SFS-05-UEB

G-Band Subharmonically Pumped Mixer, 140 to 220 GHz

SFS-05-UEB 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		5 GHz
LO Pumping Power	+8 dBm		+10 dBm
Conversion Loss		15 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	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-GW-A

ECCN

EAR99

FEATURES

- Low LO Power Requirement
- Subharmonic Mixing
- Compact Package

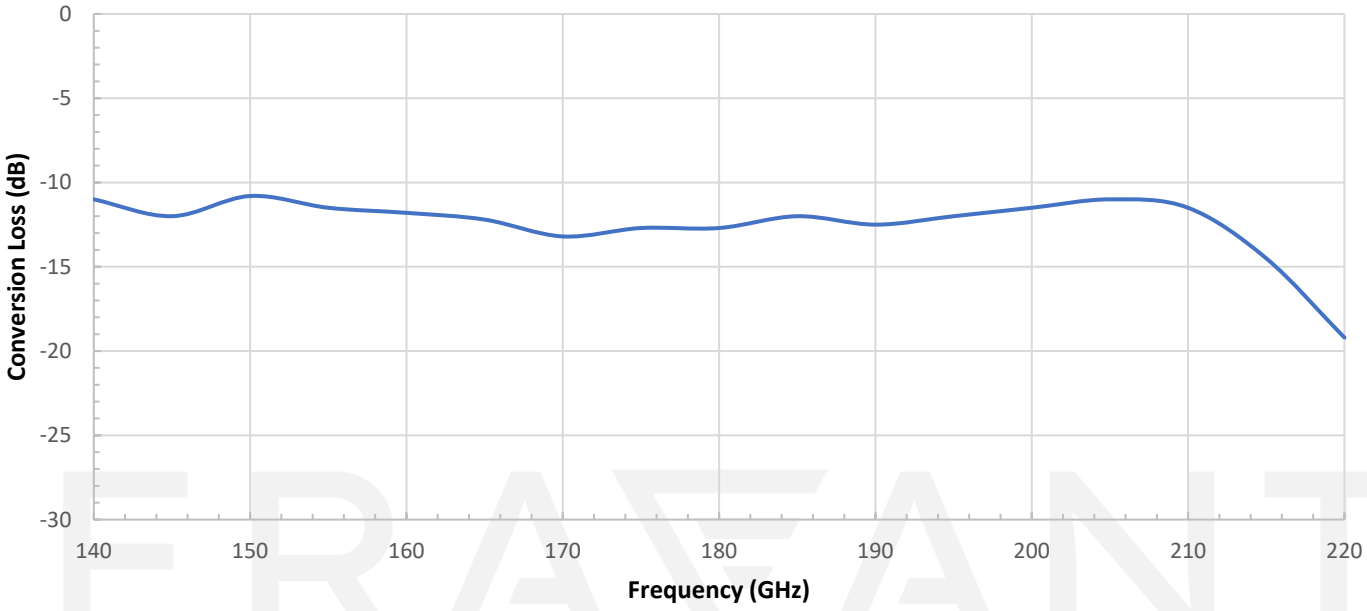
APPLICATIONS

- THz
- Test Equipment

SUPPLEMENTAL DETAILS

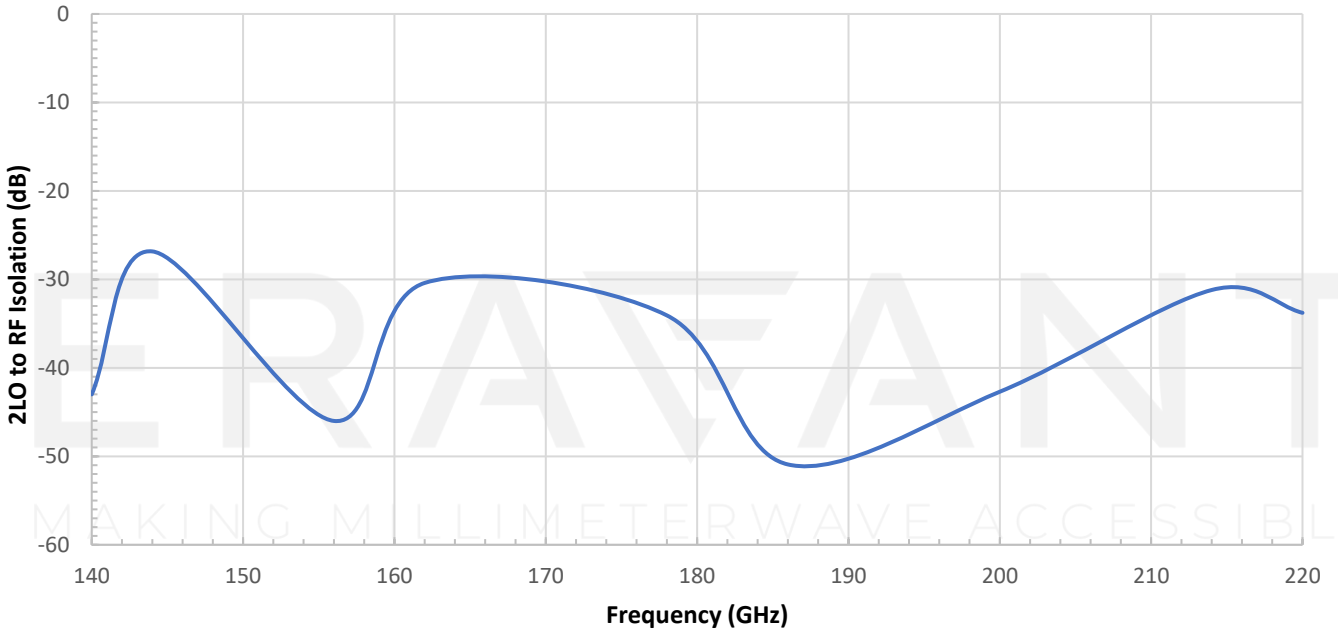
