

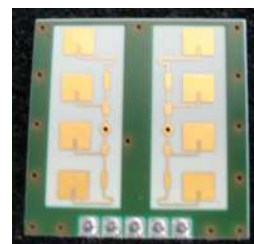
DATA SHEET

Product Family: FSK/FMCW-capable Low-cost K-Band VCO Transceiver
 Range of use: Industrial Applications

Module Number: **IVS-465**

Description:

- K-Band VCO radar transceiver for FMCW/FSK applications
- advanced PHEMT –oscillator with low current consumption
- split transmit and receive path for maximum gain
- stereo (dual channel) operation for direction of motion identification
- very small outline dimensions
- Low-cost K-Band VCO Transceiver



Environmental Tests and Handling Precautions:

- This InnoSenT sensor is sensitive to damage from ESD.
- Normal precautions as usually applied to CMOS devices are sufficient when handling the device. Touching the signal output pins has to be avoided at any time before soldering or plugging the device into a motherboard.



Absolute maximum and minimum Ratings:

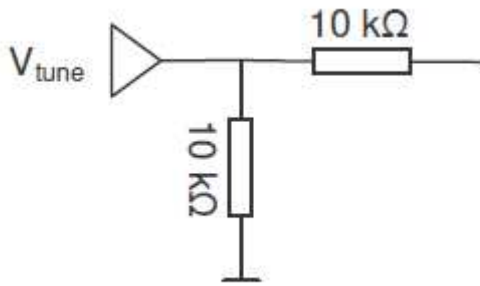
Parameter	Symbol	Rating	Units
supply voltage	V_{CC}	5,5	V
varactor tuning voltage	V_{Tune}	12	V
operating temperature (out of spec)	T_{OP}	0,5	V
storage temperature	T_{STG}	-40/+85	°C

Electrical Characteristics:

Parameter	Symbol	min.	typ.	max.	units	comment
transmit frequency	$f_{transmit}$	24.000	24.125	24.250	GHz	depending on V_{Tune}
varactor tuning voltage	V_{Tune}	0,5		10	V	
varactor input impedance						see equivalent circuit
modulation input				150	kHz	
tuning slope			50		MHz/V	
output power (EIRP)	P_{out}		12		dBm	
temperature drift	Δf		-1		MHz/°C	
antenna pattern	horizontal		80		°	azimuth
	vertical		32		°	elevation
side lobe suppression	horizontal		13		°	azimuth
	vertical		13		°	elevation
I/Q balance	amplitude			6	dB	
	phase	60	90	120	°	
IF output	voltage offset	-300		+300	mV	
supply voltage	V_{CC}	4.75	5.0	5.25	V	
supply current	I_{CC}		35	50	mA	
operating temperature	T_{OP}	-20		+60	°C	
outline dimensions		~ 25 x 25 x 7 (12.7)			mm	compare drawing

Innovation in radar sensing

Varactor input impedance equivalent circuit:

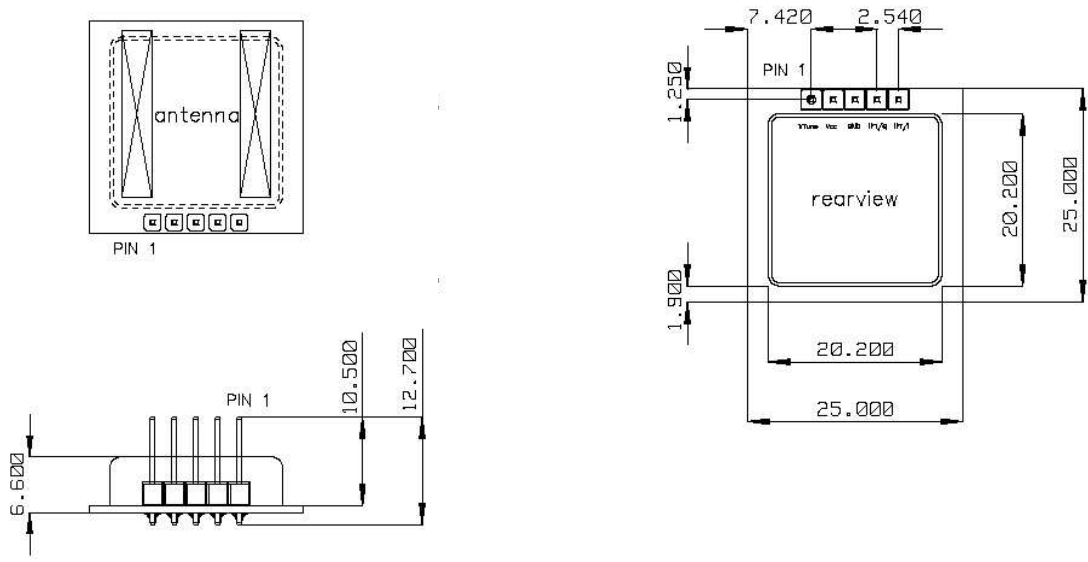


Interface:

The sensor provides a 2.54 mm grid, single row pin header (square pin □ 0.635 mm)

Pin #	Description	In/Out	Comment
1	V _{Tune}	input	varactor tuning voltage
2	V _{CC}	input	supply voltage (+5 V)
3	GND	input	analog ground
4	IF2	output	Signal Q(uadrature)
5	IF1	output	Signal I(nphase)

Mechanical Outlines:
(dimensions in mm)



FCC approval

- This device complies with Part 15 of the FCC Rules and with RSS-210 of Industry Canada.

Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
 - (2) this device must accept any interference received, including interference that may cause undesired operation.
- Warning: Changes or modifications made to this equipment not expressly approved by InnoSenT GmbH may void the FCC authorization to operate this equipment.
 - Manufacturers of mobile or fixed devices incorporating IVS-465 modules are authorized to use the FCC Grants and IC Certificates of the IVS-465 modules for their own final products according to the conditions referenced in these documents. In this case, the FCC label of the module shall be visible from the outside, or the host device shall bear a second label stating "Contains FCC ID: DC9-IVS465" and "Contains IC: 4012A-IVS465".

Certification and environment protection:

InnoSenT GmbH has established and applies a quality system for:
Development, production and sales of radar sensors for commercial and industrial sensors

An audit was performed, Report No. 010350 Proof has been furnished that the requirements according to DIN EN ISO 9001:2000 are fulfilled.



This InnoSenT product is compliant to the restriction of hazardous substances (RoHs – European Union directive 2002/95/EG).



InnoSenT Approval

This data sheet contains the technical specifications of the described product.
The technical specifications of this data sheet are approved:

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