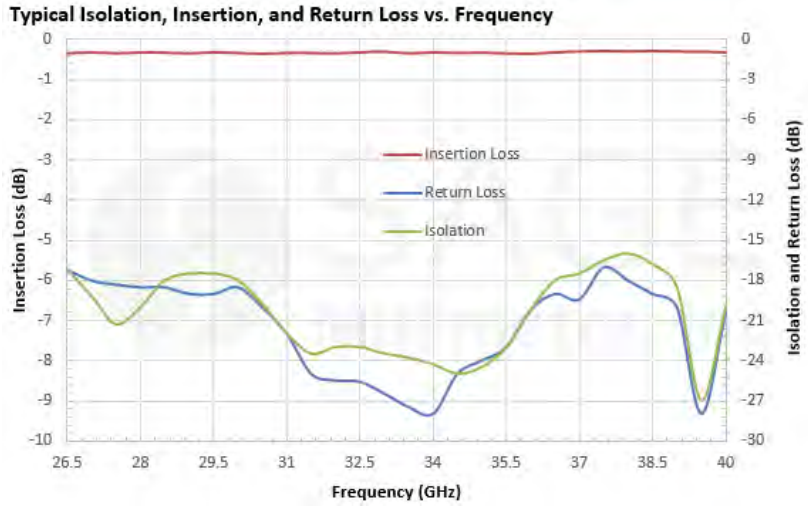
FULL WAVEGUIDE JUNCTION CIRCULATOR

SNF-28-C5
26.5 to 40 GHz

Features:

- 26.5 to 40 GHz
- Full Waveguide Bandwidth Coverage
- 18 to 26.5 GHz and 22 to 33 GHz Models
- Total 6 Models to Support 5G Bands

Parameter	Minimum	Typical	Maximum
RF Frequency	26.5 GHz		40 GHz
Insertion Loss		0.4 dB	0.7 dB
Isolation*		15 dB	
Return Loss		15 dB	
Forward Power Handling			20 W (CW)
Specification Temperature		+25 ˚C	
Operating Temperature	-40 ˚C		+80 ˚C



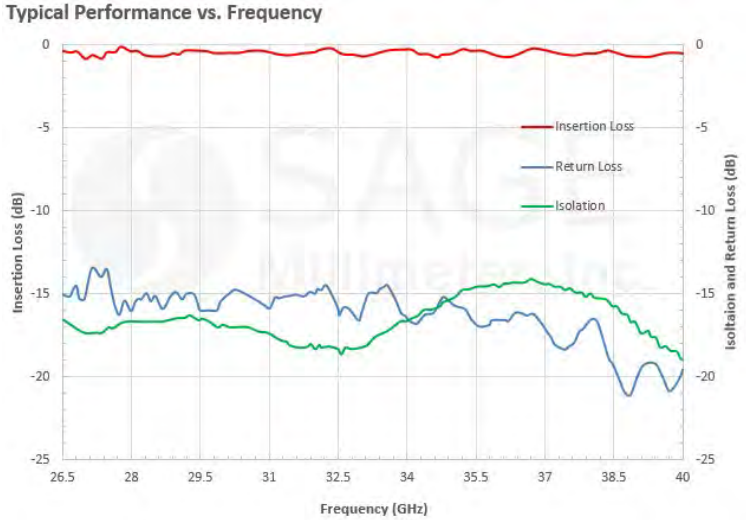
FULL WAVEGUIDE JUNCTION ISOLATOR

SNF-28-I5
26.5 to 40 GHz

Features:

- 26.5 to 40 GHz
- Full Waveguide Bandwidth Coverage
- 18 to 26.5 GHz and 22 to 33 GHz Models
- Total 6 Models to Support 5G Bands

Parameter	Minimum	Typical	Maximum
RF Frequency	26.5 GHz		40.0 GHz
Insertion Loss		0.50 dB	0.80 dB
Isolation		17 dB	
Return Loss		15 dB	
Forward Power Handling			25 W (CW)
Reverse Power Handling			10 W (CW)
Specification Temperature		+25 ˚C	
Operating Temperature	-40 ˚C		+85 ˚C



WAVEGUIDE JUNCTION ISOLATOR

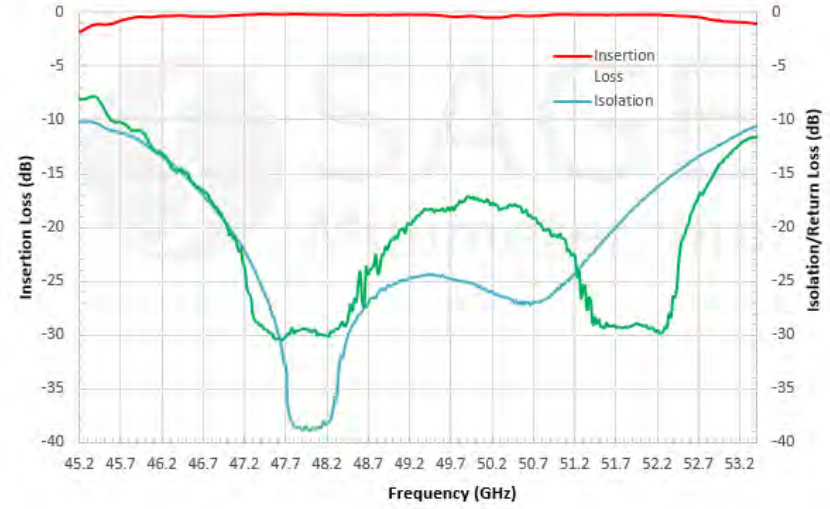
SNW-4735130518-22-CJ
47 to 51 GHz

Features:

- 47 to 51 GHz
- Broad Bandwidth Coverage
- 71 to 76 and 81 to 86 GHz Models
- 40+ Models to Support 5G Bands

Parameter	Minimum	Typical	Maximum
Frequency	47.2 GHz		51.4 GHz
Insertion Loss		0.5 dB	
Isolation		18 dB	
Return Loss		19 dB	
Forward Power Handling		5 W (CW)	
Reverse Power Handling		1 W (CW)	
Specification Temperature		+25 °C	
Operating Temperature	-40 °C		+85 °C

Typical Performance vs. Frequency



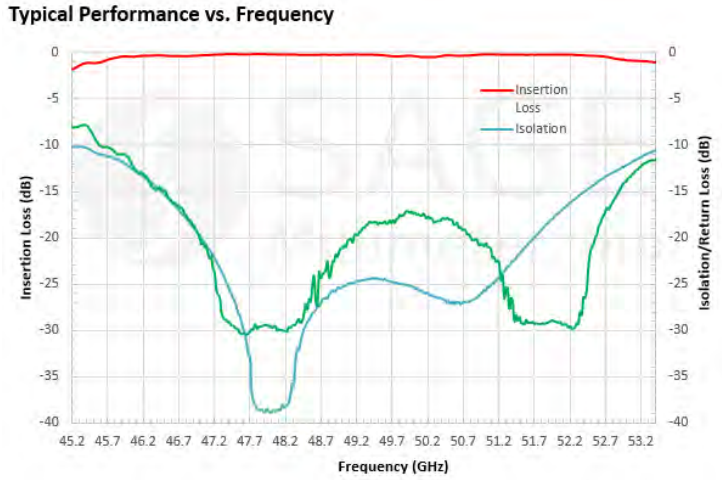
WAVEGUIDE JUNCTION ISOLATOR

SNW-4735130518-22-IJ
47 to 51.4 GHz

Features:

- 47 to 51.4 GHz
- Broad Bandwidth Coverage
- 71 to 76 and 81 to 86 GHz Models
- 40+ Models to Support 5G Bands

Parameter	Minimum	Typical	Maximum
Frequency	47.2 GHz		51.4 GHz
Insertion Loss		0.5 dB	
Isolation		18 dB	
Return Loss		19 dB	
Forward Power Handling		5 W (CW)	
Reverse Power Handling		1 W (CW)	
Specification Temperature		+25 °C	
Operating Temperature	-40 °C		+85 °C



WAVEGUIDE JUNCTION CIRCULATOR

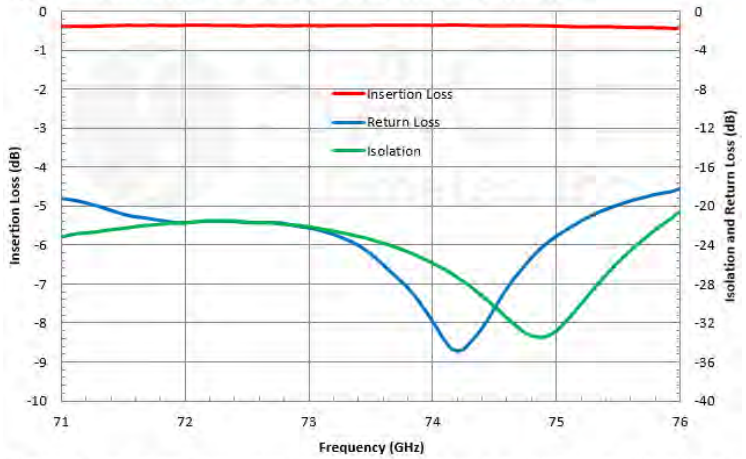
SNW-7137630818-12-C1
71 to 76 GHz

Features:

- 71 to 76 GHz
- Broad Bandwidth Coverage
- 81 to 86 and 76 to 81 GHz Models
- 40+ Models to Support 5G Bands

Parameter	Minimum	Typical	Maximum
Frequency	71 GHz		76 GHz
Insertion Loss		0.8 dB	
Isolation		18 dB	
Return Loss		16 dB	
Power Handling			3 W (CW)
Specification Temperature		+25 °C	
Operating Temperature	-40 °C		+85 °C

Typical Insertion Loss, Isolation and Return Loss vs. Frequency



Note: The insertion loss, isolation and return loss between other ports, such as port 2 to port 3, port 3 to port 1 are similar to above given plots.

WAVEGUIDE JUNCTION CIRCULATOR

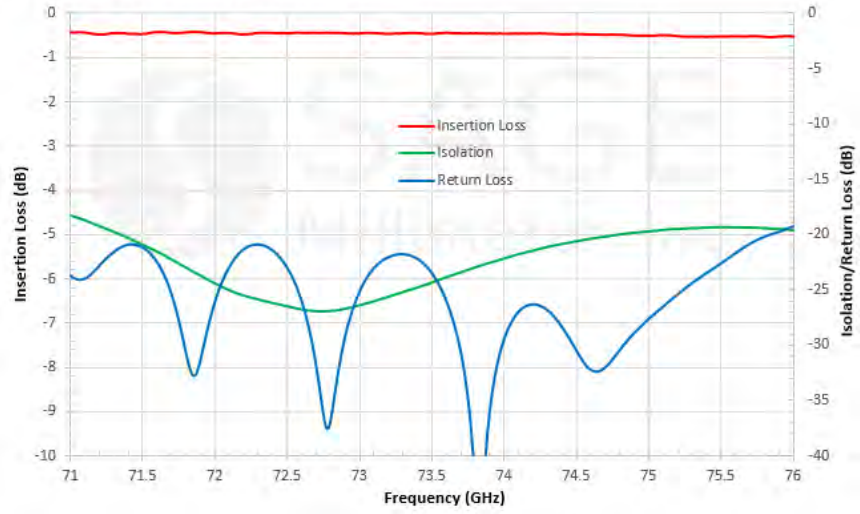
SNW-7137630818-12-I1
71 to 76 GHz

Features:

- 71 to 76 GHz
- Broad Bandwidth Coverage
- 81 to 86 and 76 to 81 GHz Models
- 40+ Models to Support 5G Bands

Parameter	Minimum	Typical	Maximum
Frequency	71 GHz		76 GHz
Insertion Loss		0.8 dB	
Isolation		18 dB	
Return Loss		16 dB	
Forward Power Handling			3 W (CW)
Reverse Power Handling			1 W (CW)
Specification Temperature		+25 °C	
Operating Temperature	-40 °C		+85 °C

Typical Performance vs. Frequency



FARADAY ISOLATOR

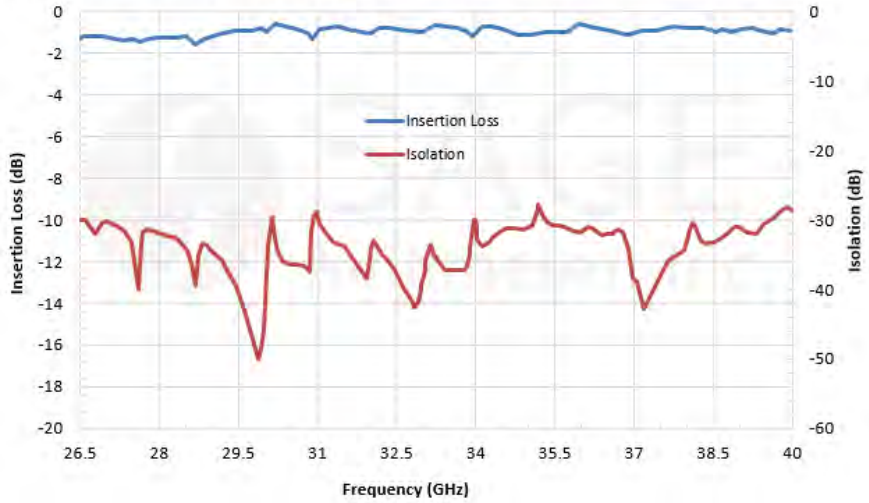
STF-28-S1
26.5 to 40 GHz

Features:

- 26.5 to 40 GHz
- Full Waveguide Bandwidth
- 30 dB Isolation
- 18 to 220 GHz Coverage
- 40+ Models to Support 5G Bands

Parameter	Minimum	Typical	Maximum
RF Frequency*	26.5 GHz		40 GHz
Insertion Loss		1.2 dB	2.0 dB
Isolation		30 dB	
Return Loss		14 dB	
Power Handling		1.8 W (CW)	2.0 W (CW)
Specification Temperature		+25 ˚C	
Operating Temperature	-40 ˚C		+85 ˚C

Typical Performance vs. Frequency



FARADAY ISOLATOR

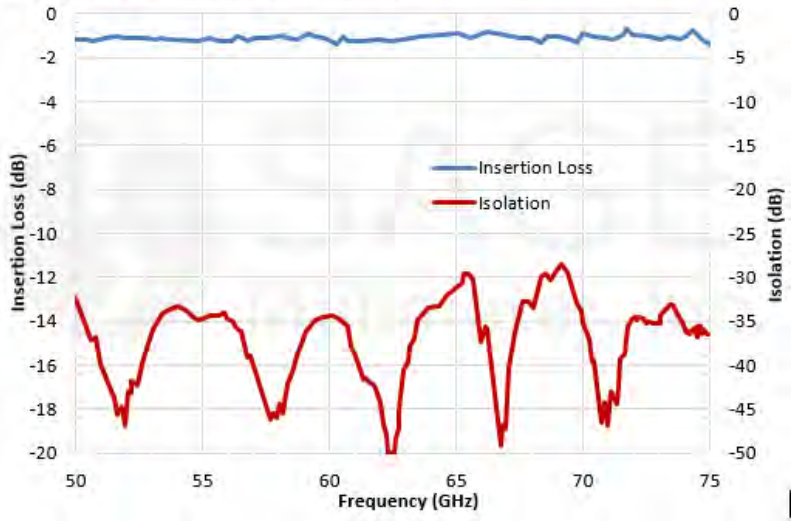
STF-15-S1
50 to 75 GHz

Features:

- 50 to 75 GHz
- Full Waveguide Bandwidth
- 30 dB Isolation
- 18 to 220 GHz Coverage
- 40+ Models to Support 5G Bands

Parameter	Minimum	Typical	Maximum
RF Frequency	50 GHz		75 GHz
Insertion Loss		1.5 dB	1.8 dB
Isolation		28 dB	
Return Loss		16 dB	
Power Handling		1.0 W (CW)	1.2 W (CW)
Specification Temperature		+25 °C	
Operation Temperature	-40 °C		+85 °C

Typical Performance vs. Frequency



FARADAY ISOLATOR, COMPACT

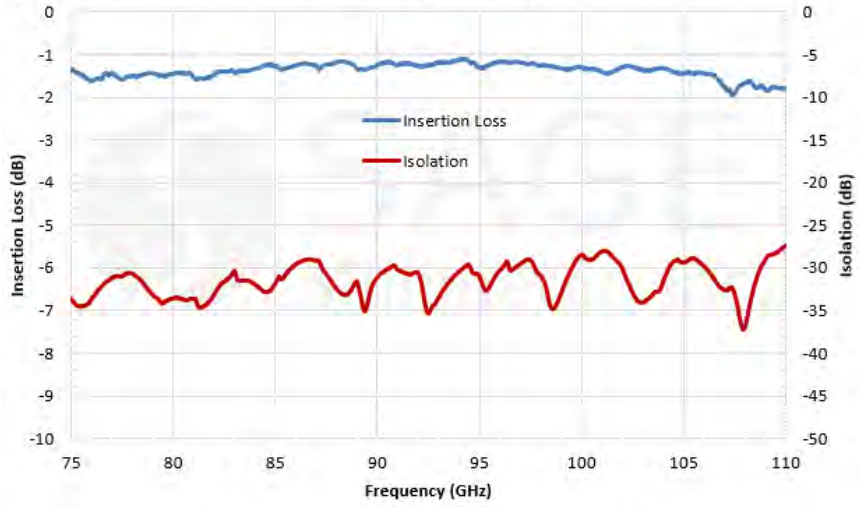
STF-10-S1-C
75 to 110 GHz

Features:

- 75 to 110 GHz
- Full Waveguide Bandwidth
- 30 dB Isolation
- Compact Design
- 18 to 220 GHz Coverage
- 40+ Models to Support 5G Bands

Parameter	Minimum	Typical	Maximum
RF Frequency	75 GHz		110 GHz
Insertion Loss		1.5 dB	2.2 dB
Isolation		28 dB	
Return Loss		15 dB	
Power Handling		1.0 W (CW)	1.2 W (CW)
Specification Temperature		+25 °C	
Operation Temperature	-40 °C		+85 °C

Typical Insertion Loss and Isolation vs. Frequency



OSCILLATORS

ERAVANT OSCILLATORS

The focus of this presentation section is to introduce the **Eravant** oscillator product family by highlighting some representative models. There are several hundred standard models available to satisfy all 5G system applications. The oscillator family includes the following types:

- Dielectric Resonator Oscillator
- Mechanical Tuned Gunn Oscillator
- Bias Tuned Gunn Oscillator
- Varactor Tuned Gunn Oscillator
- Phase Locked Oscillator
- Frequency Synthesizer
- Voltage Tuned Free Running Oscillator

DIELECTRIC RESONATOR OSCILLATOR

SOD-37301213-22-S1
37 GHz

Features:

- 37 GHz
- Mechanical Tunable
- 1 to 40 GHz Coverage
- 50+ Models to Support 5G Bands

Parameter	Minimum	Typical	Maximum
Center Frequency		37 GHz	
Power Output		+13 dBm	
Mechanical Tuning Range		±50 MHz	
Frequency Stability			±4 ppm
Phase Noise @ 100 kHz Offset		-95 dBc/Hz	
Spurious			-75 dBc
Harmonics			-25 dBc
Bias Voltage	+6 V_{DC}	+8 V_{DC}	+12 V_{DC}
Bias Current		500 mA	
Specification Temperature		+25 ˚C	
Operating Temperature	0 ˚C		+50 ˚C

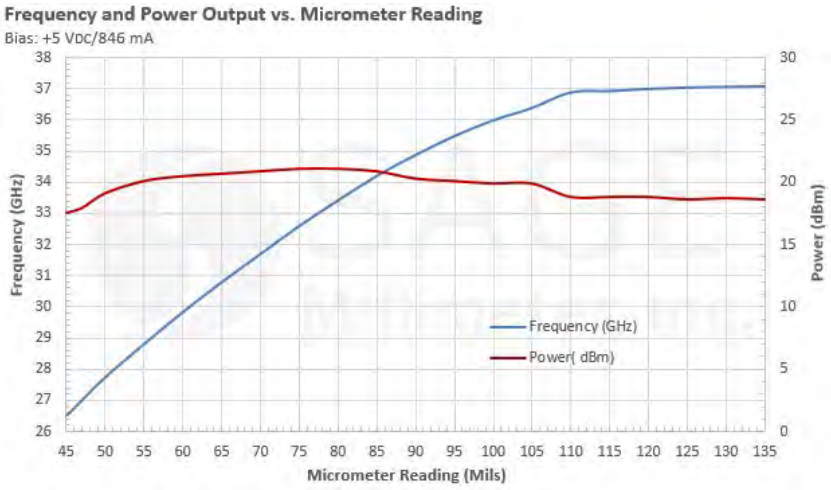
MECHANICALLY TUNED GUNN OSCILLATOR

SOF-2820-M1
28 to 38 GHz

Features:

- 28 to 38 GHz
- Low AM/FM Noise and Harmonics
- Mechanical Tunable
- 50+ Models to Support 5G Bands

Parameter	Minimum	Typical	Maximum
Center Frequency	28 GHz	32 GHz	38 GHz
Mechanical Tuning Range		±5 GHz	
Output Power		+18 dBm	
Bias Voltage		+5.0 V_{DC}	+5.5 V_{DC}
Bias Current		850 mA	
Specification Temperature		+25°C	
Case Temperature	0°C		+50°C

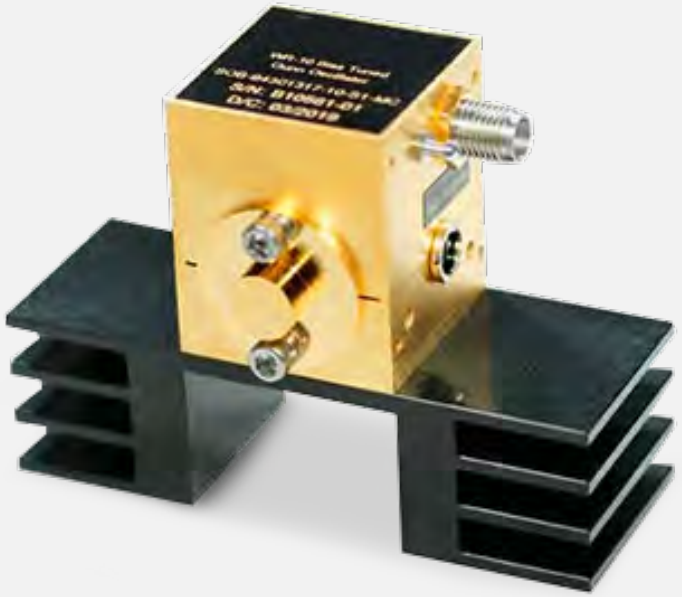


BIAS TUNED GUNN OSCILLATOR

SOB-94301317-10-S1
94 GHz

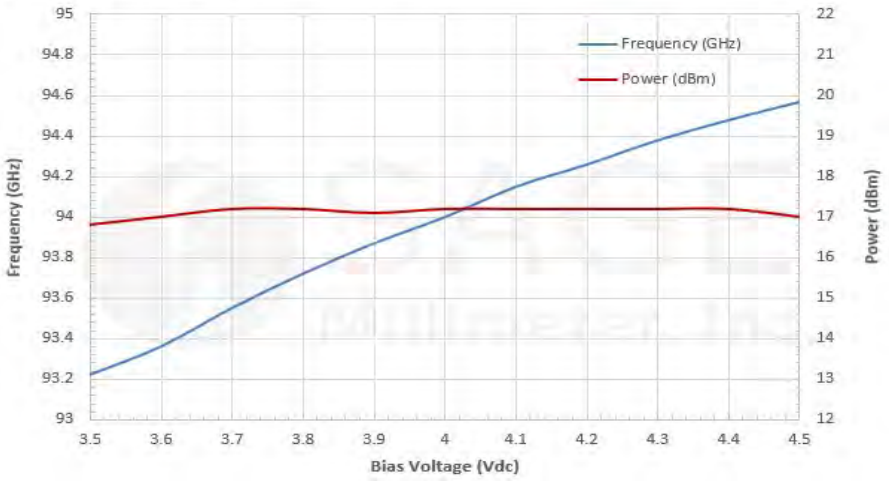
Features:

