

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

### Description:

**Model SFS-06-N3** 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 half of the RF frequency local oscillator frequency is required. The mixer provides 16 dB conversion loss, 15 dB RF to LO isolation, and 30 dB LO to IF isolation. The subharmonically pumped mixers in other frequency bands are offered under various model numbers.



### Features:

- Low LO Power Requirement
- Subharmonic Mixing
- Compact Package

### Applications:

- Radar Systems
- Communication Systems
- Test Equipment

### 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		+16 dBm	
Conversion Loss		16 dB	
LO to IF Isolation		30 dB	
RF to LO Isolation		15 dB	
Combined RF and LO Power			+20 dBm
Specification Temperature		+25°C	
Operating Temperature	+0°C		+50°C

### Mechanical Specifications:

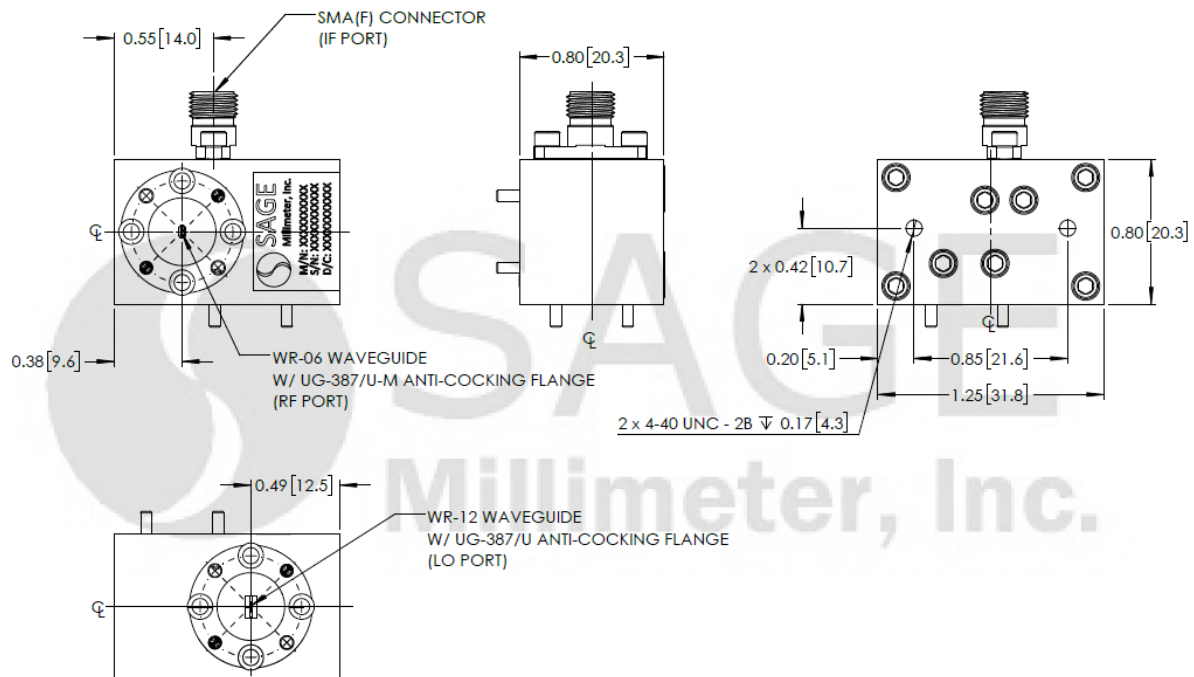
Item	Specification
RF Port	WR-06 Waveguide with UG-387/U-M Anti-Cocking Flange
LO Port	WR-12 Waveguide with UG-387/U Anti-Cocking Flange
IF Port	SMA (F)
Case Material	Aluminum
Finish	Gold Plated
Weight	1.0 Oz
Size	1.25" (W) x 0.80" (L) x 0.80" (H)
Outline	FS-NDE





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



### Note:

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

