SSD-35310-29L-D1-2

Advanced

35 GHz Ranging Sensor Head, Dual Channel, Long Range

Description:

Model SSD-35310-29L-D1-2 is Ka Band, lens antenna-based ranging sensor head that is designed and manufactured for **long range** measurements of a moving and stationary target's range, speed and direction. The sensor head has a center frequency of 35 GHz and takes a nominal bias of +5.0 VDC/350 mA. The frequency modulation bandwidth of ±75 MHz minimum is realized via a tuning voltage of 0 to +20 Volts. The sensor heads are 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 **SSD-35310-29L-S2** and can only detect the range and speed of a target.

Features:

- 35.00 GHz Operation
- Low Flicker Noise and High Sensitivity
- Low Harmonic Emission

Applications:

- Traffic Management Systems
- Microwave Fence
- Military Surveillance Systems

Electrical Specifications:

Parameter	Minimum	Typical	Maximum
RF Frequency Range	33.9 GHz	35.0 GHz	36.1 GHz
FMCW Tuning Bandwidth	±75 MHz	±100 MHz	
FMCW Tuning Voltage (+V_v)		0 to +20 Volts	
Transmitting Power		+10 dBm	
Antenna Gain		29 dBi	
Antenna 3 dB Beamwidth		5°	
Antenna Side Lobes		-20 dB	
Antenna Polarization		Right-Handed Circular	
Receiver Gain (Excluding Antenna)		35 dB	
Receiver Noise Figure		2.5 dB	
Receiver I/Q Phase Δ	80°		100°
Receiver I/Q Amplitude Δ	0 dB		2 dB
IF Amplifier Gain		15 dB	
IF Frequency Range	5 Hz		2 MHz
IF Offset Voltage		±0.1 V_{DC}	
Frequency Stability		-0.3 MHz/°C	
Power Stability		-0.03 dB/°C	
Receiver Bias (+V_{DC})		+5 V_{DC}/350 mA	+5.5 V_{DC}
Gunn Oscillator Bias (+V_g)		+5.5 V_{DC}/250 mA	+6.0 V_{DC}

www.eravant.com | 501 Amapola Torrance, CA 90501
Phone: 424-757-0168 | Fax: 424-757-0188 | Email: support@eravant.com

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Environmental:

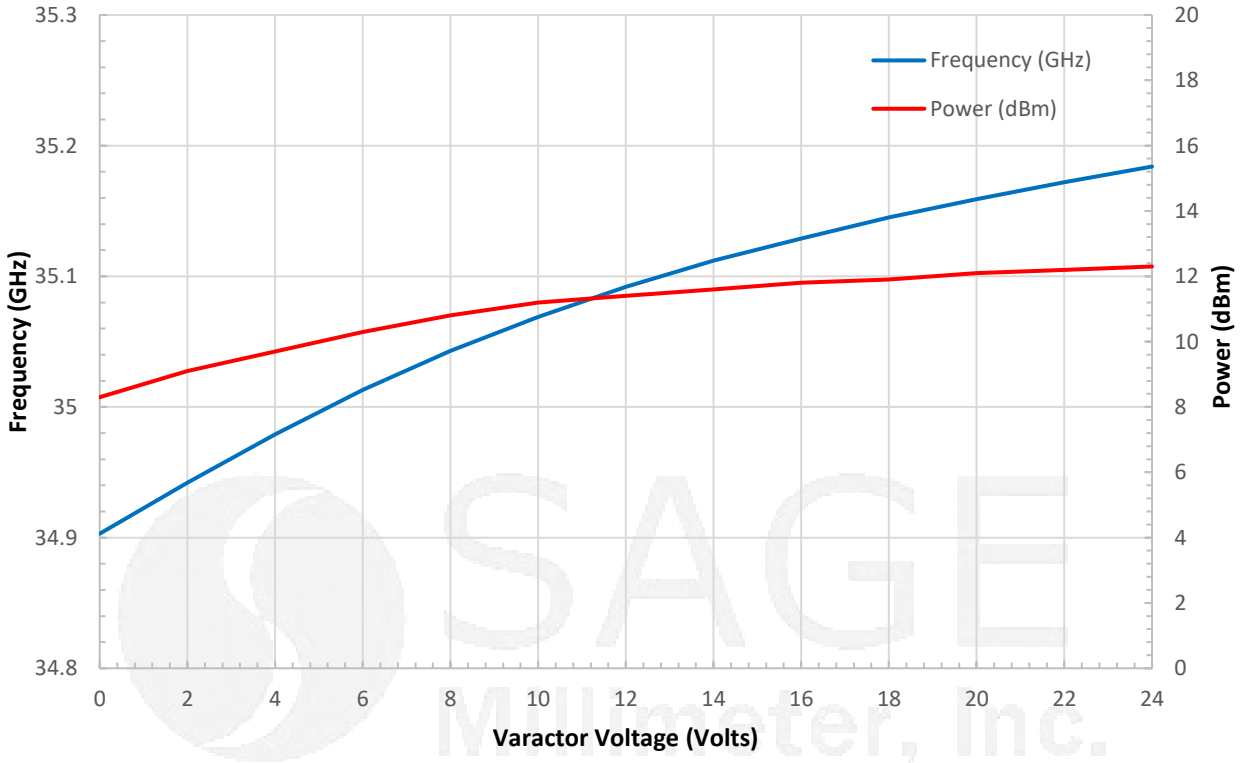
Parameter	Minimum	Typical	Maximum
Specification Temperature		+25˚C	
Operating Temperature	-40˚C		+85˚C
Humidity			95%