- 94 GHz
- Low AM/FM Noise and Harmonics
- Mechanical Tunable
- 10+ Models to Support 5G Bands



Parameter	Minimum	Typical	Maximum
Center Frequency	93.5 GHz	94 GHz	94.5 GHz
Power Output		+17 dBm	
Mechanical Tuning Range		±100 MHz	
Bias Tuning Range (+3.5 to +4.5 V_{DC})		±500 MHz	
Bias Voltage	+3.5 V_{DC}	+4.0 V_{DC}	+4.5 V_{DC}
Bias Tuning Speed		100 µS	
Bias Current		750 mA	
Specification Temperature		+25 ˚C	
Operating Temperature	0 ˚C		+50 ˚C

Typical Frequency and Power Output vs. Bias Voltage
Bias: +3.5 to +4.5 Vdc/740 mA



VARACTOR GUNN OSCILLATOR

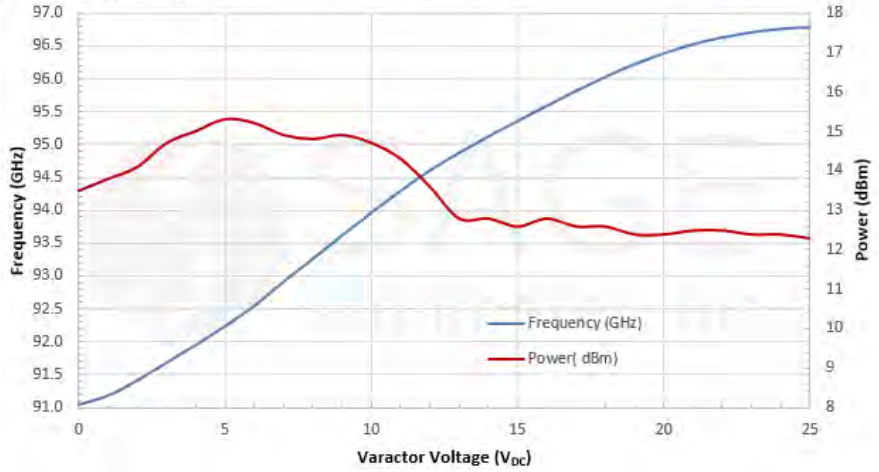
SOV-94306310-10-G1
94 GHz

Features:

- 94 GHz
- Low AM/FM Noise and Harmonics
- Mechanical Tunable
- 25+ Models to Support 5G Bands

Parameter	Minimum	Typical	Maximum
Center Frequency	91.25 GHz	94.00 GHz	95.75 GHz
Power Output	+10 dBm	+13 dBm	
Mechanical Tuning Range		±100 MHz	
Varactor Tuning Range		±3.0 GHz	
Bias Voltage		+5.0 V_{DC}	+5.5 V_{DC}
Bias Current		780 mA	
Varactor Tuning Voltage Range	0 V_{DC}		+30 V_{DC}
Specification Temperature		+25˚C	
Operating Temperature	+0˚C		+50˚C

Frequency and Power Output vs. Bias Voltage
Bias: +5.0 V_{DC}/760 mA

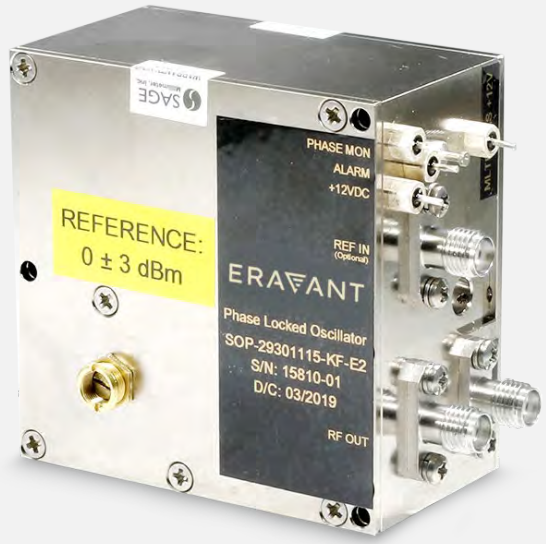


PHASE LOCKED OSCILLATOR

SOP-28310115-KF-I1
28 GHz

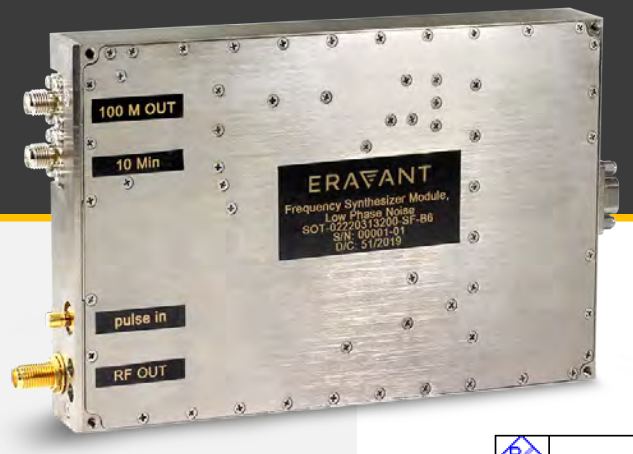
Features:

- 28 GHz
- Low Phase Noise
- Internal/External Referenced
- 50+ Models to Support 5G Bands



Parameter	Minimum	Typical	Maximum
Frequency		28 GHz	
Output Power		+15 dBm	
Phase Noise (Internally Referenced) @ 10 kHz		-100 dBc/Hz	
Harmonics		-25 dBc	
Spurious		-75 dBc	
DC Voltage Supply		+12 Vdc/450 mA	
Phase Lock Indicator (Lock)		TTL High	
Frequency Stability (Internally Referenced)		±5 ppm	
Specification Temperature		+25 ˚C	
Operating Temperature	0 ˚C		+50 ˚C

FREQUENCY SYNTHESIZER



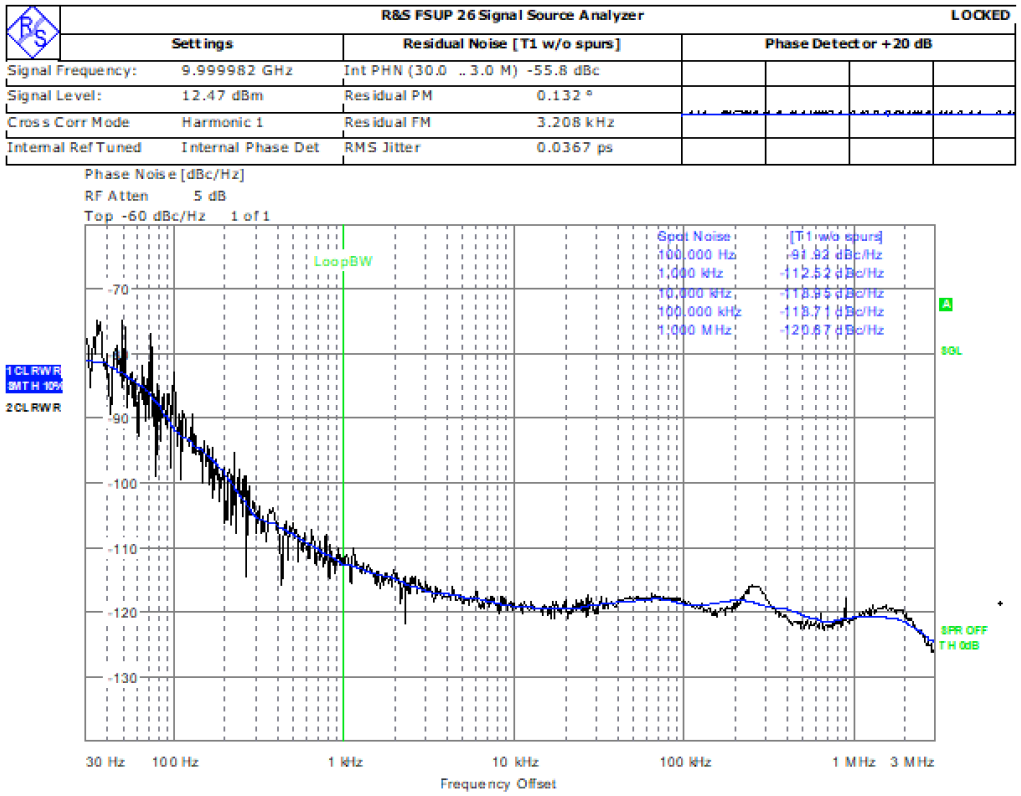
SOT-02220313200-SF-B6

200 MHz to 20 GHz

Features:

- 200 MHz to 20 GHz
- Low Phase Noise
- Fast Switching Time
- 3 Models to Support 5G Bands

Parameter	Minimum	Typical	Maximum
Output Frequency Range	0.2 GHz		20.0 GHz
Step Size		0.1 Hz	
Output Power*	-20 to +13 dBm (Controllable by Command)		
Output Power Flatness	±2.5 dBm		
Frequency Stability	±0.2 ppm or Same as External Reference		
Frequency Accuracy	±0.2 ppm or Same as External Reference		
Output Spurious		-70 dBc	-65 dBc
Output Harmonics	≤-30 dBc/0.2-12 GHz and ≤-20 dBc/12-20 GHz @ +5 dBm P_{out}		
External Reference	10 MHz/ +5 dBm ± 3 dBm		
Lock Indicator	TTL High		
Phase Noise (Internal)** RF Frequency at 20 GHz	≤-101 dBc/Hz @ 1 kHz; ≤-110 dBc/Hz @ 10 kHz ≤-110 dBc/Hz @ 100 kHz; ≤-115 dBc/Hz @ 1,000 kHz		
Frequency Switching Time	≤200 µS (Excludes the Series Port Communication Time)		
Control Interface	SPI		
Pulse Modulation Depth	≥60 dBc @ Output Power + 10 dBm		
Pulse Modulation Pulse Width	0.1 mS	5 mS	10 mS
Pulse Modulation Time	≤30 nS Raise/50 nS Fall		
Supply Voltage/Current		+12 V_{DC}/1,600 mA	
Specification Temperature		+25 °C	
Operating Temperature	-40 °C		+70 °C



VOLTAGE TUNED OSCILLATOR

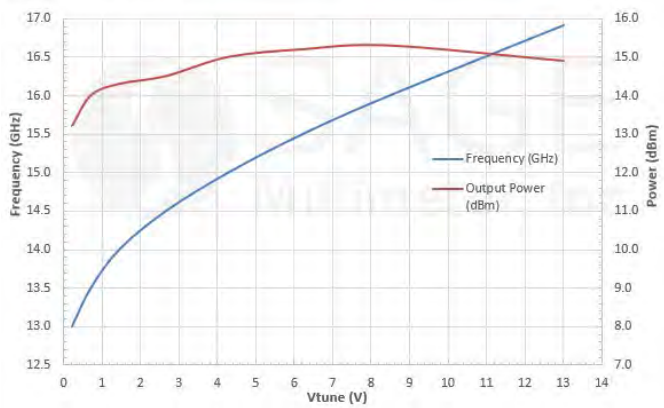
SOW-15303315-SM-S1-H
13 to 17 GHz

Features:

- 13 to 17 GHz
- Broad Tuning Bandwidth
- Good Power Flatness
- 4 Models to Support 5G Bands

Parameter	Minimum	Typical	Maximum
Frequency Range	13 GHz		16.5 GHz
Power Output		+15 dBm	
Frequency Tuning Range		±1.75 GHz	
Harmonics and Sub-harmonics		-18 dBc	
Phase Noise	-85 dBc/Hz @ 100 kHz Offset		
VCO Bias Voltage	+7.0 V_{DC}	+8.0 V_{DC}	+9.0 V_{DC}
Bias Current		200 mA	
Heater Bias		+15 Vdc/100 mA	+15 Vdc/700 mA
Tuning Voltage Range	+0.2 V_{DC}		+13 V_{DC}
Temperature Stability w/ heater		0.3 MHz/°C	
Specification Temperature		+25 °C	
Operating Temperature	0 °C		+50 °C

Output Frequency and Power vs. Tuning Voltage
Bias: +8V/200mA, Heater: +15V



RECEIVER, TRANSMITTER, TRANSCEIVER, MODULES

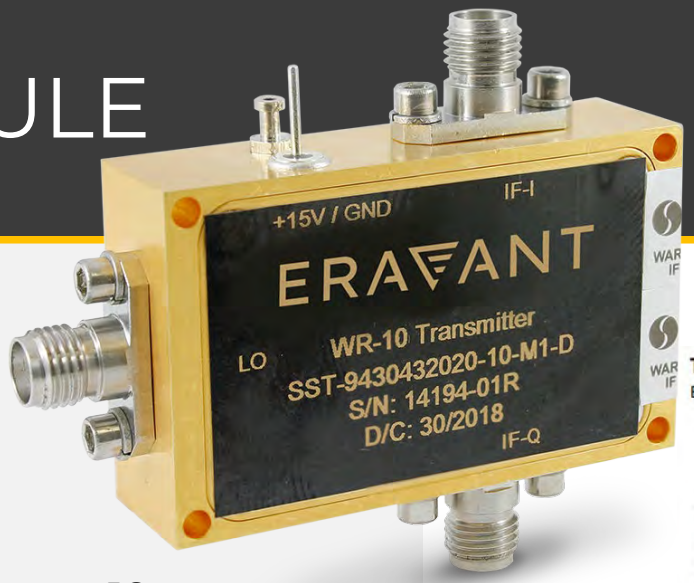
RECEIVER, TRANSMITTER, TRANSCEIVER, MODULES

The focus of this presentation section is to introduce the **Eravant** integrated module product family by highlighting some representative models. There are many standard models available to satisfy all 5G system applications. The integrated module family includes the following types, which can be found here. Custom modules are available upon request.

- Receiver Module
- Transmitter Module
- Transceiver Module

RECEIVER MODULE

SSR-9430434030-10-M1-D
92 to 96 GHz

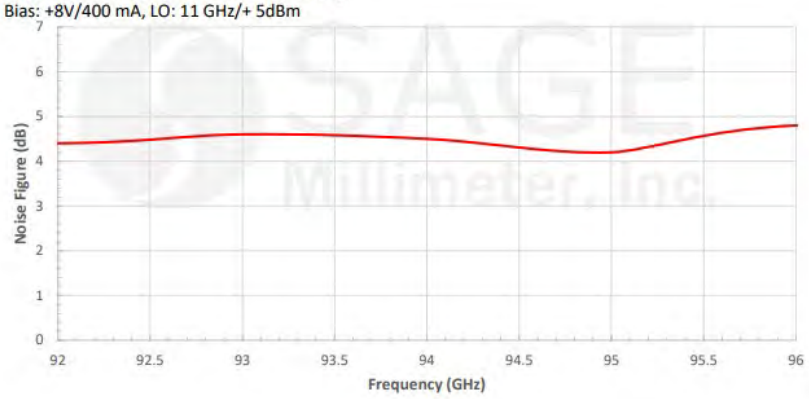


Features:

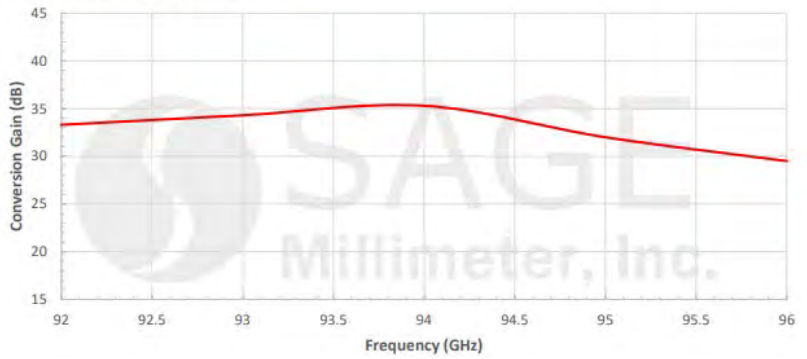
- 92 to 96 GHz
- Compact Size
- Fully Integrated
- More than 20 Models to Support 5G

Parameter	Minimum	Typical	Maximum
RF Input Frequency	92 GHz		96 GHz
RF Input Power		-60 dBm	-24 dBm
Noise Figure		4 dB	
IF Output Frequency	4 GHz		8 GHz
I/Q Phase Unbalance		±15°	
I/Q Amplitude Unbalance		±1.0 dB	
RF to IF Conversion Gain		30 dB	
LO Frequency		11 GHz	
LO Input Power	0 dBm	+5 dBm	+10 dBm
DC Voltage Supply	+6 V_{DC}	+8 V_{DC}	+12 V_{DC}
Current Supply		400 mA	
Specification Temperature		+ 25 °C	
Operating Temperature	0 °C		+ 50 °C

Typical Noise Figure vs. Frequency
Bias: +8V/400 mA, LO: 11 GHz/+ 5dBm

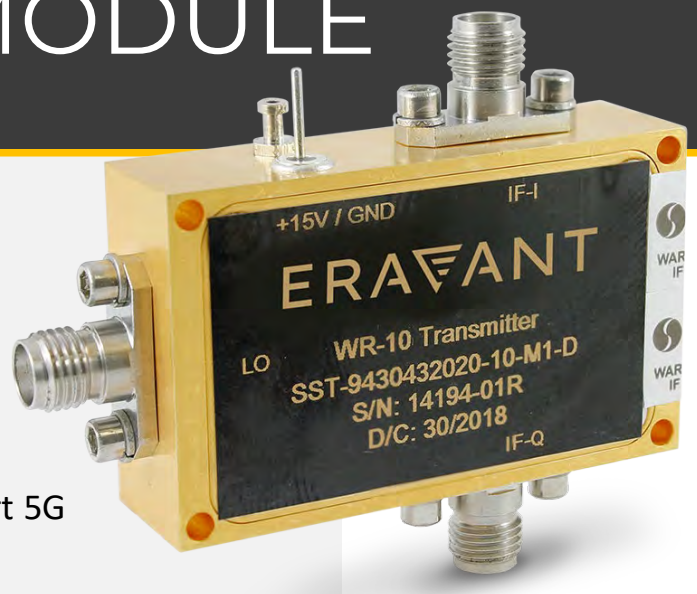


Typical Conversion Gain vs. Frequency
Bias: +8V/400 mA, LO: 11 GHz/+ 5dBm



TRANSMITTER MODULE

SST-9430432030-10-M1-D
92 to 96 GHz

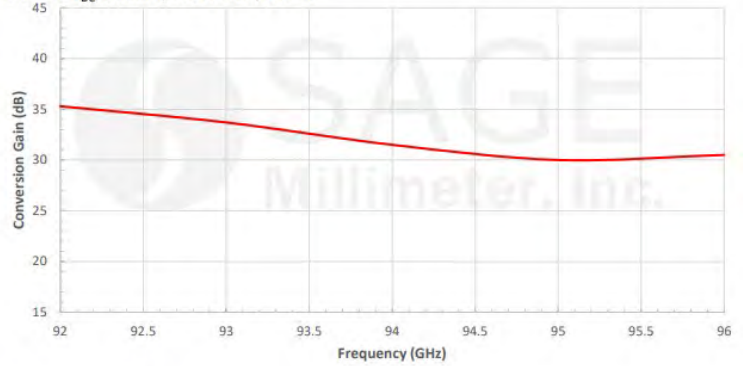


Features:

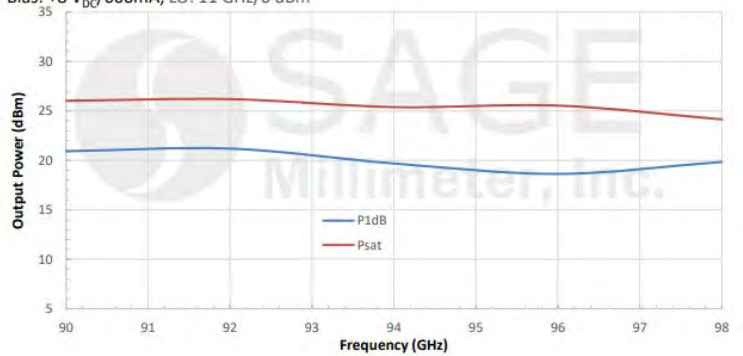
- 92 to 96 GHz
- Compact Size
- Fully Integrated
- More than 20 Models to Support 5G

Parameter	Minimum	Typical	Maximum
RF Output Frequency	92 GHz		96 GHz
IF Input Frequency	4 GHz	6 GHz	8 GHz
IF Input Power		-20 dBm	+7 dBm
RF to IF Conversion Gain		30 dB	
RF Output P_{1dB}/P_{sat}		+20/+24 dBm	
LO Frequency		11.00 GHz	
LO Input Power		0 dBm	+10 dBm
LO DC Voltage Supply	+6 V_{DC}	+8 V_{DC}	+16 V_{DC}
LO Current Supply		750 mA	
Specification Temperature		+ 25 °C	
Operating Temperature	0 °C		+ 50 °C

