



35 GHz Doppler Sensor Head, Dual Channel, Long Range

Description:

Model SSS-35310-22L-D2 is Ka Band lens antenna-based Doppler sensor head that is designed and manufactured for **long range** moving target speed and direction detection applications. The operation frequency of the sensor head is at 35 GHz. The sensor head is configured with a lens corrected antenna, a T/R diplexer, a low noise RF amplifier, an I/Q receiver, an IF amplifier, and a TX/RX oscillator in an integrated package. Sensor heads with a single receiver are offered under model number **SSS-35310-22L-S1**, which can only detect the speed and the range of a moving or stationary target.



Features:

- 35 GHz Operation
- Low Flicker Noise and High Sensitivity
- Low Harmonic Emission
- RoHS Compliant
- Integrated RX /IF amplifier

Applications:

- Traffic Management Systems
- Microwave Fence
- Military Surveillance Systems
- Weather and Environment Monitoring

Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Antenna 3 dB Beamwidth		12°	
Antenna Side Lobes		-20 dB	
Antenna Gain		22 dBi	
Antenna Polarization	Right-Handed Circular		
RF Frequency Range	33.9 GHz	35.0 GHz	36.1 GHz
Transmitting Power		+10 dBm	
Receiver Gain (No Antenna)		35 dB	
Receiver Noise Figure		2.5 dB	
Receiver I/Q Phase Δ	80°		100°
Receiver I/Q Amplitude Δ	0 dB		3 dB
IF Amplifier Gain		15 dB	
IF Frequency Range	5 Hz		2 MHz
IF Offset Voltage		$\pm 0.1 V_{DC}$	
System Gain		41 dB	
Frequency Stability		- 0.3 MHz/°C	
Power Stability		- 0.03 dB/°C	
DC Supply Voltage		+5.5 V _{DC} /350 mA	
Specification Temperature		+25°C	
Case Temperature	-40°C		+85°C



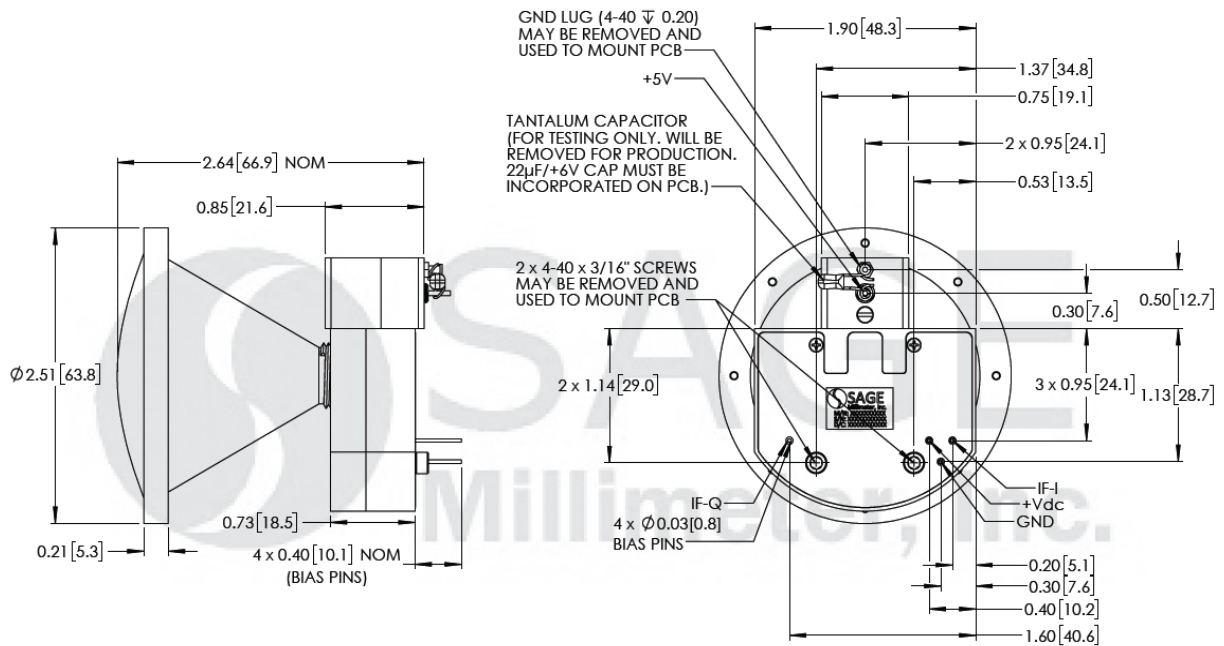


35 GHz Doppler Sensor Head, Dual Channel, Long Range

Mechanical Specifications:

Item	Specification
Gunn Oscillator Bias Port	Red Wire (Bias Pin)
Mixer IF _I Port	Bias Pin
Mixer IF _Q Port	Bias Pin
Mixer IF Ground	Black Wire (Ground Log)
Material	Aluminum
Finishing	Chem Film
Weight	5.0 Oz
Size	2.51" (∅) x 2.64" (L)
Outline	SS-LA-22D-SZ

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



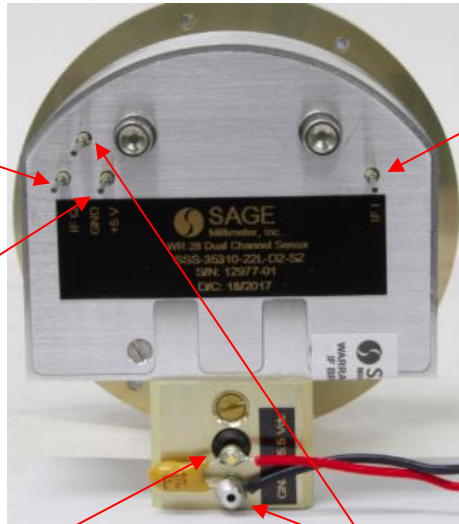


35 GHz Doppler Sensor Head, Dual Channel, Long Range

Connections:

Mixer IF-I Output
Never bias or touch in an ESD unsafe area.

Receiver +5 V/40 mA
Never exceed +5.5 V_{DC}



Mixer IF-Q Output
Never bias or touch in an ESD unsafe area.

Gunn Oscillator Bias Pad
Never exceed +5.5 V_{DC}. Never reverse bias.

Ground Pin
Common ground

Note:

- SAGE Millimeter, Inc. reserves the right to change the information presented without notice.

Caution:

- The device is static sensitive. Always follow ESD rules when working with the device.
- Wrong bias or reverse bias on the sensor will damage the device.
- Exceeding absolute maximum ratings shown will damage the device. Use additional heatsink or fan if necessary.

