

F-Band Sub-harmonically Pumped Mixer, 90 to 140 GHz

SFS-08-N1 is an F-Band sub-harmonically 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 90 to 140 GHz. With a low LO frequency range of 45 to 70 GHz, this mixer is well suited for low-cost F-Band system solutions as a result of half of the operating RF frequency. The mixer provides 16 dB conversion loss, 20 dB LO to RF isolation, and 30 dB LO to IF isolation. The sub-harmonically pumped mixers in other frequency bands are offered under various model numbers.



Electrical Specifications:

Parameter	Minimum	Typical	Maximum
RF Frequency	90 GHz		140 GHz
LO Frequency	45 GHz		70 GHz
IF Frequency	DC		5.0 GHz
LO Pumping Power		+13 dBm	
Conversion Loss		16 dB	
LO to IF Isolation		30 dB	
LO to RF Isolation		20 dB	
Combined RF to LO Power			+20 dBm
Specification Temperature		+25°C	
Operating Temperature	0°C		+50°C

Mechanical Specifications:

Item	Specification
RF Port	WR-08 Waveguide with UG-387/U-M Anti-Cocking Flange
LO Port	1.85 mm (F)
IF Port	SMA (F)
Case Material	Aluminum
Finish	Gold Plated
Weight	0.5 Oz
Size	0.80" (W) x 0.80" (L) x 0.75" (H)
Outline	FS-NF-A-2

ECCN

EAR99

FEATURES

- Low LO Power Requirement
- Subharmonic Mixing
- Compact Package

APPLICATIONS

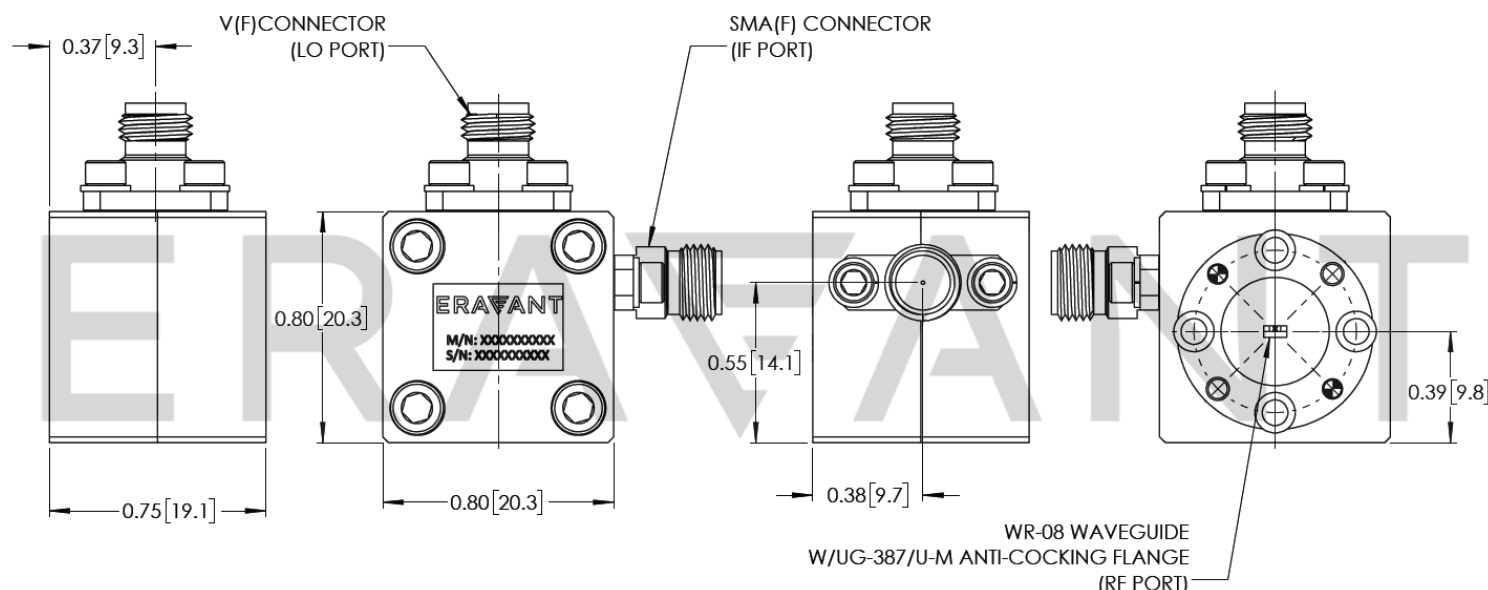
- Radar Systems
- Communication Systems
- Test Equipment