Typical Conversion Gain vs. Frequency
Bias: +8 V_{DC}/660 mA, LO: 11 GHz/0 dBm



Output Power vs. Frequency
Bias: +8 V_{DC}/660mA, LO: 11 GHz/0 dBm

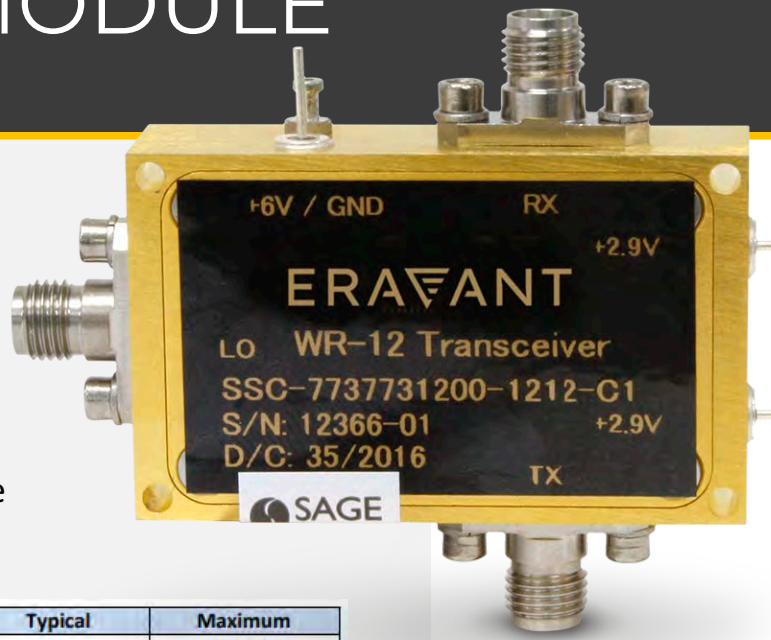


TRANSCEIVER MODULE

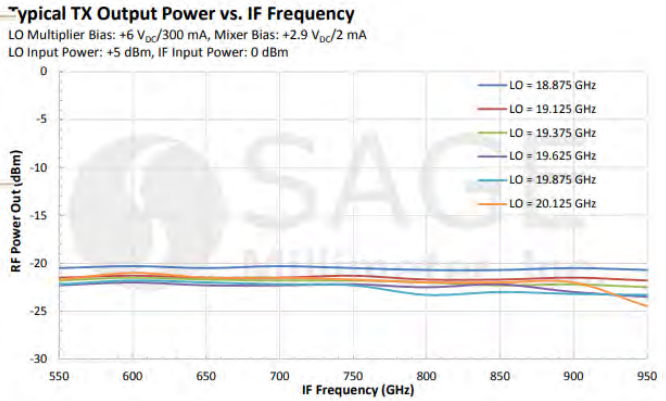
SSC-7737731200-1212-C1
76 to 78 GHz

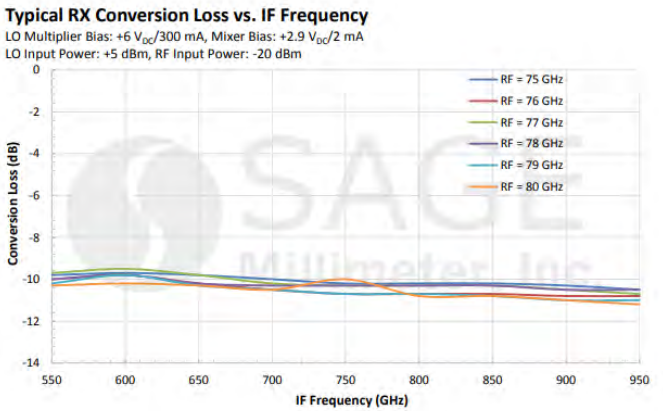
Features:

- 76 to 78 GHz
- Compact Size
- Fully Integrated
- Custom Modules Available



Parameter	Minimum	Typical	Maximum
TX RF Output Frequency	76 GHz		78 GHz
TX RF Output Power	-30 dBm		
TX IF Input Frequency	550 MHz		950 MHz
TX IF Input Power			0 dBm
RX RF Input Frequency	76 GHz		78 GHz
RX RF Input Power		-20 dBm	+3 dBm
RX IF Output Frequency	550 MHz		950 MHz
RX Conversion Loss		-12 dB	
LO Frequency	19.0 GHz		19.5 GHz
LO Input Power		+5 dBm	
TX Mixer DC Voltage Supply		+5 V_{DC}	+6 V_{DC}
TX Mixer Current Supply		2.0 mA	2.5 mA
RX Mixer DC Voltage Supply		+5 V_{DC}	+6 V_{DC}
RX Mixer Current Supply		2.0 mA	2.5 mA
LO DC Voltage Supply		+6 V_{DC}	
LO Current Supply		300 mA	





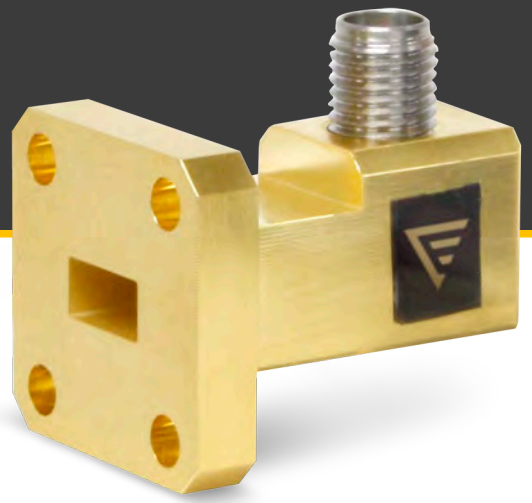
PASSIVE WAVEGUIDE

ERAVANT PASSIVE WAVEGUIDE

The focus of this presentation section is to introduce the **Eravant** passive waveguide product family by highlighting some representative models. There are several hundred standard models available to satisfy all 5G system applications. The passive waveguide family can be found here and here and includes the following types:

- Waveguide to Coaxial Adapter
- Waveguide Taper and Mode Transition
- Waveguide Directional Coupler
- Waveguide Crossguide Coupler
- Waveguide Power Divider
- Waveguide Magic Tee
- Waveguide Load
- Waveguide, Flexible
- Waveguide, Rigid
- Waveguide Connector - Uni-Guide

WAVEGUIDE TO COAX ADAPTER, RIGHT ANGLE



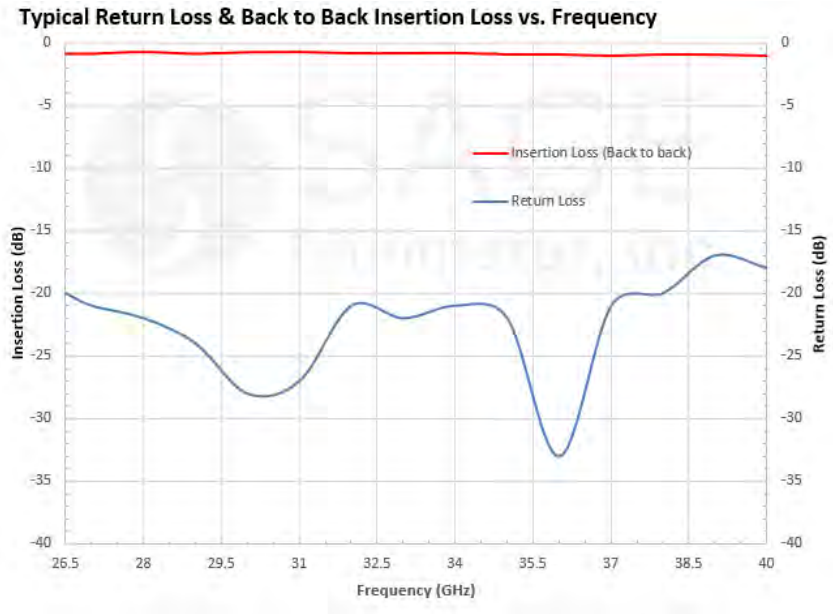
SWC-28KF-R1 & SWC-28KM-R1

Features:

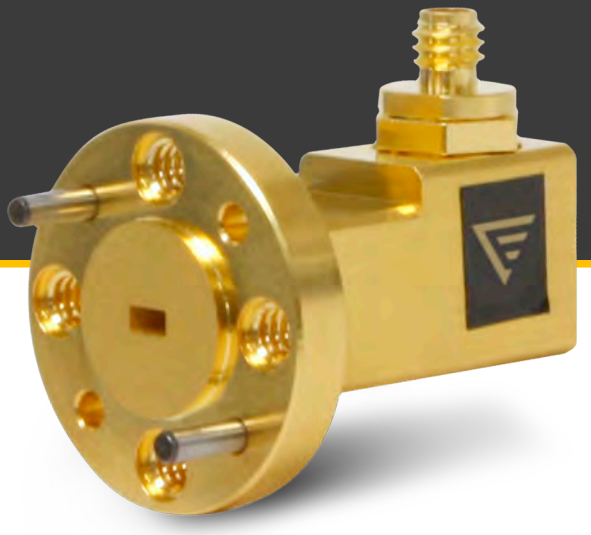
- 26 to 40 GHz
- Right Angle
- Low Insertion Loss and VSWR
- 60+ Models to Support 5G Bands
- Frequency up to 130 GHz

Parameter	Minimum	Typical	Maximum
Frequency Range	26.5 GHz		40.0 GHz
Insertion Loss*		0.35 dB	0.50 dB
Return Loss	17 dB	20 dB	
Power Handling			30 W (CW)
Specification Temperature		+25 °C	
Operating Temperature	-40 °C		+85 °C

*Insertion loss is tested back to back with a male and female adapter. The result is divided by 2.



WAVEGUIDE TO COAX ADAPTER, RIGHT ANGLE



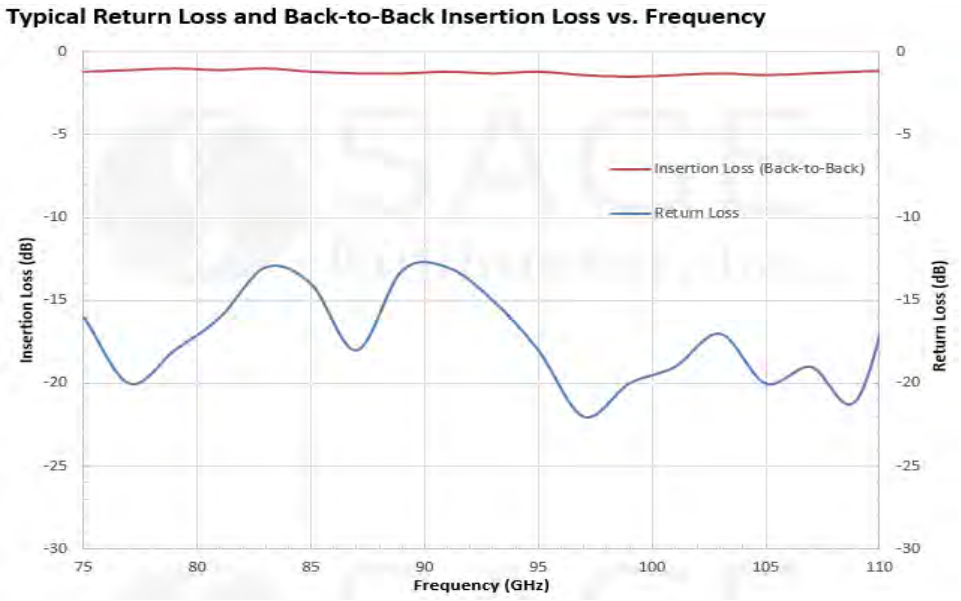
SWC-101F-R1 & SWC-101M-R1

Features:

- 75 to 110 GHz
- Right Angle
- Low Insertion Loss and VSWR
- 50+ Models to Support 5G Bands
- Frequency up to 130 GHz

Parameter	Minimum	Typical	Maximum
Frequency Range	75 GHz		110 GHz
Insertion Loss*		1.2 dB	1.5 dB
Return Loss	12 dB	15 dB	
Power Handling			10 W (CW)
Specification Temperature		+25 °C	
Operating Temperature	-40 °C		+85 °C

*Insertion loss is tested back to back with a male and female adapter, the result is divided by 2.



WAVEGUIDE TO COAX ADAPTER, END LAUNCH

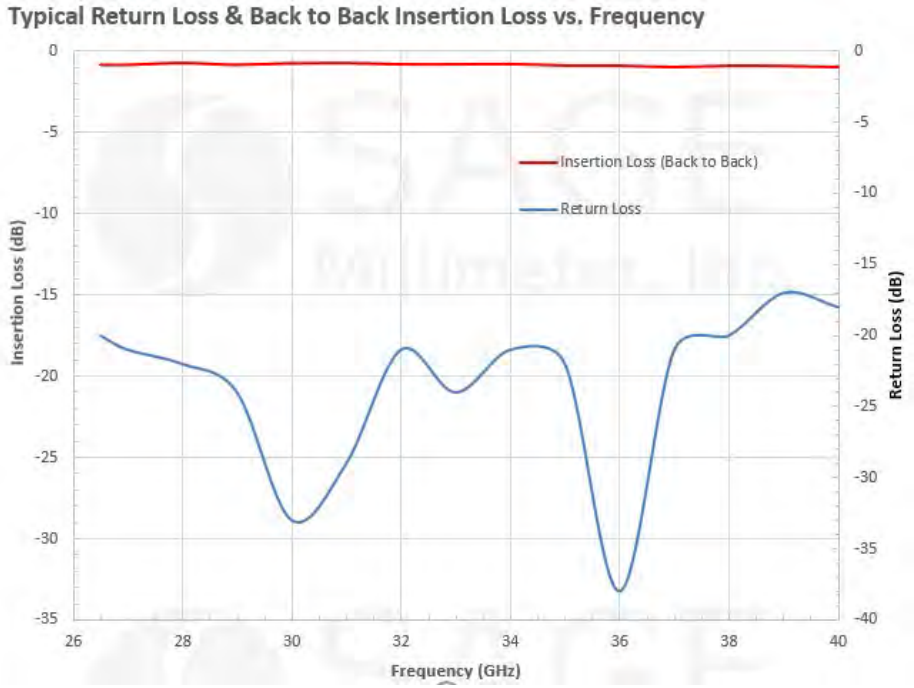
SWC-28KF-E1 & SWC-28KM-E1

Features:

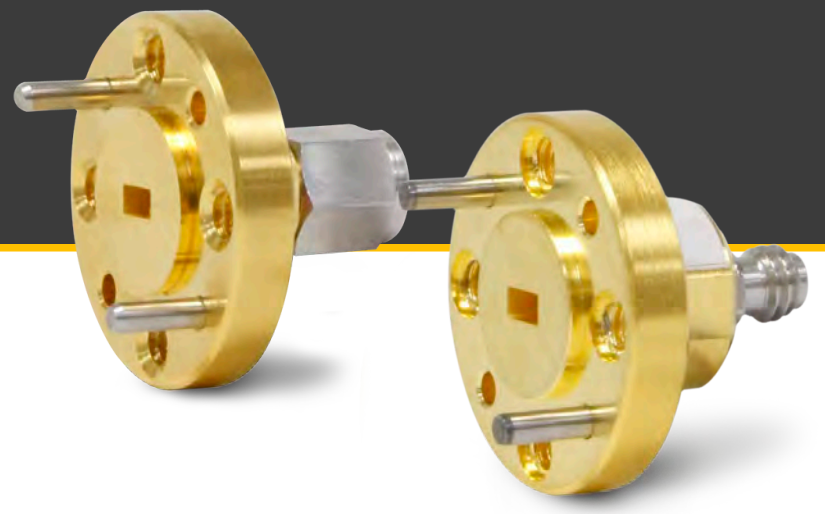
- 26 to 40 GHz
- End Launch
- Low Insertion Loss and VSWR
- 60+ Models to Support 5G Bands
- Frequency up to 130 GHz

Parameter	Minimum	Typical	Maximum
Frequency Range	26.5 GHz		40.0 GHz
Insertion Loss*		0.35 dB	0.50 dB
Return Loss	17 dB	20 dB	
Power Handling			30 W (CW)
Specification Temperature		+25 °C	
Operating Temperature	-40 °C		+85 °C

*Insertion loss is tested back to back with a male and female adapter. The result is divided by 2.



WAVEGUIDE TO COAX ADAPTER, END LAUNCH



SWC-101F-E1 & SWC-101M-E1

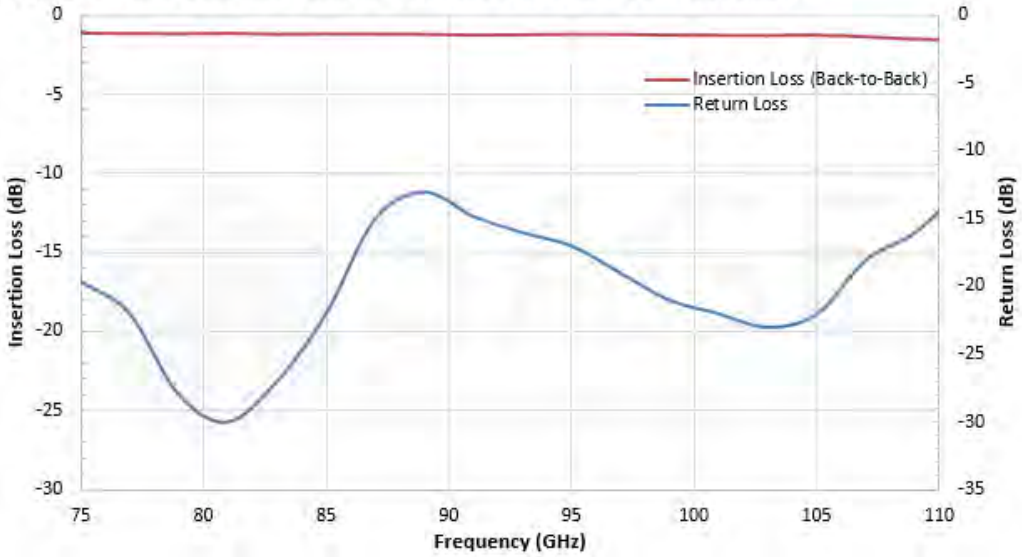
Features:

- 75 to 110 GHz
- End Launch
- Low Insertion Loss and VSWR
- 50+ Models to Support 5G Bands
- Frequency up to 130 GHz

Parameter	Minimum	Typical	Maximum
Frequency Range	75 GHz		110 GHz
Insertion Loss*		1.2 dB	1.5 dB
Return Loss	12 dB	15 dB	
Power Handling			10 W (CW)
Specification Temperature		+25°C	
Operating Temperature	-40°C		+85°C

*Insertion loss is tested back to back with a male and female adapter, the result is divided by 2.

Typical Return Loss and Back-to-Back Insertion Loss vs. Frequency

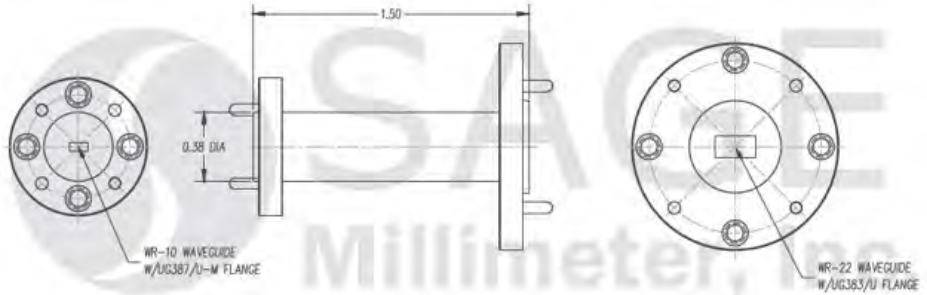


WAVEGUIDE TAPER TRANSITION

SWT-1910-LB

Features:

- WR-19 to WR-10 Taper Transition
- In Series and Out Series
- Low Insertion Loss and VSWR
- 50+ Models to Support 5G Bands
- Frequency up to 220 GHz



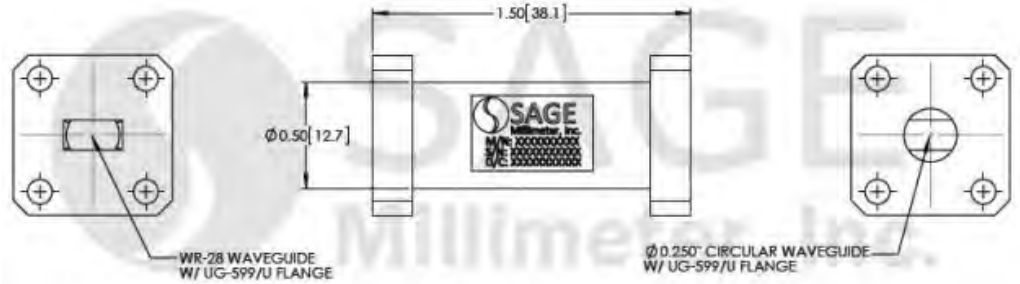
Item	Specification
Waveguide Size	WR-10 Waveguide with UG-387/U-M Flange
Waveguide Size	WR-19 Waveguide with UG-383/U-M Flange
Insertion Length	1.5”
Outline	WT-UW
Material	Brass
Finish	Gold Plated
Weight	1.5 Oz

WAVEGUIDE MODE TRANSITION

SWT-28250-SB

Features:

- WR-28 to 0.250” D Mode Transition
- In Series and Out Series
- Low Insertion Loss and VSWR
- 50+ Models to Support 5G Bands
- Frequency up to 220 GHz



Item	Specification
Waveguide Size	WR-28 Waveguide with UG-599/U Flange
Waveguide Size	0.250" Diameter Circular Waveguide with UG-599/U-M Flange
Material	Brass
Finish	Gold Plated
Weight	2.2 Oz
Insertion Length	1.5”
Outline	WT-AC-250-1.5

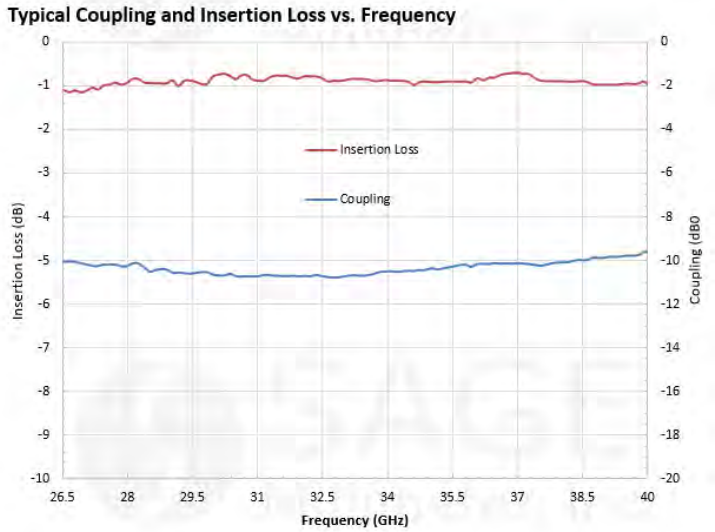
WAVEGUIDE DIRECTIONAL COUPLER

SWD-1040H-28-SB
24 to 42 GHz

Features:

- 24 to 42 GHz
- 3, 6, 10, 20, 30 and 40 dB
- 3 Port, Bi-Directional and Dual-Directional
- 100+ Models to Support 5G Bands
- Frequency up to 170 GHz

Parameter	Minimum	Typical	Maximum
Frequency	26.5 GHz		40 GHz
Insertion Loss*		0.5 dB	
Coupling*		10 dB	
Directivity*	35 dB		
Return Loss			26 dB
Specification Temperature		+25 ˚C	
Operating Temperature	-40 ˚C		+85 ˚C