Conversion Loss vs. Frequency

RF: -20 dBm; IF: 100 MHz

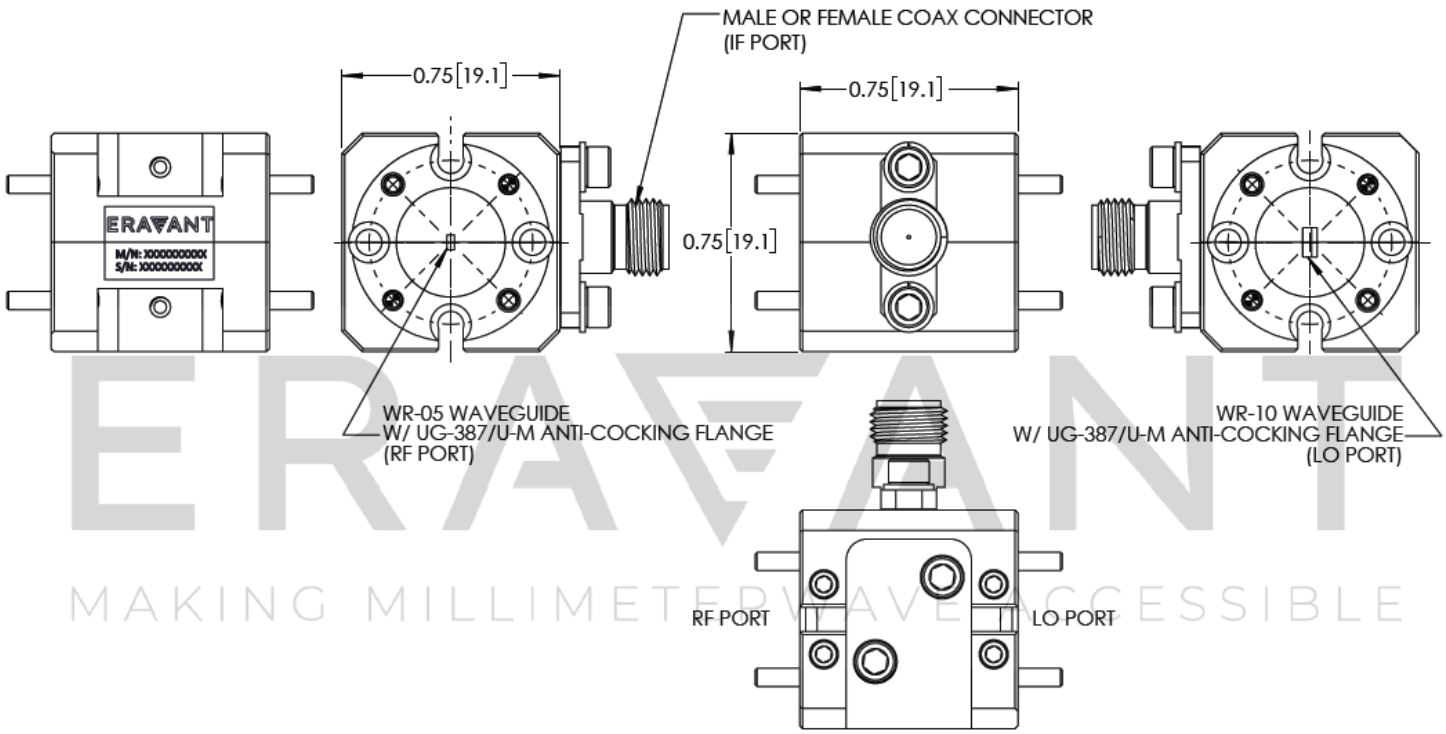


2LO to RF Isolation vs. Frequency

LO: +10 dBm



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 +25ºC 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, SCB-050-KFKM-U2, is highly recommended.**
- Proper torque, 8.0 ± 0.15 inch-pounds (0.92 ± 0.05 Nm), should be applied. Torque wrench, model SCH-08008-S1, is highly recommended.
- Any foreign objects in the waveguide will cause performance degradation and possible device damage.