SUPPLEMENTAL DETAILS



Mechanical Outline:

Unless otherwise specified, all dimensions are in inches [millimeters]

**NOTE:**

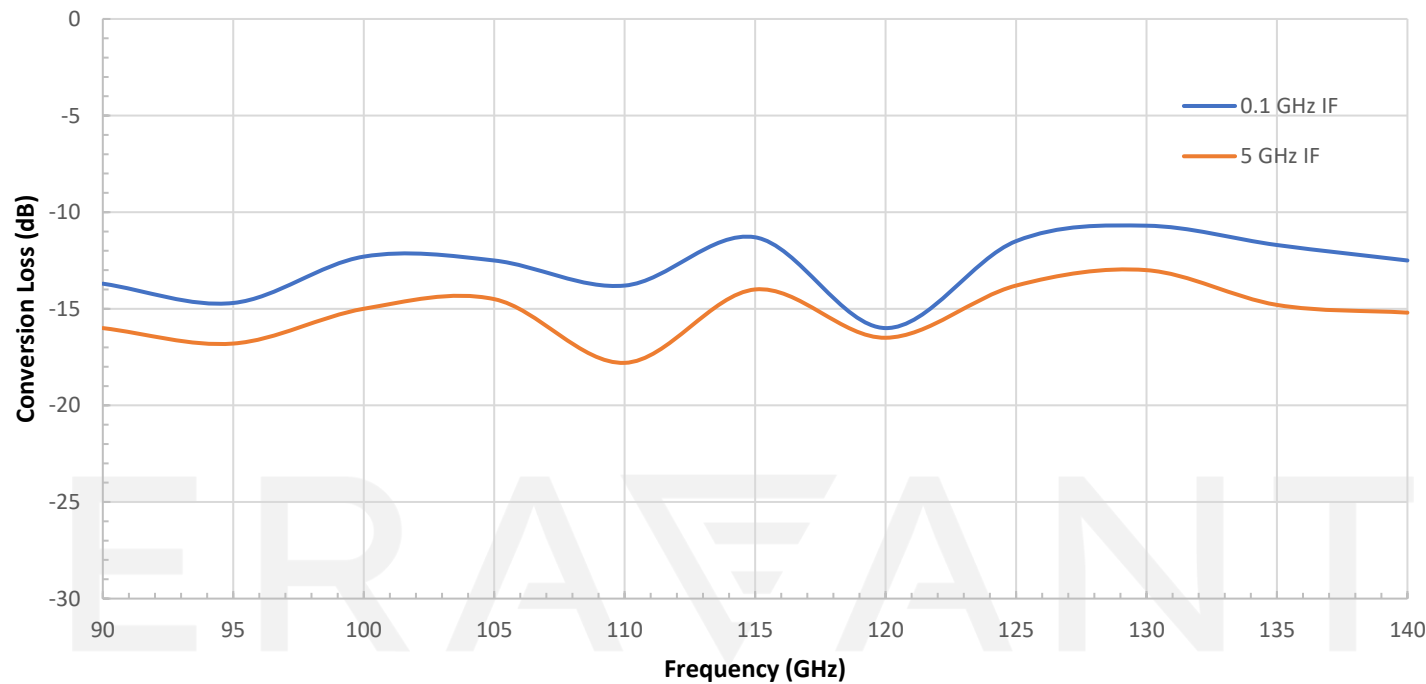
- On condition that test data is provided it is collected from a sample lot. Actual data may vary slightly from unit to unit. All testing is performed under +25 °C room temperature.
- On condition that simulated test data is provided, actual measured data may slightly vary.
- Eravant reserves the right 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.
- Any foreign objects in the antenna will cause performance degradation and possible device damage.
- For 1 mm connectors proper torque should be applied: 4.0 ± 0.15 inch-pounds (0.45 ± 0.02 Nm). Torque wrench model SCH-06004-S1 is highly recommended.
- 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

Conversion Loss vs. Frequency

RF: -20 dBm



LO to RF Isolation vs. Frequency

LO: +13 dBm