WAVEGUIDE DIRECTIONAL COUPLER

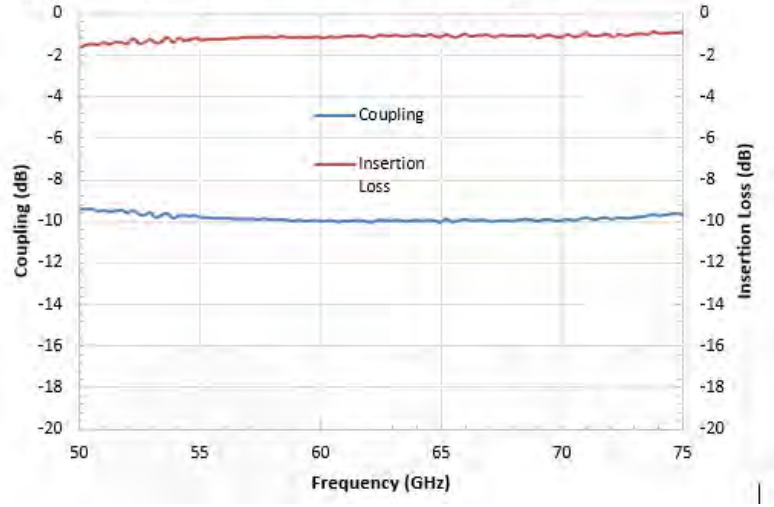
SWD-1040H-15-SB
50 to 75 GHz

Features:

- 50 to 75 GHz
- 3, 6, 10, 20, 30 and 40 dB
- 3 Port, Bi-Directional and Dual-Directional
- 100+ Models to Support 5G Bands
- Frequency up to 170 GHz

Parameter	Minimum	Typical	Maximum
Frequency	50 GHz		75 GHz
Insertion Loss*		0.7 dB	
Coupling*		10 dB	
Directivity*	30 dB	40 dB	
VSWR			1.1:1
Specification Temperature		+25˚C	
Operating Temperature	-40˚C		+85˚C

Typical Coupling and Insertion Loss vs. Frequency



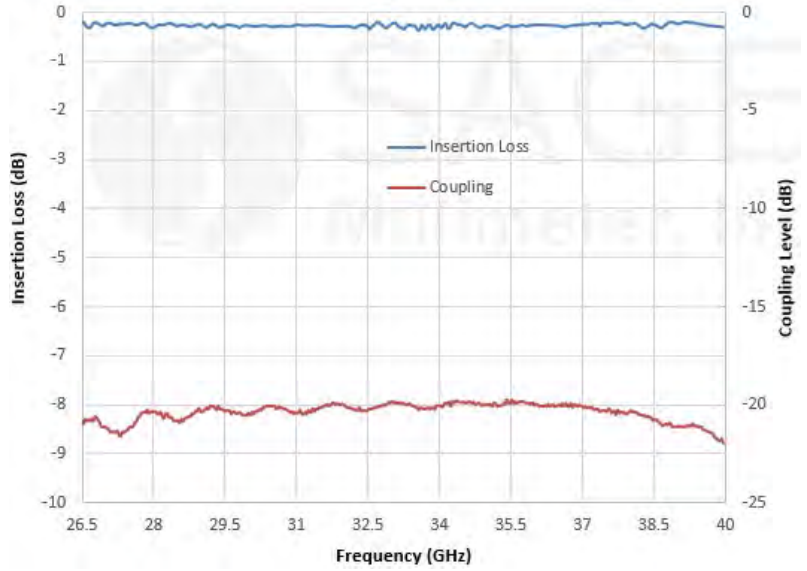
WAVEGUIDE CROSSGUIDE COUPLER

SWX-31339330-28-4B
31 to 39 GHz

Features:

- 31 to 39 GHz
- 20, 30 and 40 dB
- 3 Port and 4 Port
- 50+ Models to Support 5G Bands
- Frequency up to 110 GHz

Parameter	Minimum	Typical	Maximum
Frequency	31 GHz		39 GHz
Coupling Level		20 dB	
Insertion Loss		0.4 dB	
Directivity		15 dB	
Input Return Loss		20 dB	
Output Return Loss		20 dB	
Specification Temperature		+25 ˚C	
Operating Temperature	-40 ˚C		+85 ˚C



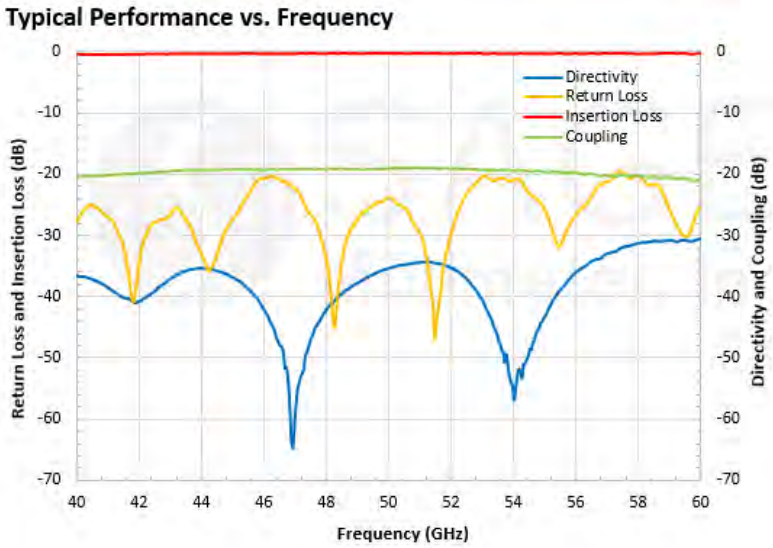
WAVEGUIDE CROSSGUIDE COUPLER

SWX-40360320-19-4B
40 to 60 GHz

Features:

- 40 to 60 GHz
- 20, 30 and 40 dB
- 3 Port and 4 Port
- 50+ Models to Support 5G Bands
- Frequency up to 110 GHz

Parameter	Minimum	Typical	Maximum
Frequency Range	40 GHz		60 GHz
Coupling Level		20 dB	
Insertion Loss		0.5 dB	
Directivity		20 dB	
Input/Output VSWR		1.1:1	
Specification Temperature		+25˚C	
Operating Temperature	-40˚C		+85˚C



WAVEGUIDE POWER DIVIDER, 2 WAY, RIGHT ANGLE

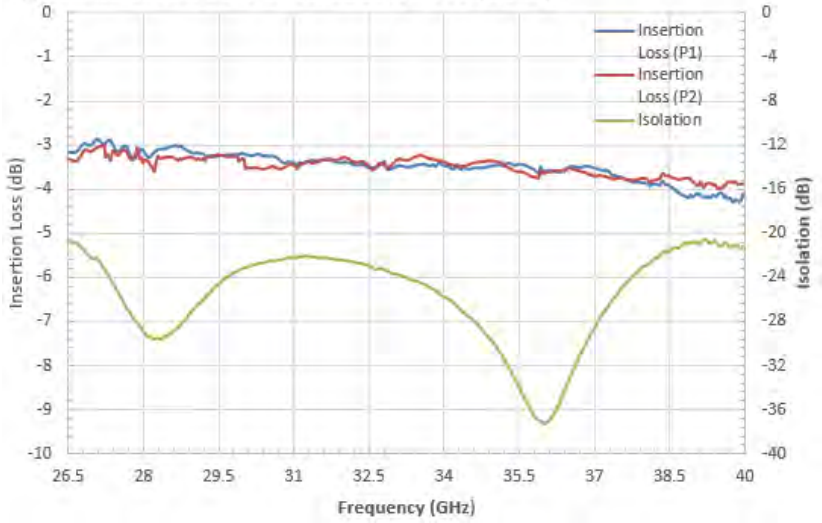
SWP-27340302-28-S1
26.5 to 40 GHz

Features:

- 26.5 to 40 GHz
- Right Angle and End Launch
- 2-Way, 4-Way, 8-Way and 16-Way
- 50+ Models to Support 5G Bands
- Frequency up to 110 GHz

Parameter	Minimum	Typical	Maximum
Frequency	27 GHz		40 GHz
Amplitude Unbalance		±0.2 dB	
Insertion Loss		0.4 dB	
Port Isolation		20 dB	
Port Return Loss		20 dB	
Specification Temperature		+25 ˚C	
Operating Temperature	-40 ˚C		+85 ˚C

Typical Insertion Loss & Isolation vs. Frequency



WAVEGUIDE POWER DIVIDER, 2 WAY, RIGHT ANGLE

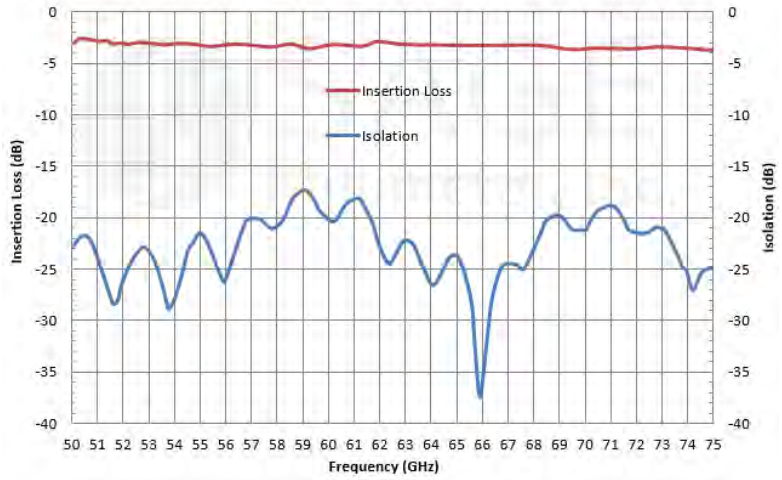
SWP-50375302-15-S1
50 to 75 GHz

Features:

- 50 to 75 GHz
- Right Angle and End Launch
- 2-Way, 4-Way, 8-Way and 16-Way
- 50+ Models to Support 5G Bands
- Frequency up to 110 GHz

Parameter	Minimum	Typical	Maximum
Frequency	50 GHz		75 GHz
Power Unbalance			±0.20 dB
Insertion Loss		0.5 dB	0.8 dB
Isolation		20 dB	
Input/Output VSWR			1.5:1
Specification Temperature		+25˚C	
Operating Temperature	-40˚C		+85˚C

Typical Insertion Loss and Isolation vs. Frequency



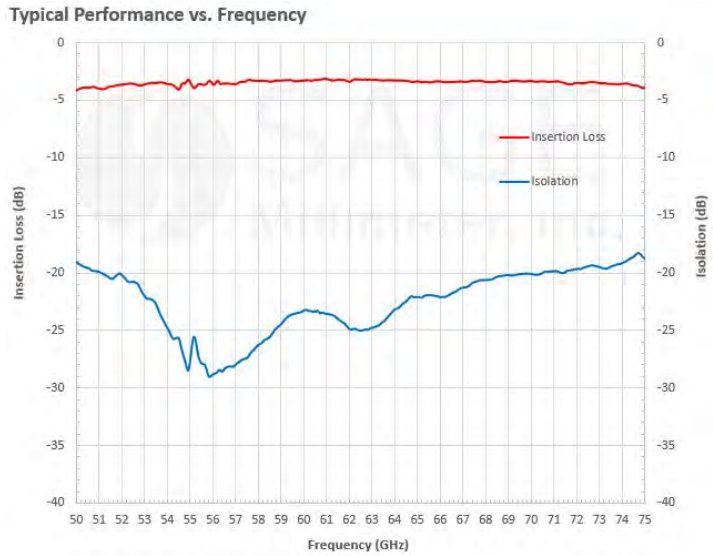
WAVEGUIDE POWER DIVIDER, 2 WAY, IN-LINE

SWP-50375302-15-E2
50 to 75 GHz

Features:

- 50 to 75 GHz
- Right Angle and End Launch
- 2-Way, 4-Way, 8-Way and 16-Way
- 50+ Models to Support 5G Bands
- Frequency up to 110 GHz

Parameter	Minimum	Typical	Maximum
Frequency	50 GHz		75 GHz
Power Unbalance			±0.20 dB
Insertion Loss		0.5 dB	
Isolation		20 dB	
Return Loss		15 dB	
Specification Temperature		+25˚C	
Operating Temperature	-40˚C		+85˚C

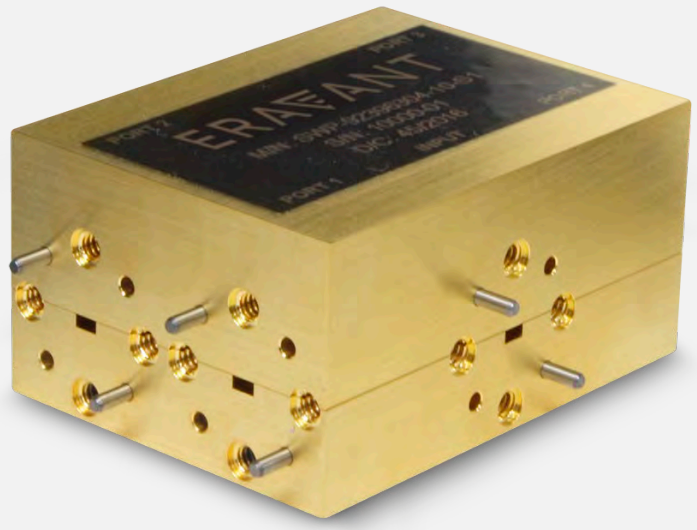


WAVEGUIDE POWER DIVIDER, 4 WAY, IN-LINE

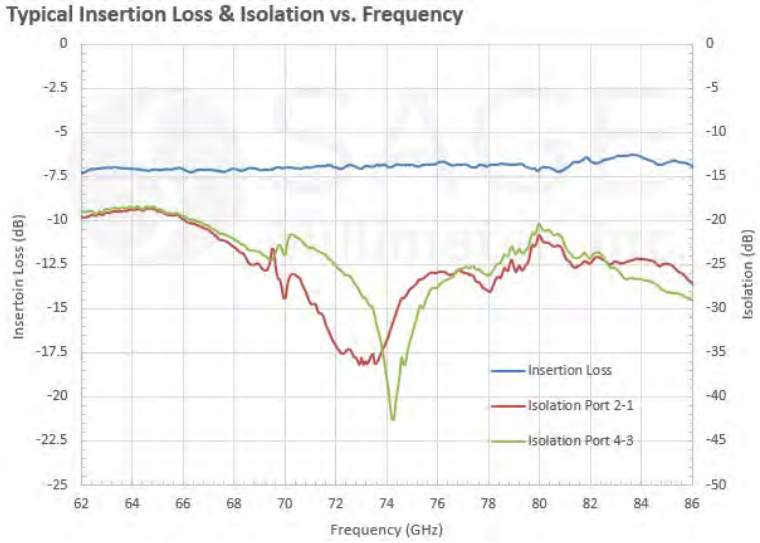
SWP-62386304-12-S1
62 to 86 GHz

Features:

- 62 to 86 GHz
- Right Angle and End Launch
- 2-Way, 4-Way, 8-Way and 16-Way
- 50+ Models to Support 5G Bands
- Frequency up to 110 GHz



Parameter	Minimum	Typical	Maximum
Frequency	62 GHz		86 GHz
Insertion Loss		0.8 dB	
Amplitude Unbalance			±0.4 dB
Port Isolation, Adjacent Port		20 dB	
Port VSWR		1.5:1	
Specification Temperature		+25˚C	
Operating Temperature	-40˚C		+85˚C

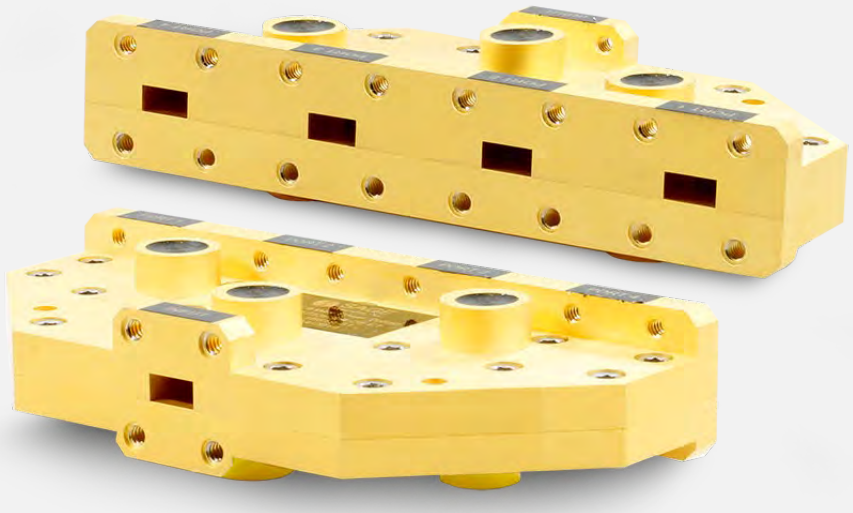


WAVEGUIDE POWER DIVIDER, 4 WAY, IN-LINE

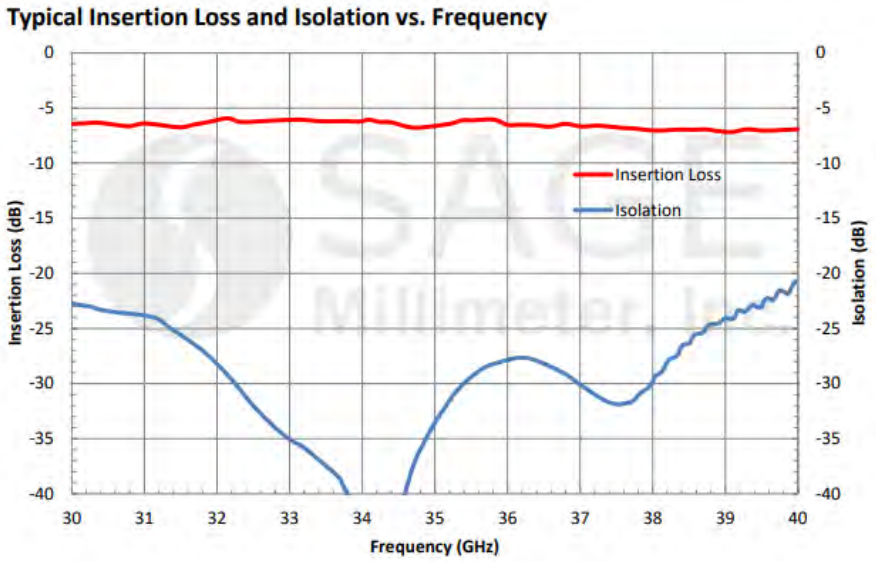
SWP-30340304-28-E1
30 to 40 GHz

Features:

- 30 to 40 GHz
- Right Angle and End Launch
- 2-Way, 4-Way, 8-Way and 16-Way
- 50+ Models to Support 5G Bands
- Frequency up to 110 GHz



Parameter	Minimum	Typical	Maximum
Frequency	30 GHz		40 GHz
Insertion Loss		0.5 dB	
Power Unbalance		±0.4 dB	
Port Isolation		20 dB	
Port Return Loss		15 dB	
Power Handling			100 W (CW)
Specification Temperature		+25 °C	
Operating Temperature	-40 °C		+85 °C

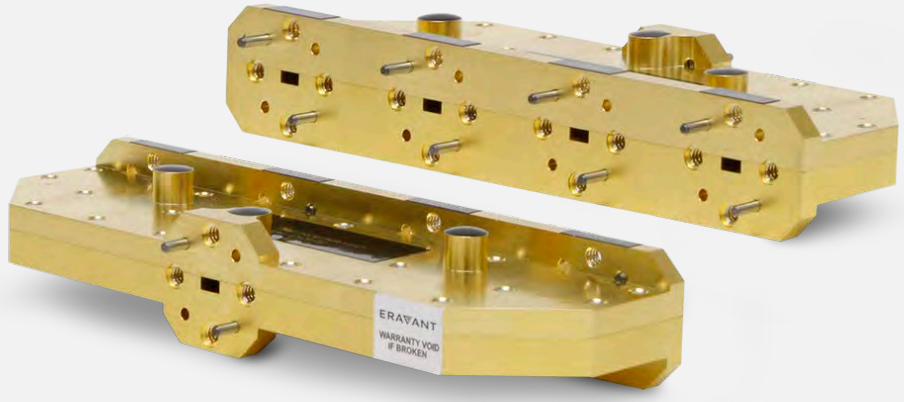


WAVEGUIDE POWER DIVIDER, 4 WAY, IN-LINE

SWP-50375304-15-E1
50 to 75 GHz

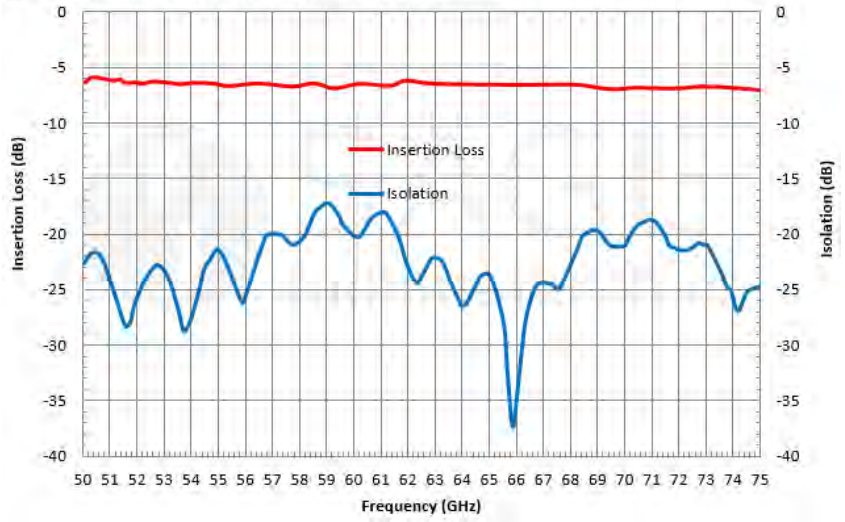
Features:

- 50 to 75 GHz
- Right Angle and End Launch
- 2-Way, 4-Way, 8-Way and 16-Way
- 50+ Models to Support 5G Bands
- Frequency up to 110 GHz



Parameter	Minimum	Typical	Maximum
Frequency	50 GHz		75 GHz
Power Unbalance			±0.20 dB
Insertion Loss		1.0 dB	1.2 dB
Isolation		20 dB	
Input/ Output Return Loss		20 dB	
Specification Temperature		+25 °C	
Operating Temperature	-40 °C		+85 °C

Typical Insertion Loss and Isolation vs. Frequency
Isolation was tested between adjacent ports (i.e. 1-2, 3-4)

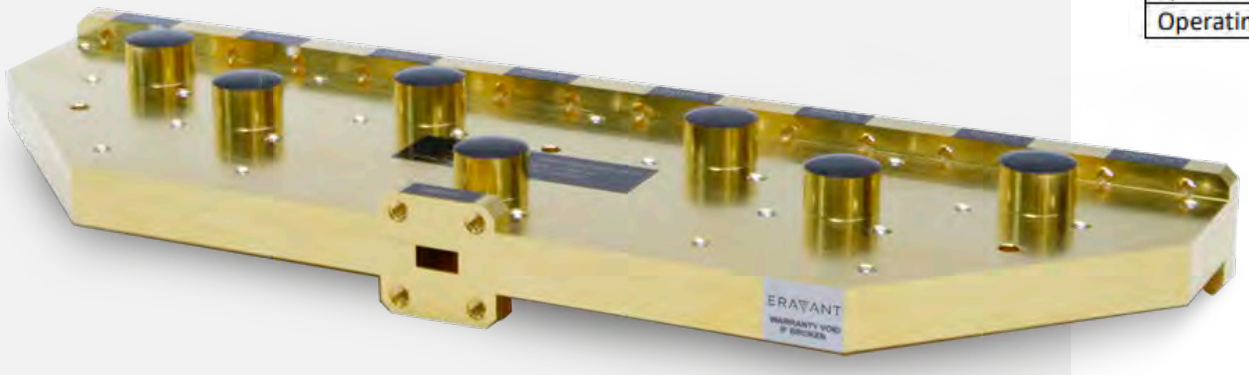


WAVEGUIDE POWER DIVIDER, 8 WAY, IN-LINE

SWP-29331308-28-E1
28 to 31 GHz

Features:

