# SFS-05-UEB-2

# ERA₩ANT

## G-Band Subharmonically Pumped Mixer, 140 to 220 GHz

**SFS-05-UEB-2** is a G-Band subharmonically pumped mixer. The mixer is designed with high performance GaAs Schottky diodes and accepts an LO frequency at half the RF frequency to cover the frequency range from 140 to 220 GHz. With a low LO frequency range of 70 to 110 GHz, this mixer is well suited for low-cost G-band system solutions due to local oscillator frequency requirement. The mixer provides 30 dB 2LO to RF isolation, and 30 dB LO to IF isolation typically. The subharmonically pumped mixers in other frequency bands are offered under various model numbers.



### Electrical Specifications:

| Parameter                          | Minimum | Typical | Maximum |
|------------------------------------|---------|---------|---------|
| RF Frequency                       | 140 GHz |         | 220 GHz |
| LO Frequency                       | 70 GHz  |         | 110 GHz |
| IF Frequency                       | DC      |         | 30 GHz  |
| LO Pumping Power                   | +8 dBm  |         | +10 dBm |
| Conversion Loss (IF: DC to 10 GHz) |         | 15 dB   |         |
| Conversion Loss (IF: 10 to 30 GHz) |         | 20 dB   |         |
| LO to IF Isolation                 |         | 30 dB   |         |
| 2LO to RF Isolation                |         | 30 dB   |         |
| Combined RF and LO Power           |         |         | +10 dBm |
| Specification Temperature          |         | +25°C   |         |
| Operating Temperature              | +0°C    |         | +50°C   |

### **Mechanical Specifications:**

| Item          | Specification                                       |  |
|---------------|---|--|
| RF Port       | WR-05 Waveguide with UG-387/U-M Anti-Cocking Flange |  |
| LO Port       | WR-10 Waveguide with UG-387/U-M Anti-Cocking Flange |  |
| IF Port       | 2.92 mm (F)   |  |
| Case Material | Aluminum  |  |
| Finish        | Gold Plated   |  |
| Weight        | 0.4 Oz  |  |
| Size          | 0.75" (W) x 0.75" (L) x 0.75" (H)                   |  |
| Outline       | FS-GW-A   |  |

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## ECCN EAR99

#### FEATURES

- Low LO Power Requirement
- Subharmonic Mixing
- Compact Package

### **APPLICATIONS**

- THz
- Test Equipment

### SUPPLEMENTAL DETAILS

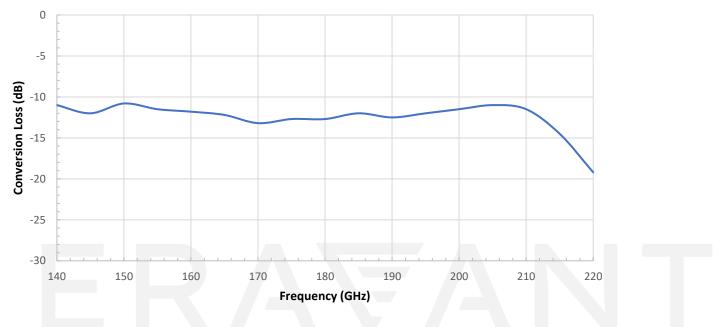


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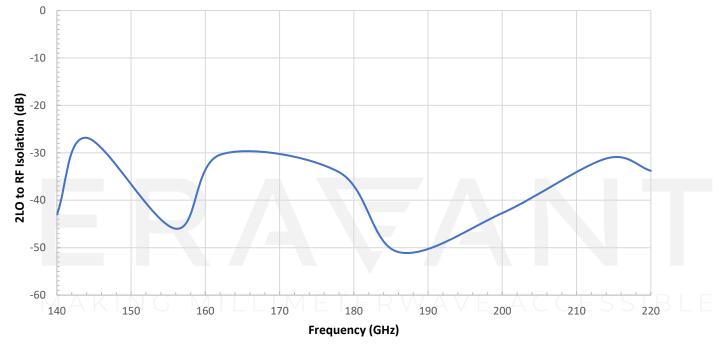
## **Conversion Loss vs. Frequency**

RF: -20 dBm; IF: 100 MHz



## 2LO to RF Isolation vs. Frequency

LO: +10 dBm KING MILLIMEIER WAVE ACCESSIBLE



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### MALE OR FEMALE COAX CONNECTOR (IF PORT) 0.75 19.1 0.75[19.1] 0 Q ERAVANI 0.75[19.1] M/N: X000000000 S/N: X000000000 0 WR-05 WAVEGUIDE W/ UG-387/U-M ANTI-COCKING FLANGE (RF PORT) WR-10 WAVEGUIDE W/ UG-387/U-M ANTI-COCKING FLANGE (LO PORT) 0 0 MAKING MILL RF PORT LO PORT TV 1 0 0 $\bigcirc$

### Mechanical Outline: (Unless otherwise specified, all dimensions are in inches [millimeters])

#### NOTE:

- All data presented is collected from a sample lot. Actual data may vary unit to unit slightly.
- All testing was performed under +25°C case temperature.
- Eravant reserves the right to change the information presented without notice.

#### CAUTION:

- Exceeding absolute maximum ratings shown will damage the device.
- The device is static sensitive. Always follow ESD rules when working with the device.
- The IF port of the mixer is DC coupled. Use a DC block when connecting to other devices. Any external bias voltage applied to the IF port will damage the mixer. Eravant model, <u>SCB-050-KFKM-U2</u>, is highly recommended.
- Proper torque, 8.0 ± 0.15 inch-pounds (0.92 ± 0.05 Nm), should be applied. Torque wrench, model <u>SCH-08008-S1</u>, is highly recommended.
- Any foreign objects in the waveguide will cause performance degradation and possible device damage.

# MAKING MILLIMETERWAVE ACCESSIBLE