

## D-Band Subharmonically Pumped Mixer, 110 to 170 GHz

**SFS-06-UEB** is a D-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 110 to 170 GHz. With a low LO frequency range of 55 to 85 GHz, this mixer is well suited for low-cost D-band system solutions due to local oscillator frequency requirement. The mixer provides 15 dB conversion loss, 20 dB 2LO to RF isolation, and 20 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	110 GHz		170 GHz
LO Frequency	55 GHz		85 GHz
IF Frequency	DC		5.0 GHz
LO Pumping Power	+8 dBm		+10 dBm
Conversion Loss		15 dB	
LO to IF Isolation		20 dB	
2LO to RF Isolation		20 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-06 Waveguide with UG-387/U-M Anti-Cocking Flange
LO Port	WR-12 Waveguide with UG-387/U Anti-Cocking Flange
IF Port	SMA (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-DE-A

### ECCN

EAR99

### FEATURES

- Low LO Power Requirement
- Subharmonic Mixing
- Compact Package

### APPLICATIONS

- THz
- Test Equipment

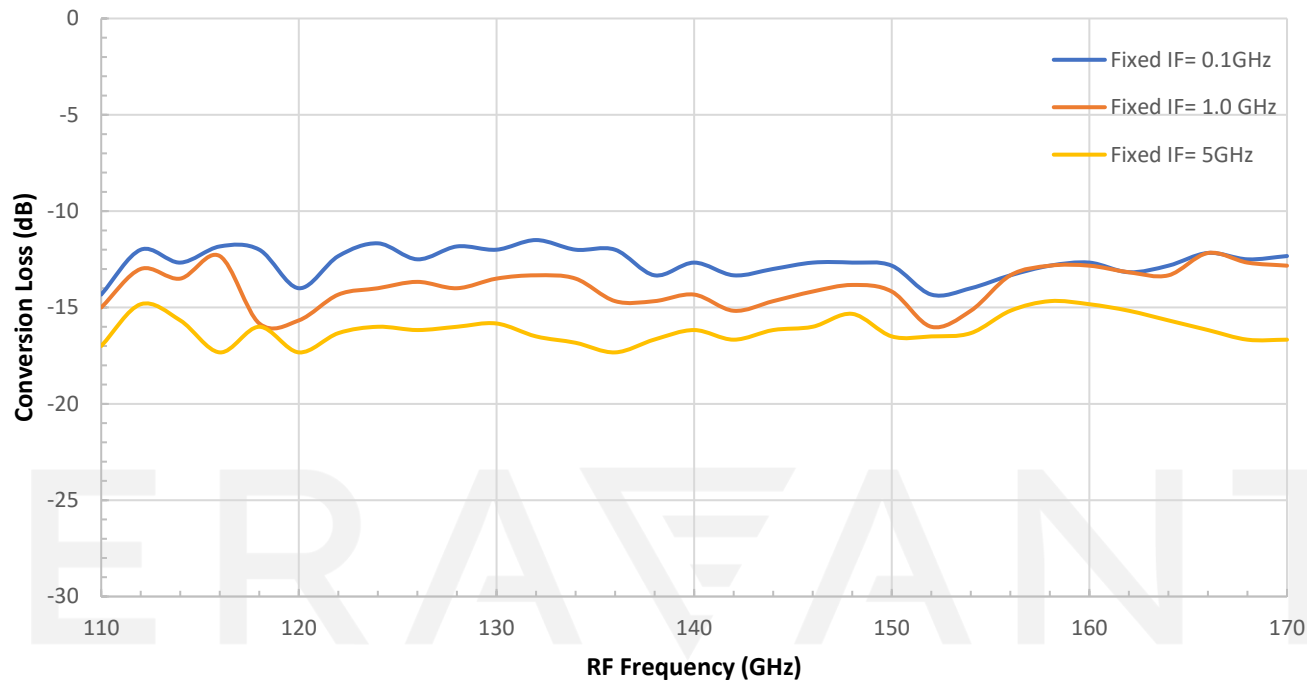
### SUPPLEMENTAL DETAILS



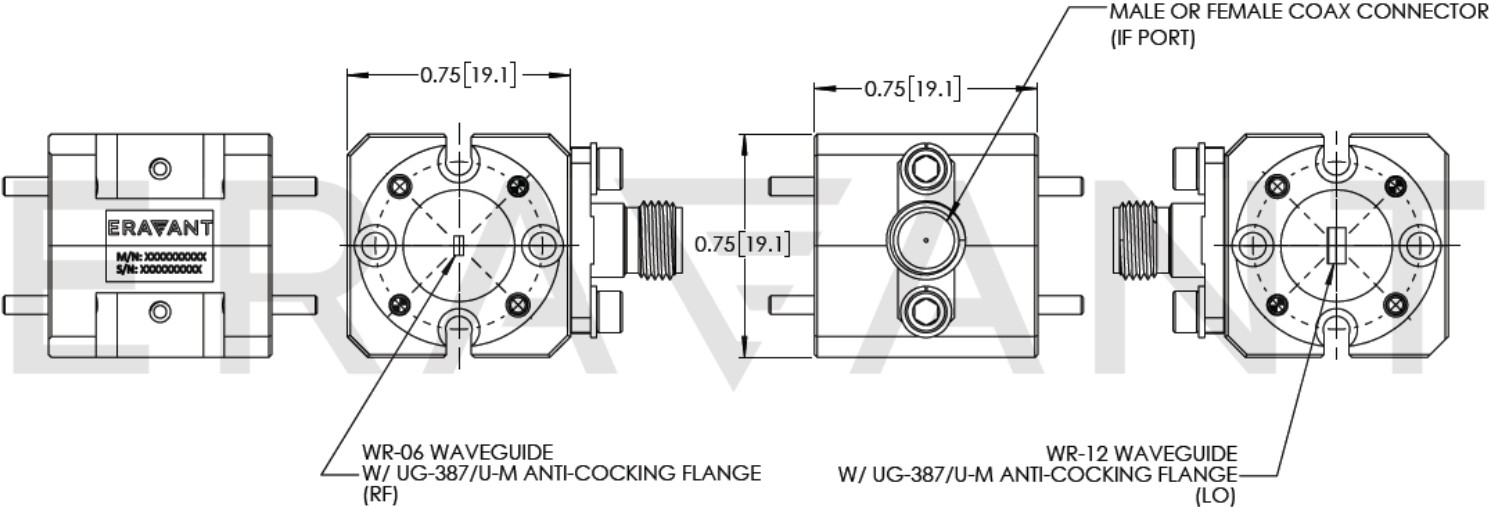
SFS-06-UEB

Conversion Loss vs. Frequency

RF: -20 dBm; LO: +8 dBm



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



**NOTE:**

- On condition that test data is provided it is collected from a sample lot. Actual data may vary slightly from unit to unit. All testing is performed under +25 °C room temperature.
- On condition that simulated test data is provided, actual measured data may slightly vary.
- 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, SCB-050-KFKM-U2, is highly recommended.**
- If a waveguide is present, any foreign objects in the waveguide will cause performance degradation and may damage or destroy the unit.
- For 1.35 mm, 1.85 mm, 2.4 mm, 2.92 mm, and SMA connectors proper torque should be applied: 8.0 ± 0.15 inch-pounds (0.90 ± 0.02 Nm). **Torque wrench model SCH-08008-S1 is highly recommended**

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