- 28 to 31 GHz
- Right Angle and End Launch
- 2-Way, 4-Way, 8-Way and 16-Way
- 50+ Models to Support 5G Bands
- Frequency up to 110 GHz



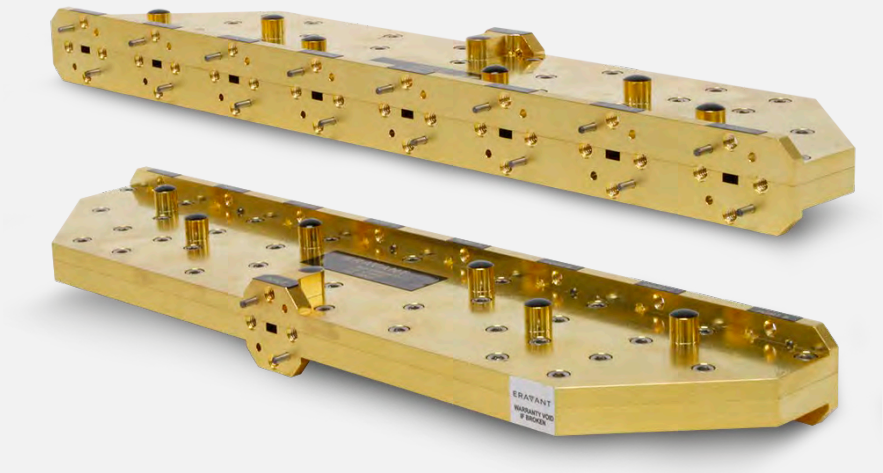
Parameter	Minimum	Typical	Maximum
Frequency	28.5 GHz		30.5 GHz
Power Unbalance		±0.20 dB	
Insertion Loss		0.9 dB	
Isolation		25 dB	
Return Loss		15 dB	
Specification Temperature		+25 °C	
Operating Temperature	-40 °C		+85 °C

WAVEGUIDE POWER DIVIDER, 8 WAY, IN-LINE

SWP-50366308-15-E1
50 to 66 GHz

Features:

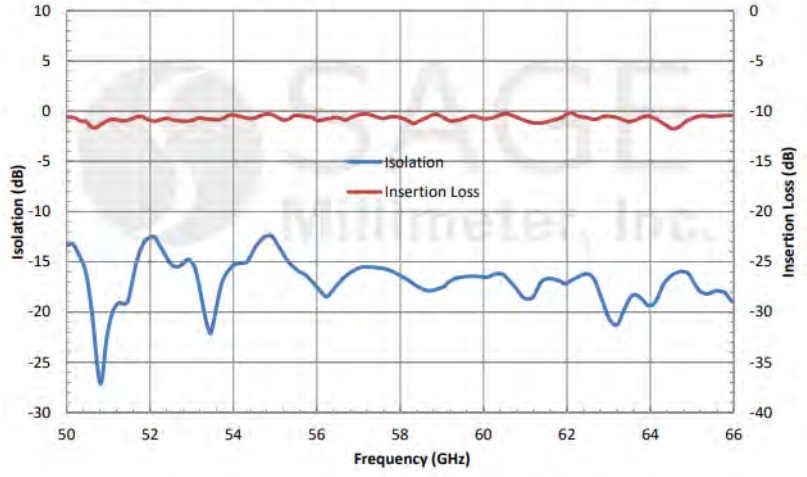
- 50 to 66 GHz
- Right Angle and End Launch
- 2-Way, 4-Way, 8-Way and 16-Way
- 50+ Models to Support 5G Bands
- Frequency up to 110 GHz



Parameter	Minimum	Typical	Maximum
Frequency	50 GHz		66 GHz
Power Unbalance		±0.4 dB	±0.5 dB
Insertion Loss*		1.7 dB	
Isolation (Adjacent Ports)		20 dB	
Isolation (Non Adjacent Ports)	20 dB	30 dB	
Input/Output VSWR			1.5:1
Specification Temperature		+25°C	
Operating Temperature	-40°C		+85°C

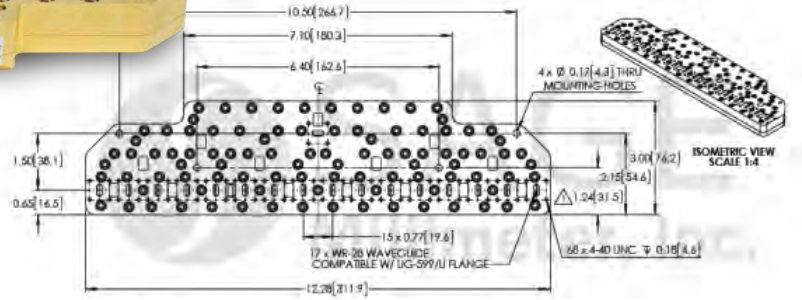
Note: The insertion loss does not include the power splitting loss.

Typical Port Isolation and Insertion Loss vs. Frequency
Isolation was tested between adjacent ports (i.e. 1-2, 3-4, 5-6 and 7-8)



WAVEGUIDE POWER DIVIDER, 16 WAY, IN-LINE

SWP-27335316-28-C1
50 to 66 GHz

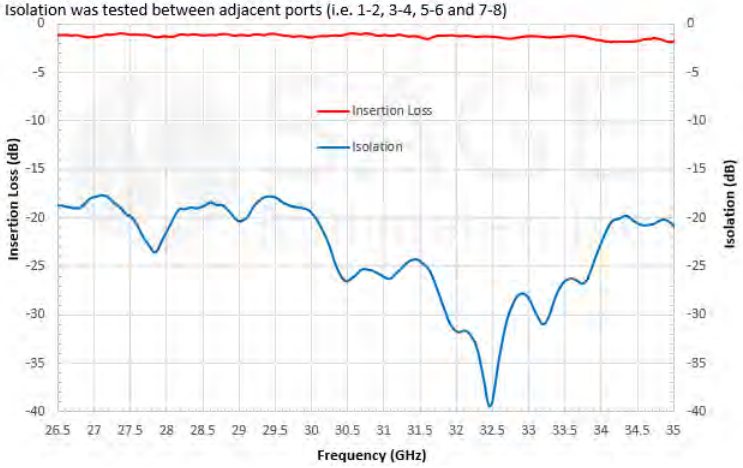


Features:

- 50 to 66 GHz
- Right Angle and End Launch
- 2-Way, 4-Way, 8-Way and 16-Way
- 50+ Models to Support 5G Bands
- Frequency up to 110 GHz

Parameter	Minimum	Typical	Maximum
Frequency	26.5 GHz		35 GHz
Insertion Loss		1.2 dB	
Power Unbalance		±0.2 dB	
Port Isolation		20 dB	
Specification Temperature		+25°C	
Operating Temperature	-40°C		+85°C

Typical Isolation and Insertion Loss vs. Frequency
Isolation was tested between adjacent ports (i.e. 1-2, 3-4, 5-6 and 7-8)



MAGIC TEE

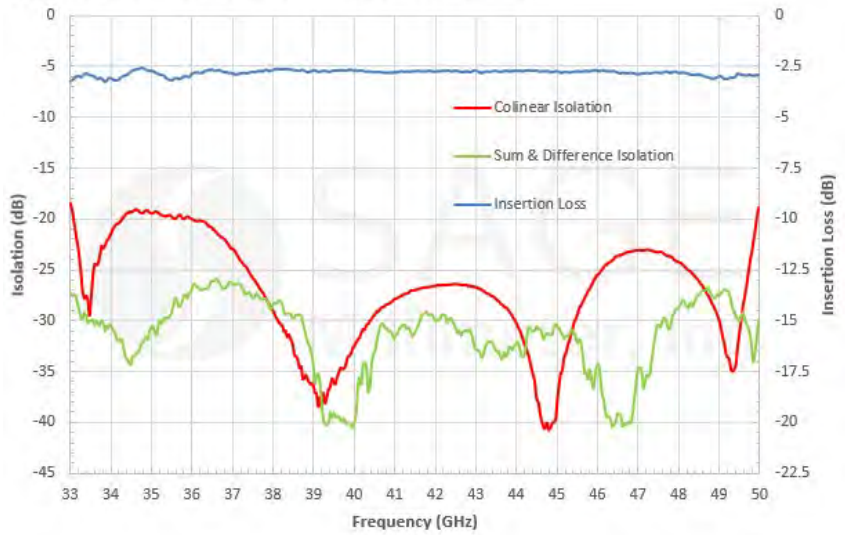
SWM-33350320-22-SB
33 to 50 GHz

Features:

- 33 to 50 GHz
- Full Waveguide Band
- High Performance
- 10+ Models to Support 5G Bands
- Frequency up to 110 GHz

Parameter		Minimum	Typical	Maximum
Frequency		33 GHz		50 GHz
Insertion Loss			0.3 dB	
Isolation	Sum and Difference Ports		30 dB	
	Collinear Ports	15 dB	20 dB	
Return Loss			14 dB	
Specification Temperature			+25°C	
Operating Temperature		-40°C		+85°C

Typical Isolation and Insertion Loss vs. Frequency



MAGIC TEE

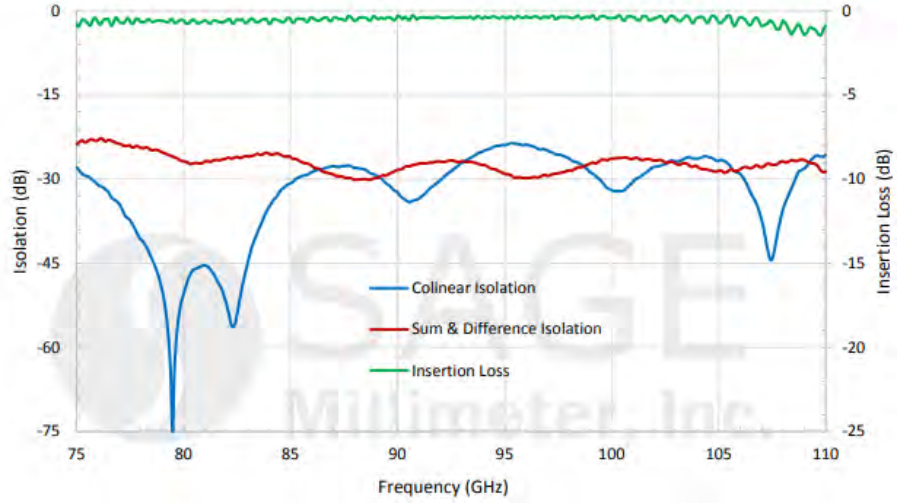
SWM-75311420-10-SB
75 to 110 GHz

Features:

- 75 to 110 GHz
- Full Waveguide Band
- High Performance
- 10+ Models to Support 5G Bands
- Frequency up to 110 GHz

Parameter		Minimum	Typical	Maximum
Frequency		75 GHz		110 GHz
Insertion Loss			0.3 dB	
Isolation	Sum and Difference Ports		30 dB	
	Collinear Ports		20 dB	
Return Loss			14 dB	
Specification Temperature			+25 °C	
Operating Temperature		-40 °C		+85 °C

Typical Isolation and Insertion Loss vs Frequency



WAVEGUIDE LOAD, FIXED, LOW POWER

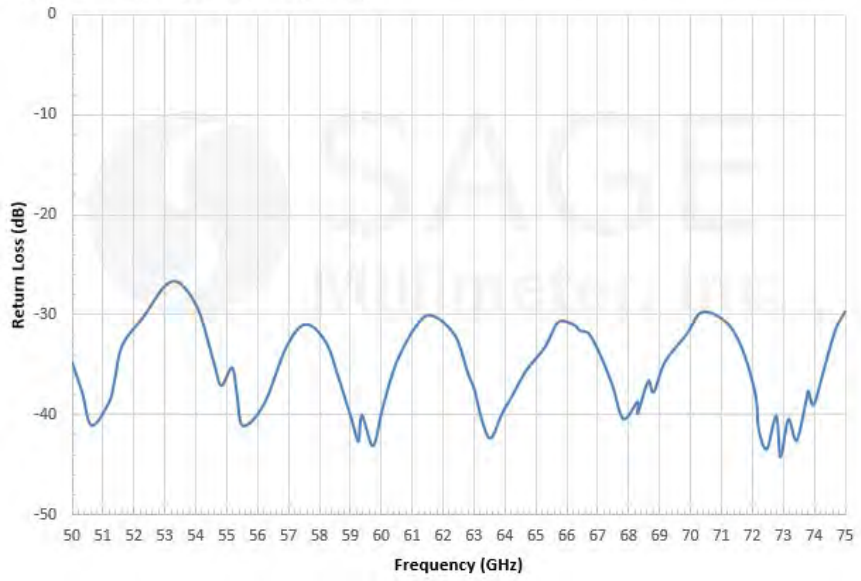
SWL-1527-S1
50 to 75 GHz

Features:

- 50 to 75 GHz
- Full Waveguide Band
- Fixed and Tunable
- Low and High Power up to 1 kW
- 100+ Models to Support 5G Bands
- Frequency up to 170 GHz

Parameter	Minimum	Typical	Maximum
Frequency	50 GHz		75 GHz
VSWR		1.05:1	
Power Handling		0.5 W (CW)	2 W (CW)
Specification Temperature		+25˚C	
Operating Temperature	-40˚C		+85˚C

Typical Return Loss vs. Frequency



WAVEGUIDE LOAD, FIXED, HIGH POWER

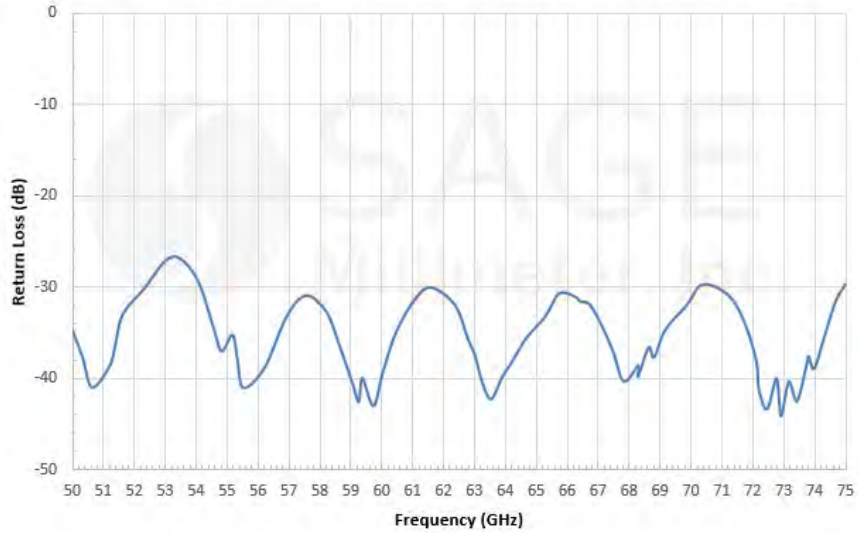
SWL-1537-S1
50 to 75 GHz

Features:

- 50 to 75 GHz
- Full Waveguide Band
- Fixed and Tunable
- Low and High Power up to 1 kW
- 100+ Models to Support 5G Bands
- Frequency up to 170 GHz

Parameter	Minimum	Typical	Maximum
Frequency	50 GHz		75 GHz
VSWR		1.06:1	
Power Handling		5 W (CW)	6 W (CW)
Specification Temperature		+25˚C	
Operating Temperature	-40˚C		+85˚C

Typical Return Loss vs. Frequency



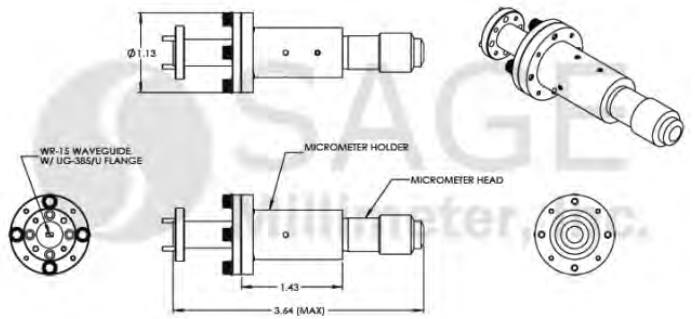
WAVEGUIDE LOAD, TUNABLE, LOW POWER

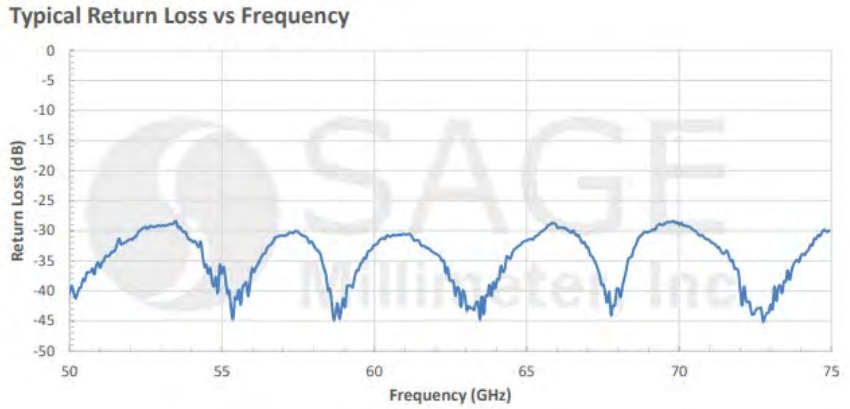
SWL-1523-T1
50 to 75 GHz

Features:

- 50 to 75 GHz
- Full Waveguide Band
- Fixed and Tunable
- Low and High Power up to 1 kW
- 100+ Models to Support 5G Bands
- Frequency up to 170 GHz

Parameter	Minimum	Typical	Maximum
Frequency	50 GHz		75 GHz
Return Loss		30 dB	
Power Handling		+23 dBm	+25 dBm
Specification Temperature		+25 ˚C	
Operating Temperature	-40 ˚C		+85 ˚C





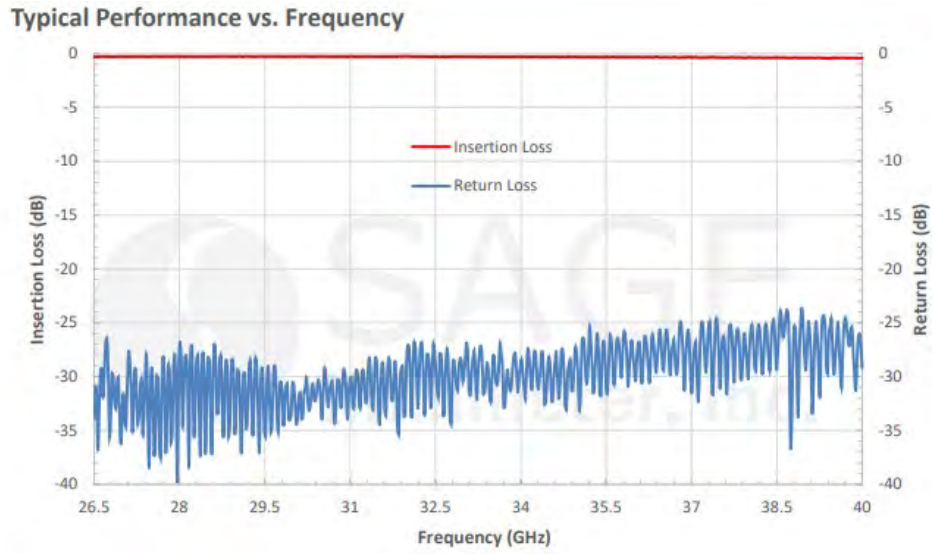
WAVEGUIDE, FLEXIBLE

SWG-28059-FB-FT-G
50 to 75 GHz

Features:

- 24 to 42 GHz
- Full Waveguide Band
- Various Length
- WR-42 to WR-10
- 100+ Models to Support 5G Bands
- Frequency up to 110 GHz

Parameter	Minimum	Typical	Maximum
Frequency	26.5 GHz		40 GHz
Insertion Loss		0.3 dB	
Return Loss		21 dB	
Power Handling			75 W (CW)
Specification Temperature		+25 ˚C	
Operation Temperature	-40 ˚C		+85 ˚C



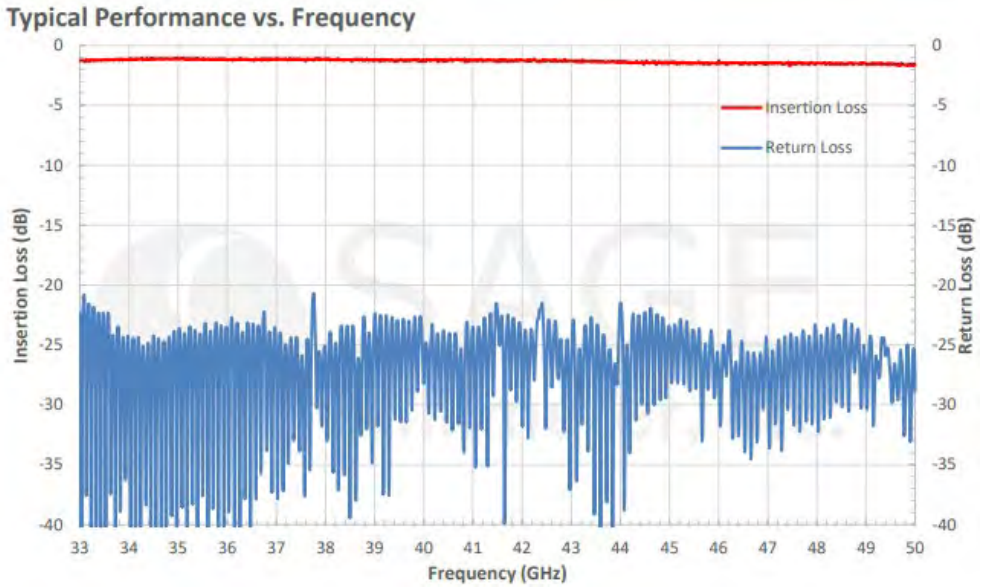
WAVEGUIDE, FLEXIBLE

SWG-22354-FB-FT-A-G
35 to 50 GHz

Features:

- 33 to 50 GHz
- Full Waveguide Band
- Various Length
- WR-42 to WR-10
- 100+ Models to Support 5G Bands
- Frequency up to 110 GHz

Parameter	Minimum	Typical	Maximum
Frequency	33 GHz		50 GHz
Insertion Loss		2.3 dB	
Return Loss		14 dB	
Specification Temperature		+25 ˚C	
Operation Temperature	-40 ˚C		+85 ˚C