Mechanical Specifications:

Item	Specification
Gunn Oscillator Bias Port (+V_g)	Red Wire
Varactor Bias Port (+V_v)	Green Wire
Mixer IF Port (IF-I and IF-Q)	Solder Pin
Mixer IF Ground (GND)	Solder Pin
Housing Material	Aluminum
Finish	Chem Film
Outline	SD-LA-29D

Typical Output Frequency and Power vs. Varactor Voltage

Bias: +5.5 V_{DC}/350 mA



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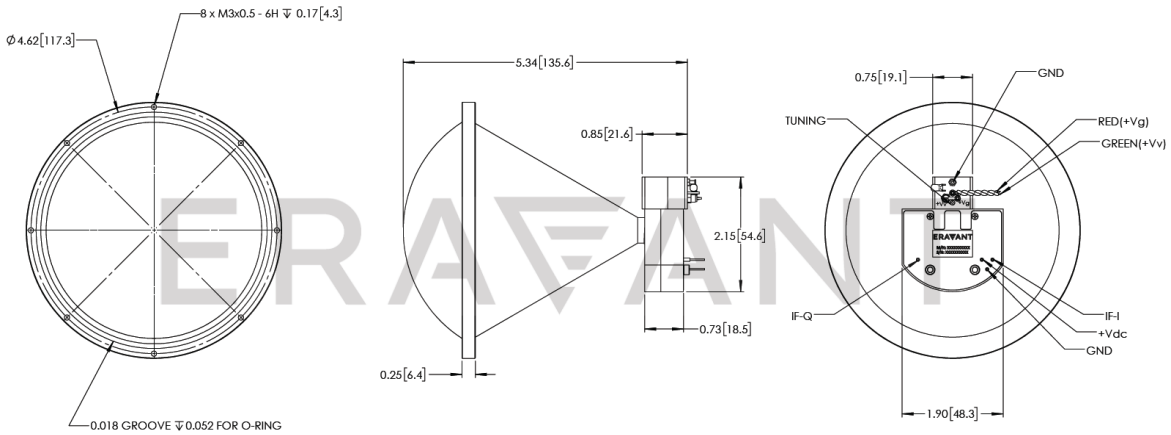
Mechanical Outline: (Unless otherwise specified, all dimensions are in inches)



Note:

- All data presented is collected from a sample lot. Actual data may vary unit to unit slightly.
- All testing was performed under +25˚C case temperature.
- Eravant 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.

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