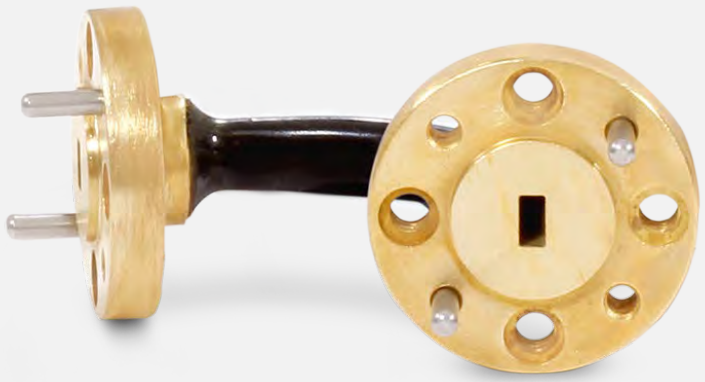
WAVEGUIDE, FLEXIBLE

SWG-10020-FB-F

75 to 110 GHz

Features:

- 75 to 110 GHz
- Full Waveguide Band
- Various Length
- WR-42 to WR-10
- 100+ Models to Support 5G Bands
- Frequency up to 110 GHz



Parameter	Minimum	Typical	Maximum
Frequency	75 GHz		110 GHz
Insertion Loss		1.5 dB	
Return Loss	10 dB	15 dB	
Power Handling (CW/PK)		15 W / 1 kW	30 W / 2.5 kW
Specification Temperature		+25 ˚C	
Operation Temperature	-40 ˚C		+85 ˚C

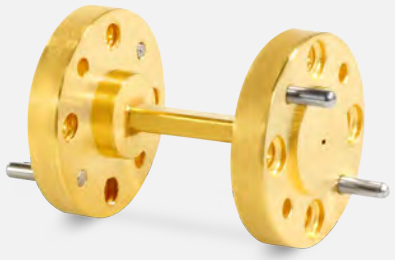
WAVEGUIDE, RIGID

Features:

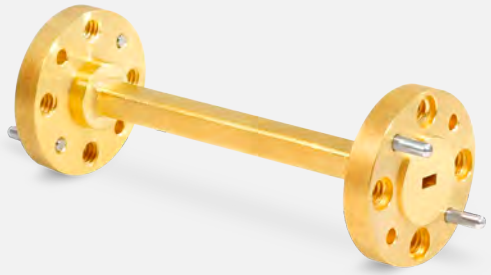
- WR-42 to WR-03
- Various Length
- 500+ Models to Support 5G Bands
- Frequency up to 325 GHz

SWB-06090-EB
WR-06 E-Plane Bend, 90°

SWB-10090-TB
WR-10 Twist, 90°



SWG-03010-FB
WR-03 Straight Section, 1”



SWG-10020-FB
WR-10 Straight Section, 2”

SWB-10090-HB
WR-10 H-Plane Bend, 90°

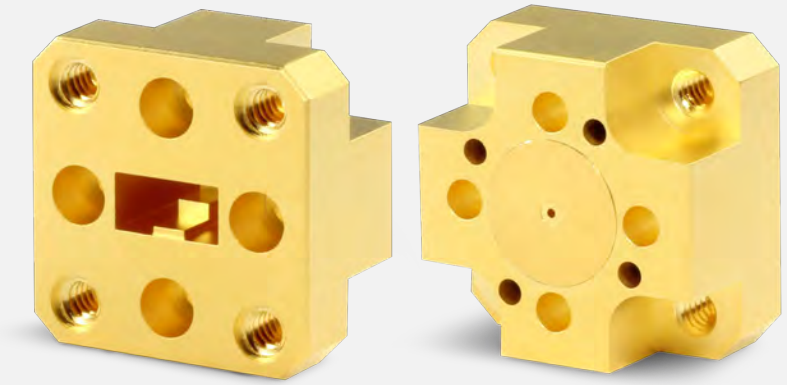
SWB-12090-TB
WR-12 Twist, 90°

WAVEGUIDE CONNECTOR, UNI-GUIDE™

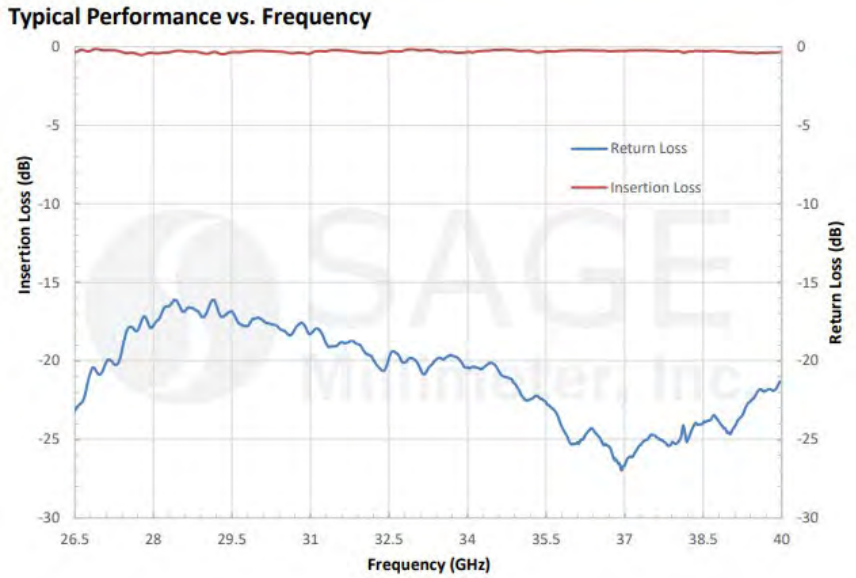
SUF-2812-480-S1
26.5 to 40 GHz

Features:

- 26.5 to 40 GHz
- WR-28, WR-22 and WR-19 Bands
- 3 Models to Support 5G Bands
- Field Replicable
- Interchangeable with Correspondent Coax Connector
- Hermetical Package Preservation



Parameter	Minimum	Typical	Maximum
Frequency Range	26.5 GHz		40.0 GHz
Insertion Loss		0.5 dB	
Return Loss		20 dB	
Power Handling			100 W (CW)
Specification Temperature		+25 °C	
Operating Temperature	-40 °C		+85 °C



WAVEGUIDE CONNECTOR, UNI-GUIDE™

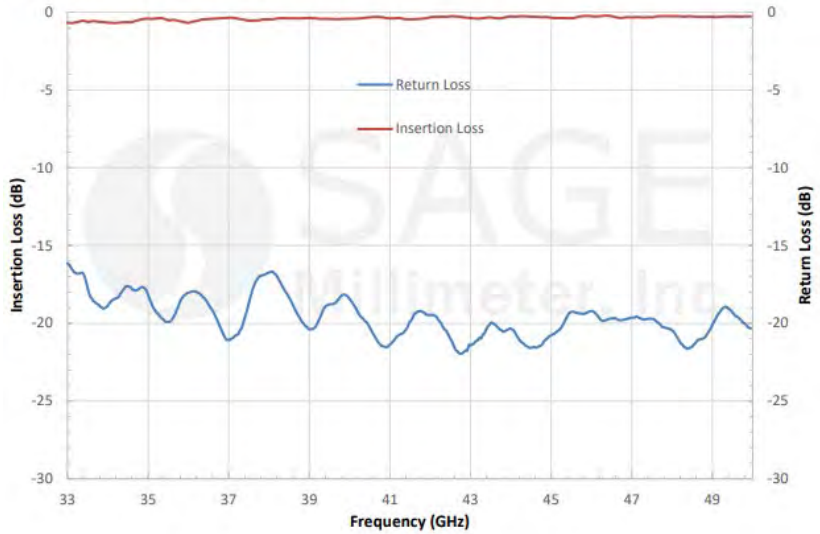
SUF-2212-480-S1
33 to 50 GHz

Features:

- 33 to 50 GHz
- WR-28, WR-22 and WR-19 Bands
- 3 Models to Support 5G Bands
- Field Replicable
- Interchangeable with Correspondent Coax Connector
- Hermetical Package Preservation

Parameter	Minimum	Typical	Maximum
Frequency Range	33 GHz		50 GHz
Insertion Loss		0.6 dB	
Return Loss		20 dB	
Power Handling			100 W (CW)
Specification Temperature		+25 °C	
Operating Temperature	-40 °C		+85 °C

Typical Performance vs. Frequency



WAVEGUIDE CONNECTOR, UNI-GUIDE™

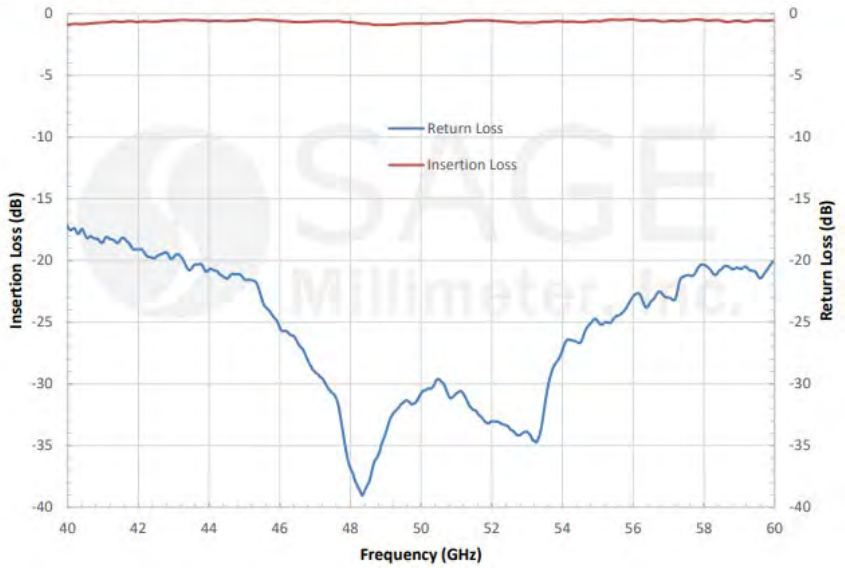
SUF-1912-480-S1
40 to 60 GHz

Features:

- 40 to 60 GHz
- WR-28, WR-22 and WR-19 Bands
- 3 Models to Support 5G Bands
- Field Replicable
- Interchangeable with Correspondent Coax Connector
- Hermetical Package Preservation

Parameter	Minimum	Typical	Maximum
Frequency Range	40 GHz		60 GHz
Insertion Loss		0.7 dB	
Return Loss		20 dB	
Power Handling			100 W (CW)
Specification Temperature		+25 °C	
Operating Temperature	-40 °C		+85 °C

Typical Measured Performance vs. Frequency



PASSIVE COAXIAL PRODUCTS

ERAVANT PASSIVE COAXIAL PRODUCTS

The focus of this presentation section is to introduce the **Eravant** passive coaxial product family by highlighting some representative models. There are several hundred standard models available to satisfy all 5G system applications. The passive coaxial family includes the following types:.

- Coaxial Adapter
- Coaxial Attenuator
- Coaxial Matching Load
- Coaxial DC Block
- Coaxial Bias Tee
- Coaxial Filter
- Coaxial Directional Coupler
- Coaxial Power Divider
- Coaxial Hybrid Coupler
- Coaxial Cable

COAX ADAPTER (IN SERIES)

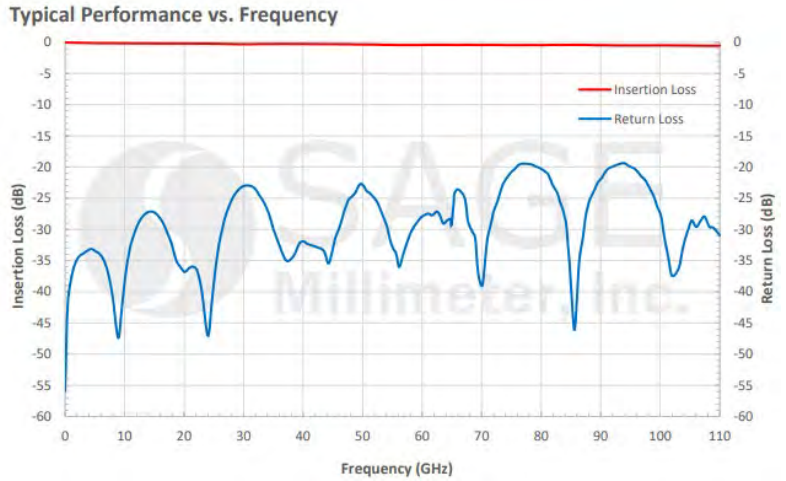
FAMILY: SCT
DC to 110 GHz

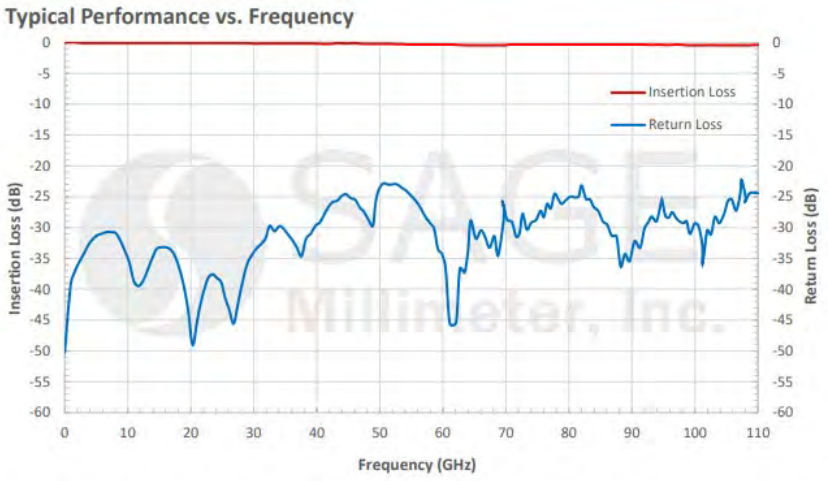
More Than 50 Models

1 mm, 1.35 mm, 1.85 mm, 2.4 mm, 2.92 mm, SMP, SMA

SWC-101F-R1
DC to 110 GHz

SCT-1M1M-UB
DC to 110 GHz





COAX ADAPTER (BETWEEN SERIES)

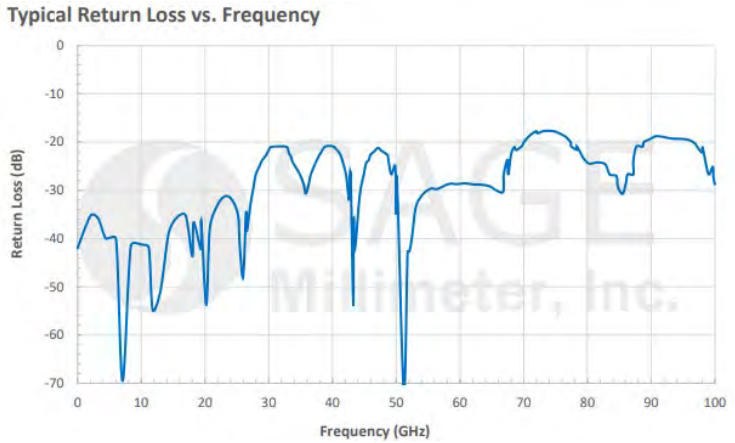
FAMILY: SCT
DC to 110 GHz

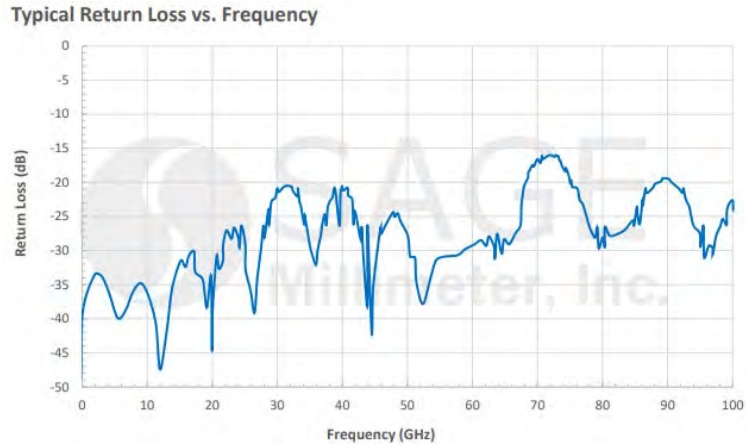
More Than 50 Models

1 mm, 1.35 mm, 1.85 mm, 2.4 mm, 2.92 mm, SMP, SMA

SCT-AF1M-UB
DC to 100 GHz

SCT-AF1F-UB
DC to 100 GHz





COAX ADAPTER (FIXED)

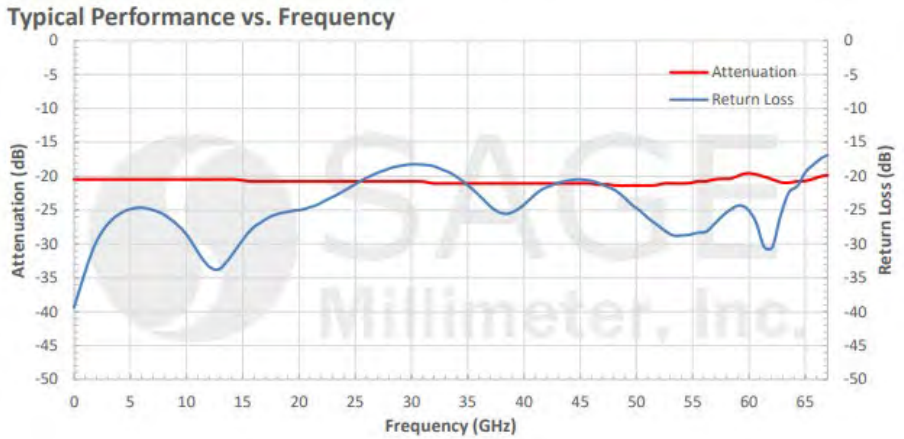
FAMILY: SCA
DC to 67 GHz
3 dB THRU 30 dB

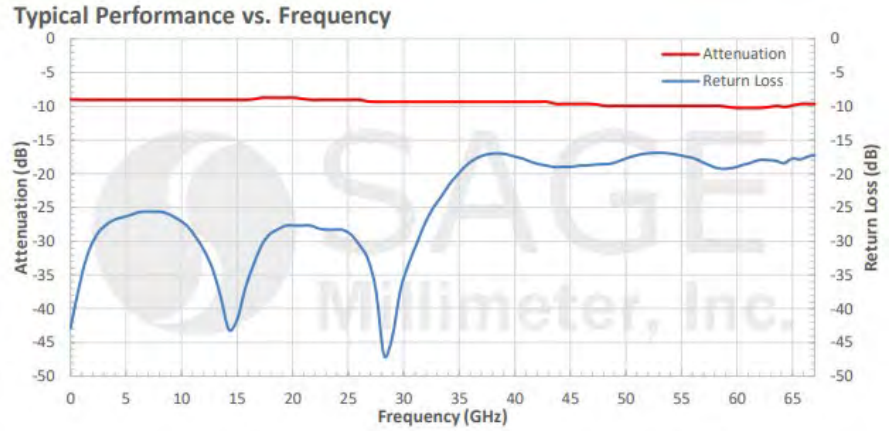
More Than 50 Models

1.85 mm, 2.4 mm, 2.92 mm. 3.5 mm and SMA

SCA-20-VMVF-S9
DC to 67 GHz

SCA-10-VMVF-S9
DC to 67 GHz





COAX MATCHING LOAD

FAMILY: SCM
DC to 67 GHz

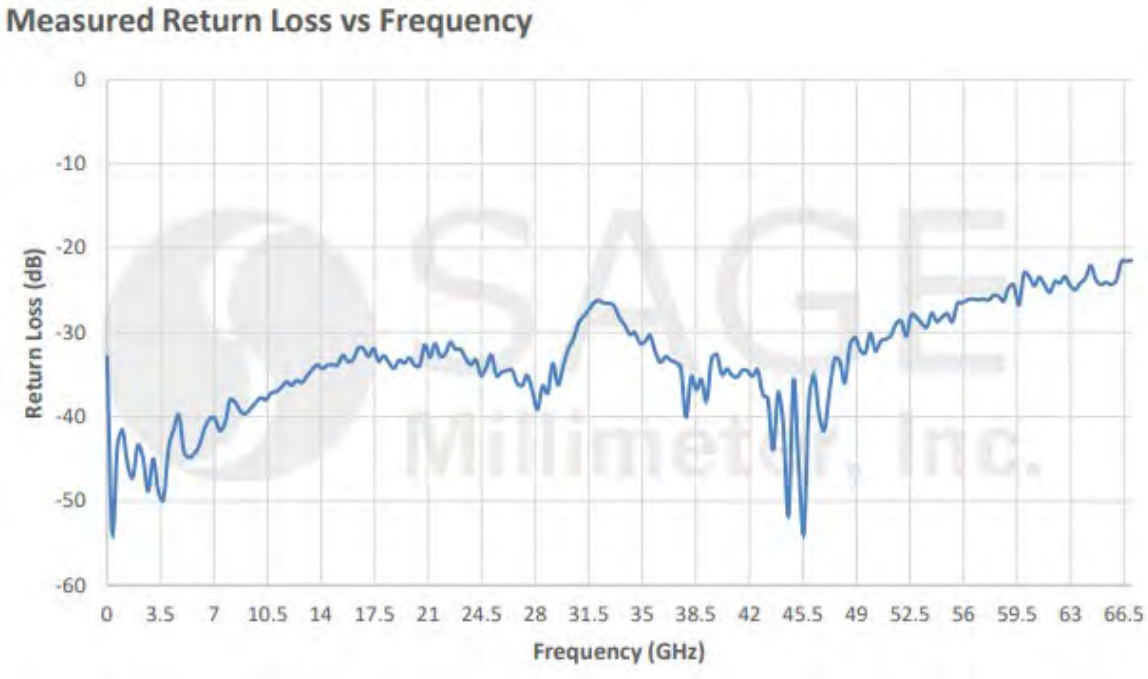
More Than 6 Models

1.85 mm, 2.4 mm, 2.92 mm

STQ-CM-KF27-U2
DC to 50 GHz

STQ-CM-VM27-U2
DC to 67 GHz

STQ-CM-2M27-U2
DC to 40 GHz



COAX DC BLOCK

FAMILY: SCB
DC to 67 GHz

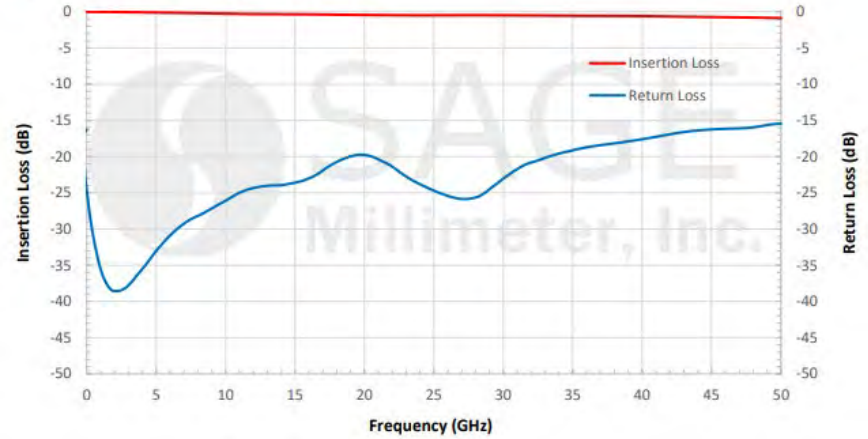
5 Models

1.85 mm, 2.4 mm, 3.5 mm, 2.92 mm

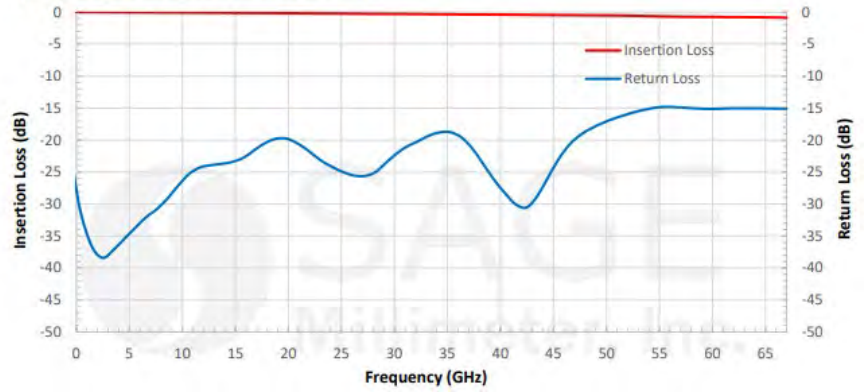
SCB-050-2F2M-U2
DC to 50 GHz

SCB-016-VFVM-U2
DC to 67 GHz

Typical Performance vs. Frequency



Typical Performance vs. Frequency



COAX BIAS TEE

FAMILY: SCV
DC to 85 GHz

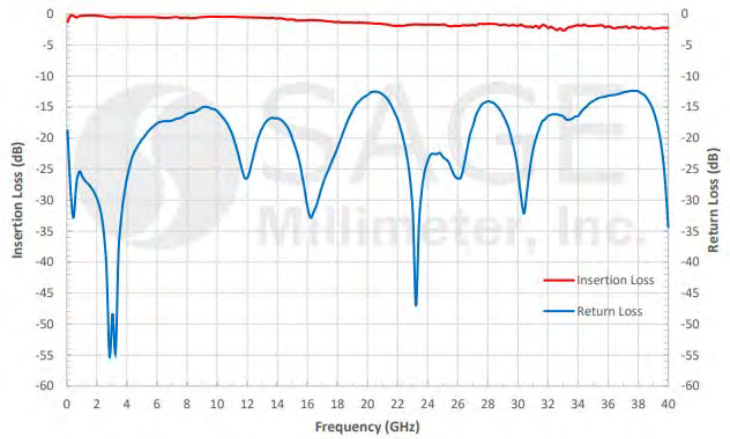
5 Models

1.85 mm, 2.4 mm, 3.5 mm, 2.92 mm

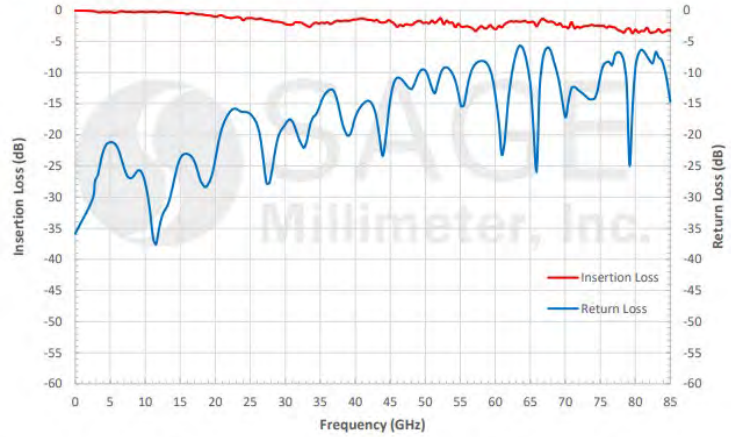
SCV-000403302508-KFKF-U3
DC to 40 GHz

SCV-000853402505-VFVF-U3
DC to 85 GHz

Typical Performance vs. Frequency



Typical Performance vs. Frequency



COAX FILTER, BANDPASS

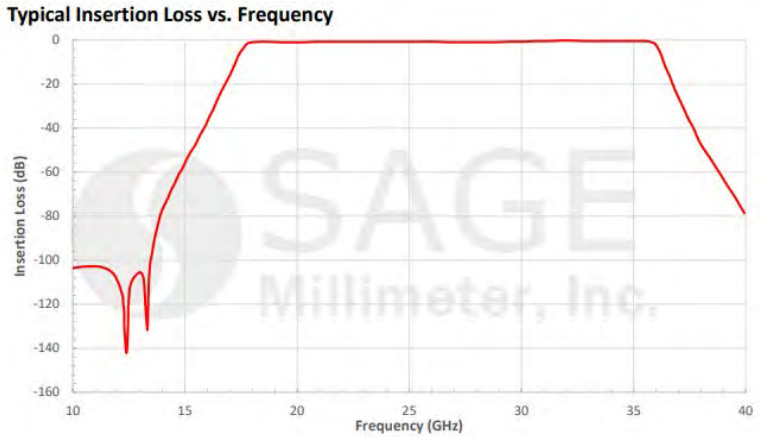
FAMILY: SCF
2 to 40 GHz

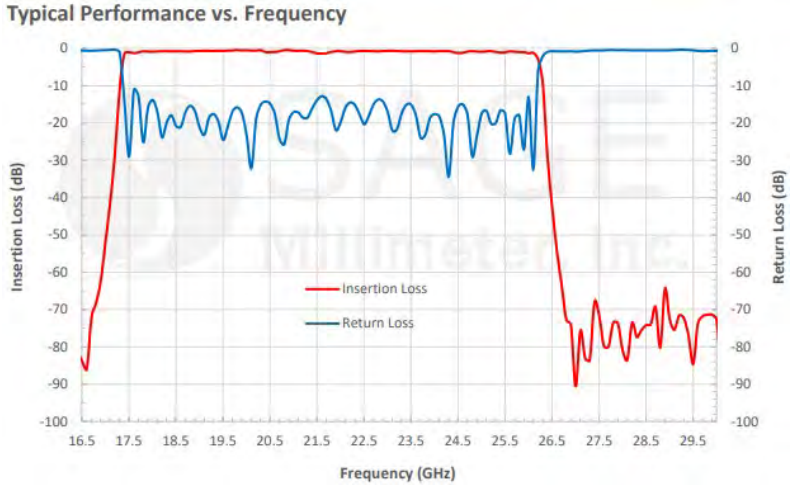
More Than 25 Models

Bandpass Filter

SCF-27317335-VFVF-B1
Passband: 18 to 35 GHz

SCF-22308340-SFSF-B3
Passband: 18 to 26.5 GHz





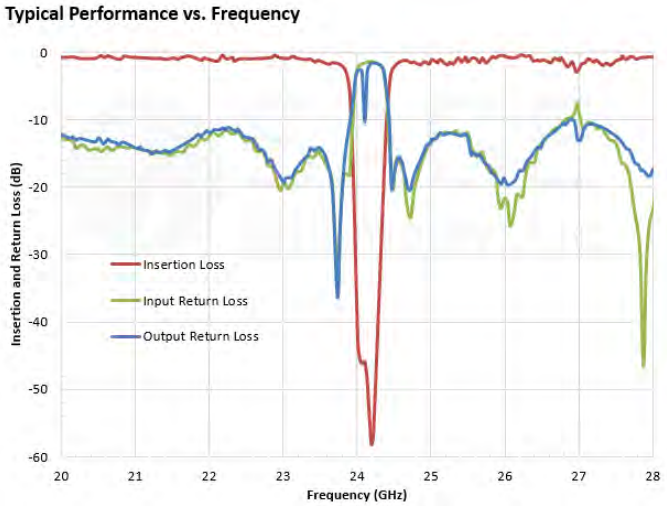
COAX FILTER, BANDSTOP

SCF-24324340-KFKF-N3

Features:

- Notch at 24.125 GHz
- High Rejection
- Narrow Notch Bandwidth
- Other Frequency Available

Parameter	Minimum	Typical	Maximum
Passband Frequency, Low Side	DC		23.5 GHz
Passband Frequency, High Side	25 GHz		40 GHz
Passband Insertion Loss		3.0 dB	
Rejection Frequency	24.0 GHz		24.25 GHz
Rejection		40 dB	
Passband Return Loss		9 dB	
Impedance		50 Ω	
Power Handling			1 W (CW)
Specification Temperature		+25 °C	
Operating Temperature	-20 °C		+60 °C



COAX FILTER, HIGHPASS

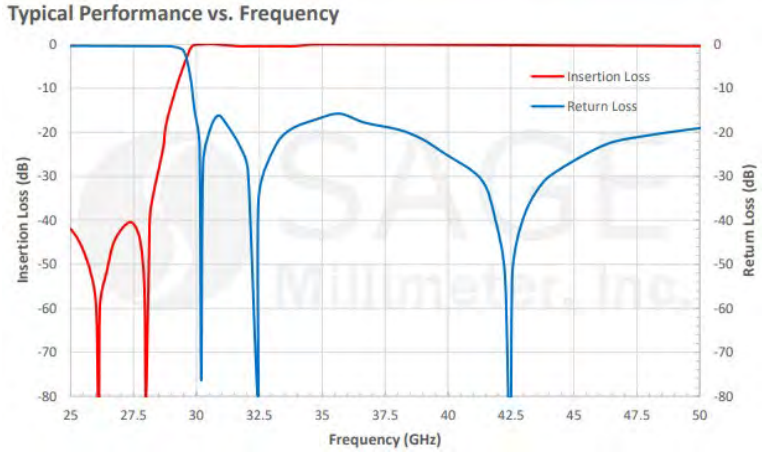
FAMILY: SCF
15 to 110 GHz

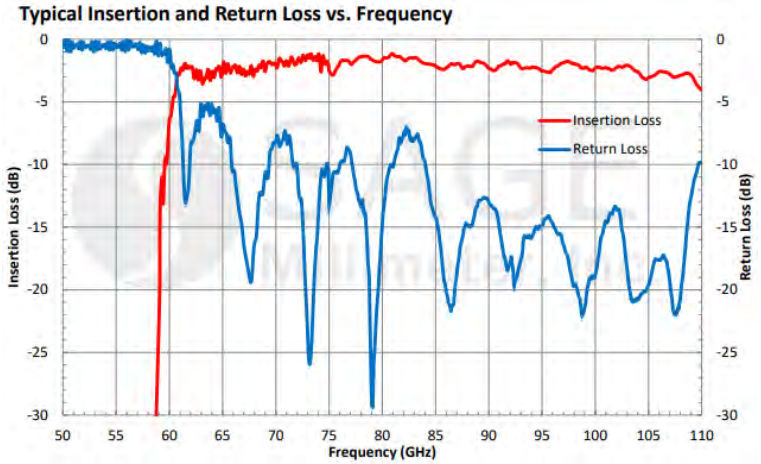
10 Models

Highpass Filter

SCF-30328330-2F2F-H3
Passband: 30 to 50 GHz

SCF-61358340-101F1F-H1
Passband: 61 to 110 GHz





COAX FILTER, LOWPASS

FAMILY: SCF
15 to 110 GHz

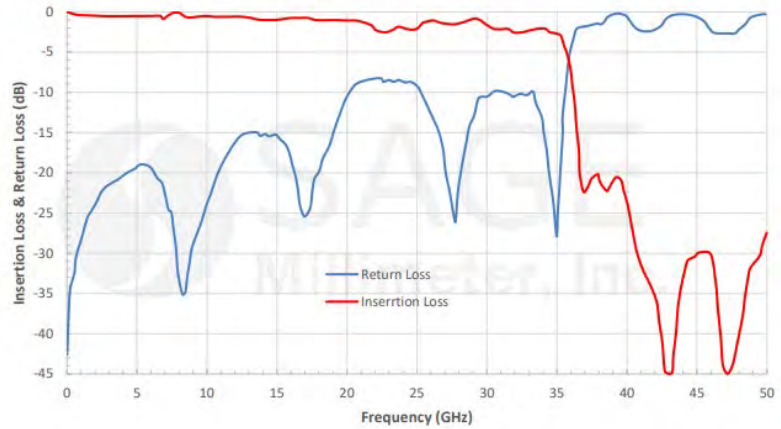
10 Models

Highpass Filter

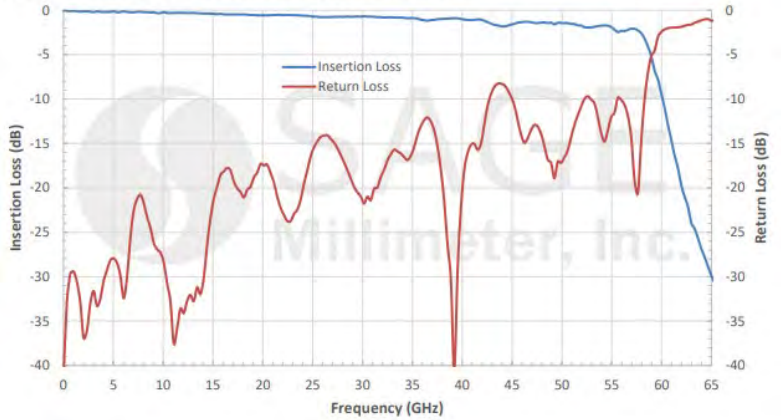
SCF-33337325-KFKM-L3
Passband: DC to 30 GHz

SCF-55375330-KFKM-L1
Passband: DC to 55 GHz

Typical Performance vs. Frequency



Typical Insertion and Return Loss vs Frequency



COAX DIRECTIONAL COUPLER

FAMILY: SCD
1 to 67 GHz

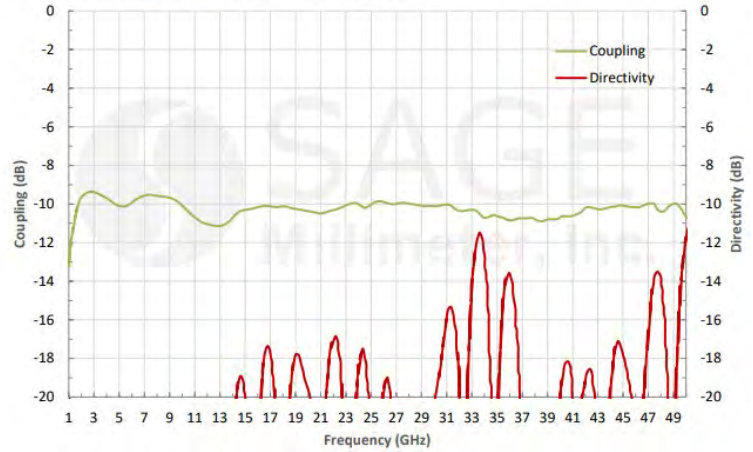
More Than 25 Models

1.85 mm, 2.4 mm, 2.92 mm and SMA

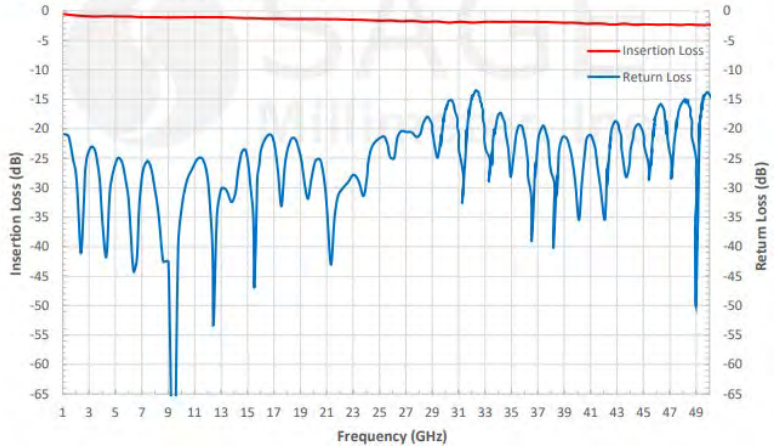
SCD-0135031008-2F-SA
1 to 50 GHz, 10 dB

SCD-0135032008-2F-SA
1 to 50 GHz, 20 dB

Typical Coupling and Directivity vs. Frequency



Typical Performance vs. Frequency



COAX POWER DIVIDER

FAMILY: SCS
1 to 40 GHz

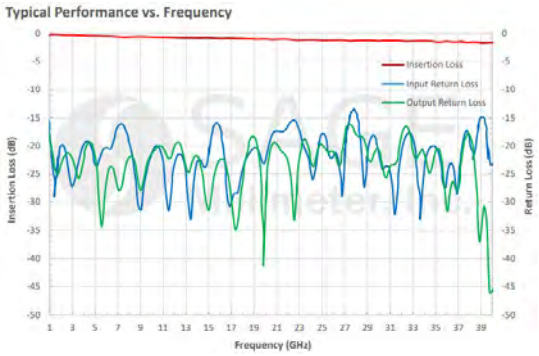
More Than 50 Models

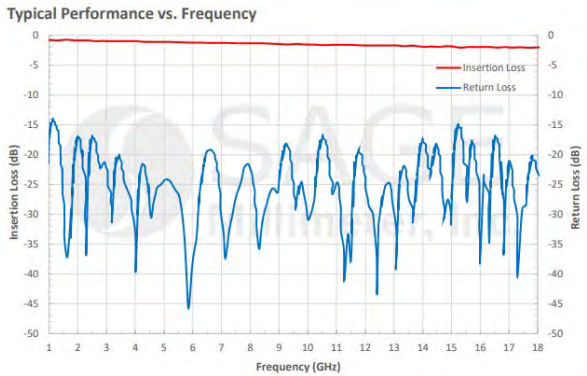
2 Way, 4 Way, 8 Way and 16 Way

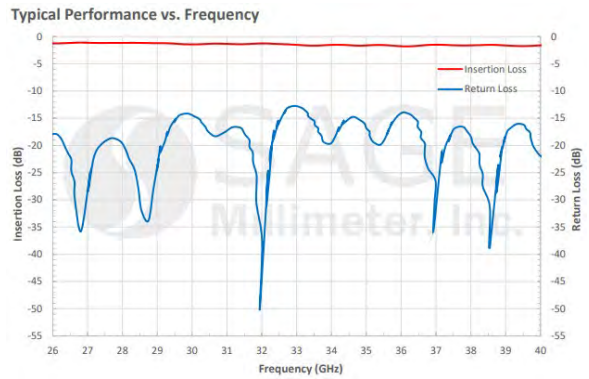
SCS-0134031215-KFKF-22
1 to 40 GHz, 2 Way

SCS-0134035014-KFKF-42
1 to 40 GHz, 4 Way

SCS-1034032615-KFKF-82
10 to 40 GHz, 8 Way







COAX HYBRID COUPLER

FAMILY: SCZ
1 to 40 GHz

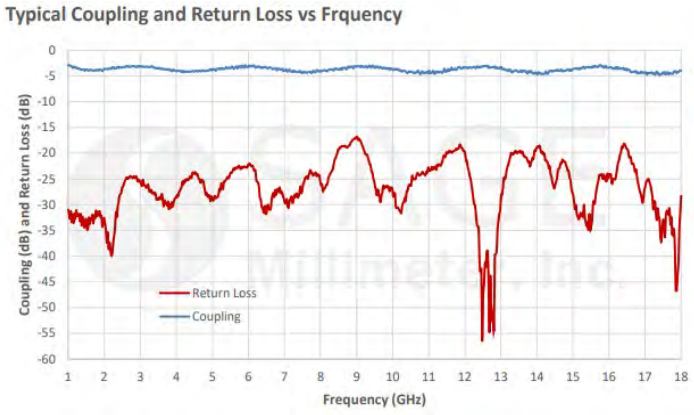
More Than 15 Models

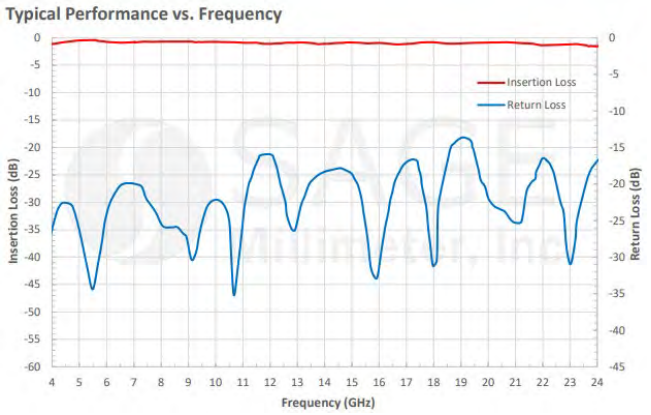
2.92 mm, SMA

SCZ-0131831509-SFSF-43
1 to 18 GHz, 90 Degree

SCZ-0432431409-SFSF-43
4 to 24 GHz, 90 Degree

SCZ-1834031209-KFKF-43
18 to 40 GHz, 90 Degree





COAX CABLES (FLEXIBLE)

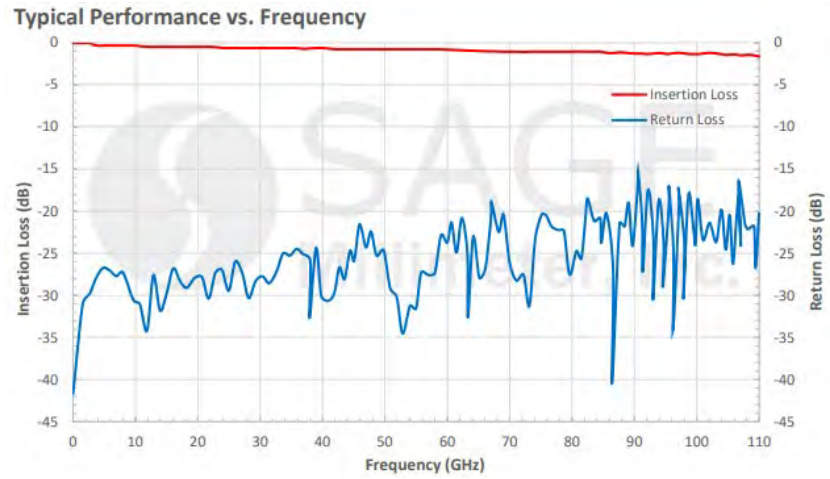
FAMILY: SCW
DC to 110 GHz

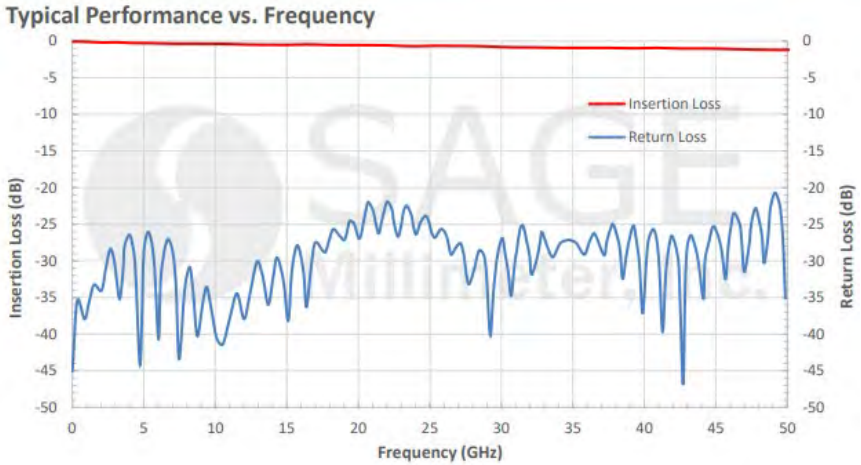
More Than 50 Models

1 mm, 1.85 mm, 2.4 mm, 2.92 mm

SCW-1M1M003-F1
DC to 110 GHz, 3”

SCW-2M2M006-F1
DC to 50 GHz, 6”





COAX CABLES (SEMI RIGID)

FAMILY: SCW
DC to 110 GHz

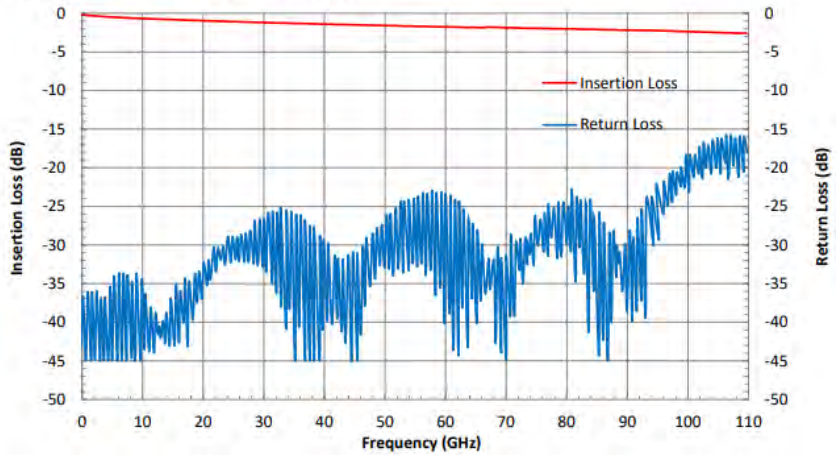
More Than 50 Models

1 mm, 1.85 mm, 2.4 mm, 2.92 mm

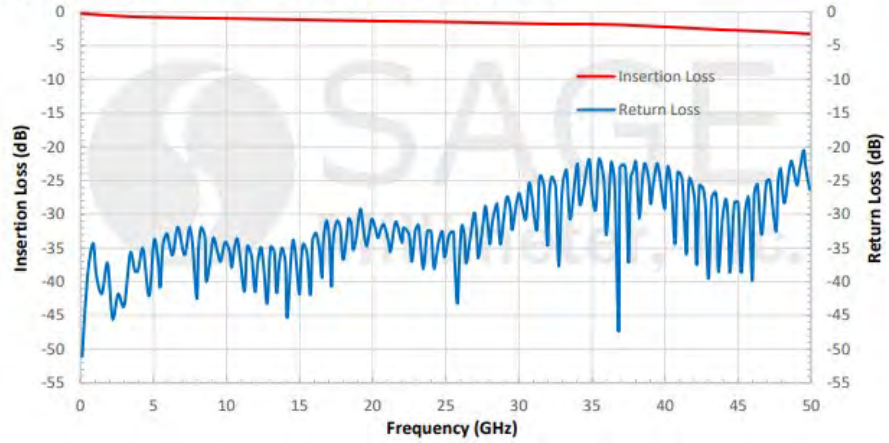
SCW-1M1M006-S1
DC to 110 GHz, 6”

SCW-2M2M012-S1
DC to 50 GHz, 12”

Typical Performance vs. Frequency



Typical Insertion Loss & Return Loss vs. Frequency



TEST EQUIPMENT

ERAVANT TEST EQUIPMENT

The focus of this presentation section is to introduce the **Eravant** test equipment product family by highlighting some representative models. There are many standard models available to satisfy all 5G system applications. The test equipment family includes the following types, which can be found here. Custom test equipment is available upon request.

BROAD BANDWIDTH NOISE SOURCE

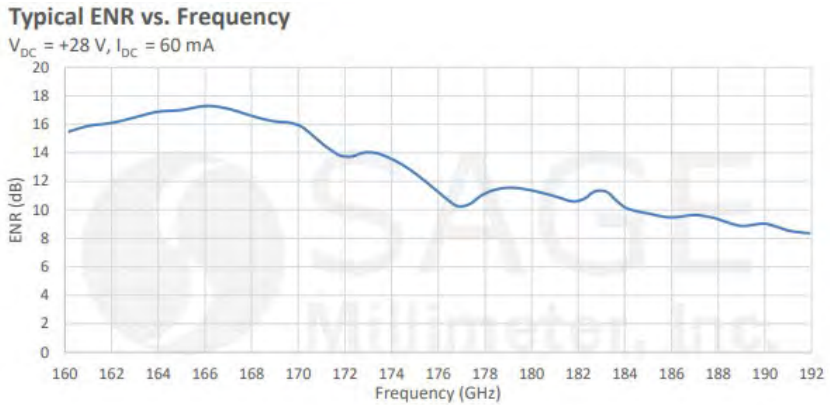
FAMILY: STZ
26.5 to 220 GHz

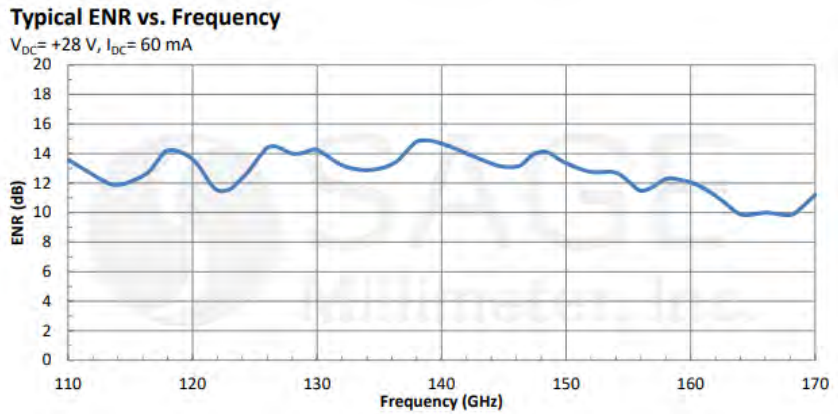
More Than 20 Models: Full Waveguide Bandwidth

STZ-05-I1
140 to 220 GHz

STZ-12-I1
60 to 90 GHz

STZ-06-I1
110 to 170 GHzc





SPECTRUM ANALYZER HARMONIC MIXER

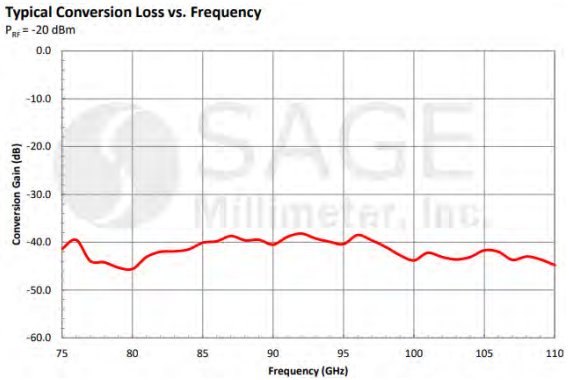
FAMILY: SFH
26.5 to 110 GHz

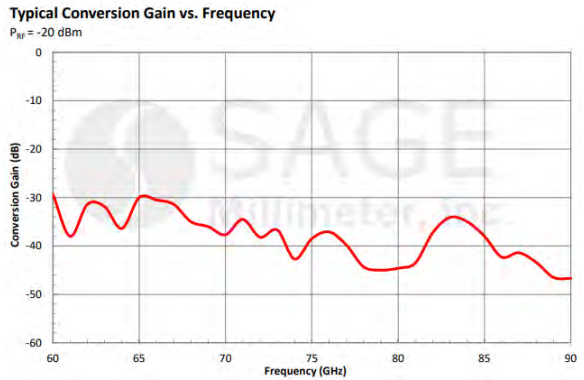
More Than 8 Models: Full Waveguide Bandwidth

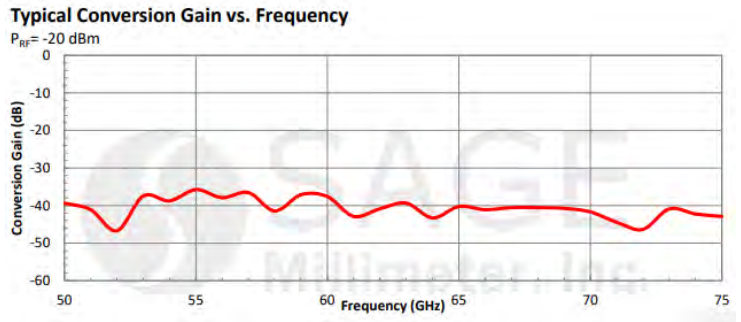
SFH-10SFSF-A3
75 to 110 GHz

SFH-12SFSF-A3
60 to 90 GHz

SFH-15SFSF-A3
40 to 60 GHz







CALIBRATION KIT (VECTOR NETWORK ANALYZER)

FAMILY: STQ
DC to 220 GHz

14 Models: WR-05 to WR-42 & COAX

STQ-TO-05-U3-CKIT1
WR-05, 140 to 220 GHz

STQ-TO-10-U3-CKIT1
WR-10, 75 to 110 GHz

STQ-TO-28-U3-CKIT1
WR-28, 26.5 to 40 GHz

STQ-TO-VFVM-U3-CKIT1
1.85 mm, DC to 67 GHz

STQ-TO-2F2M-U3-CKIT1
2.4 mm, DC to 50 GHz

STQ-TO-KFKM-U3-CKIT1
2.92 mm, DC to 40 GHz

SYNTHESIZER/SWEEPER FREQUENCY EXTENDER

FAMILY: STE
DC to 220 GHz

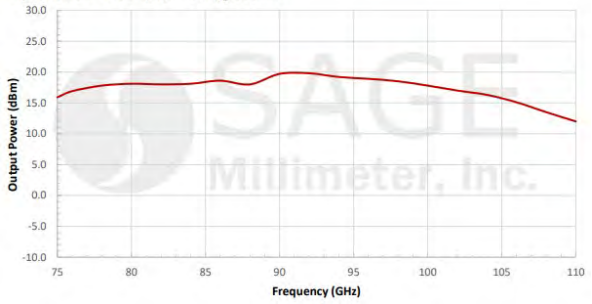
More Than 20 Models: WR-05 to WR-15 Bands

STE-KF310-15-S1
75 to 110 GHz, +15 dBm

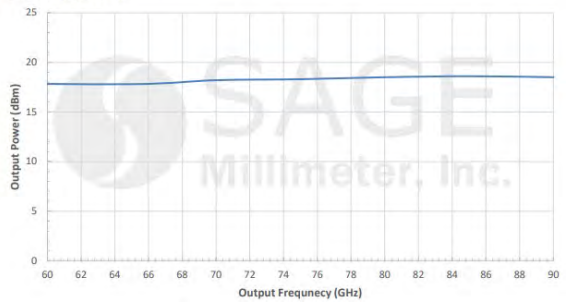
STE-SF612-18-S1
60 to 90 GHz, +18 dBm

STE-SF415-04-S1
50 to 75 GHz, +15 dBm

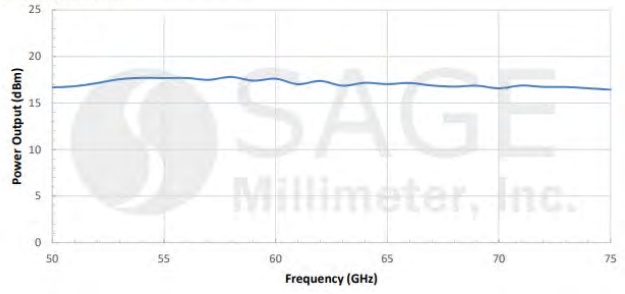
Typical Performance vs. Frequency
Input Power: + 5 dBm, V/I: +15 V_{DC}/300 mA



Typical Output Power vs. Frequency
Bias: +8 Vdc/950 mA



Typical Performance vs Frequency
RF Input Power: +5 dBm



FREQUENCY DOWN-CONVERTER

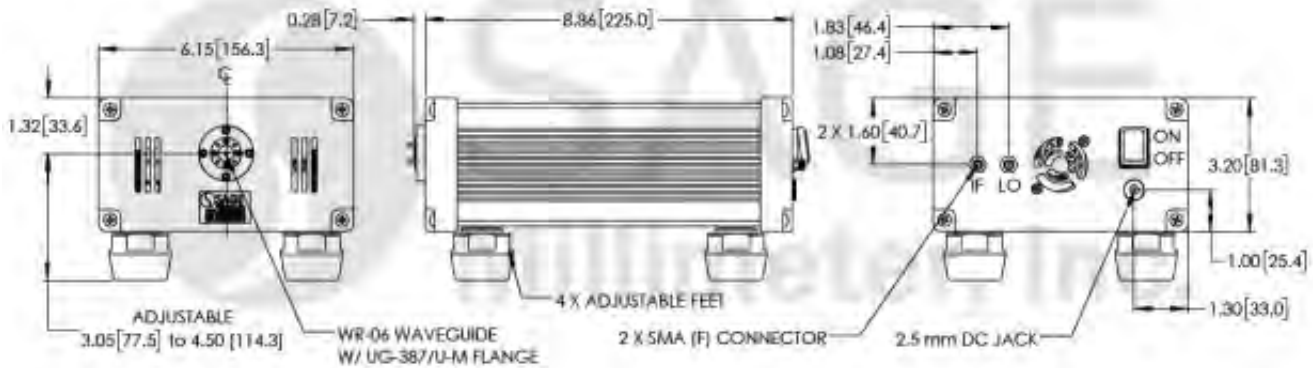
FAMILY: STC
26.5 to 170 GHz

More Than 8 Models: WR-06 to WR-28 Bands

STC-20-06-S1
110 to 170 GHz

STC-20-10-S1
75 to 110 GHz

STC-20-15-S1
50 to 75 GHz



NOISE FIGURE & GAIN TEST EXTENDER

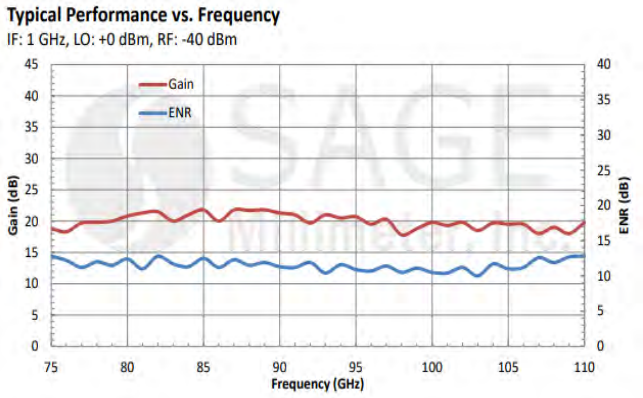
FAMILY: STG
26.5 to 170 GHz

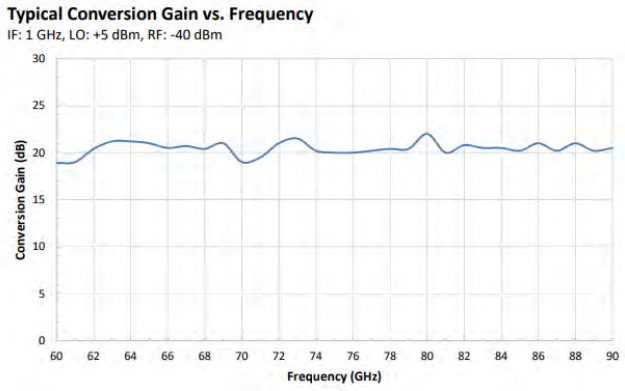
More Than 8 Models: WR-06 to WR-28 Bands

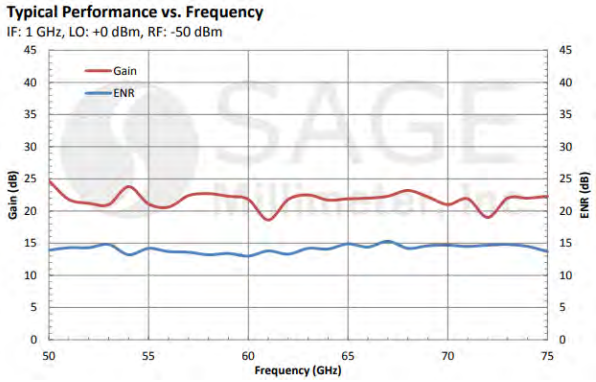
STG-10-S1
75 to 110 GHz

STG-12-S1
60 to 90 GHz

STG-15-S1
50 to 75 GHz





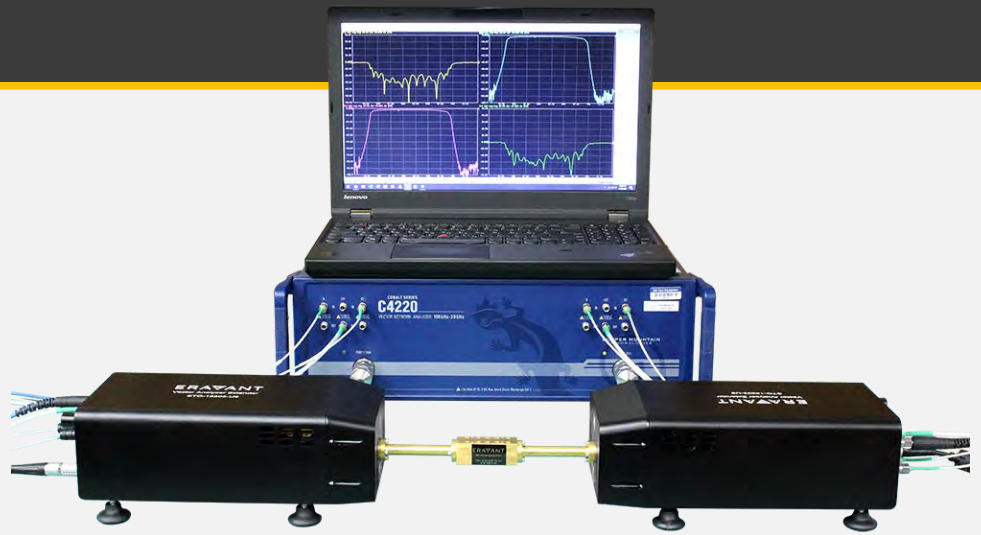


VECTOR ANALYZER EXTENDER

FAMILY: STO
50 to 170 GHz

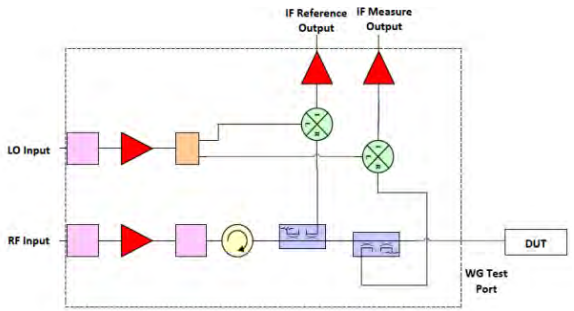
5 Models: WR-06 to WR-15 Bands

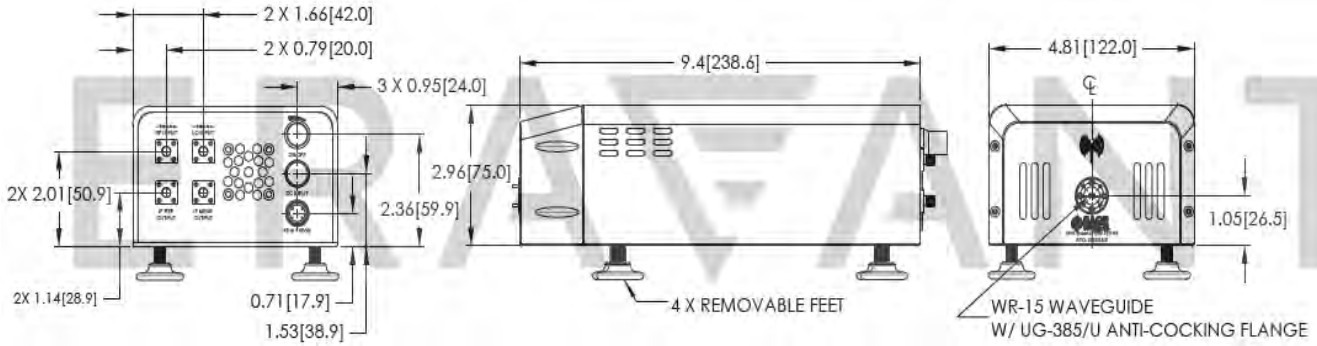
STO-10203-U6
75 to 110 GHz



STO-12203-U6
60 to 90 GHz

STO-15203-U6
50 to 75 GHz





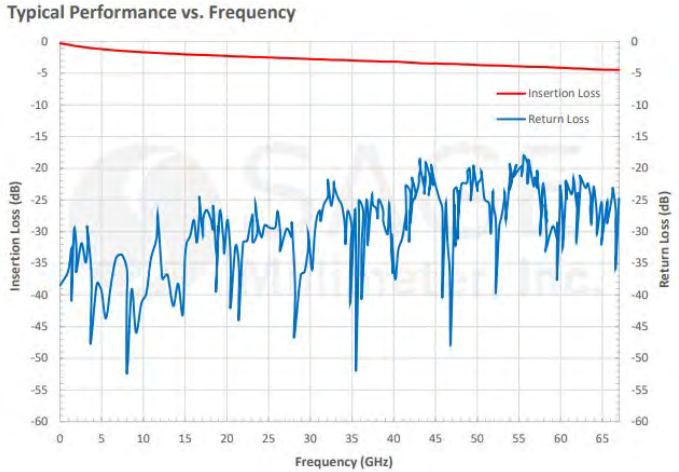
COAX CABLE (VECTOR NETWORK ANALYZER)

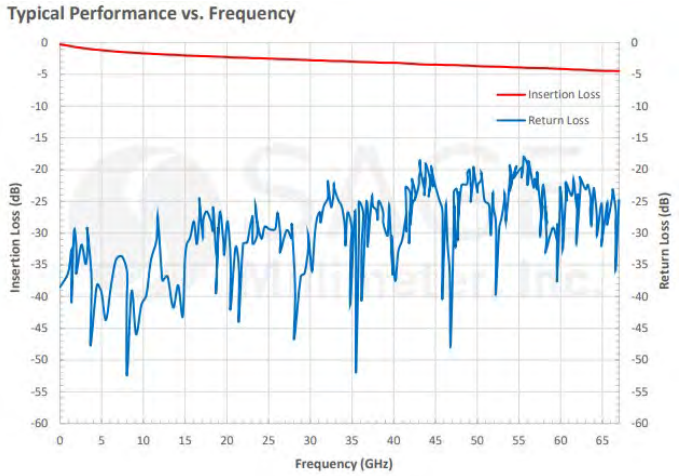
FAMILY: STQ
DC to 67 GHz

More Than 50 Models: 1.85 mm, 2.4 mm, 2.92 mm

STQ-CW-VFVF025-F1
DC to 67 GHz, 25”

STQ-CW-VFVM025-F1
DC to 67 GHz, 25”





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