

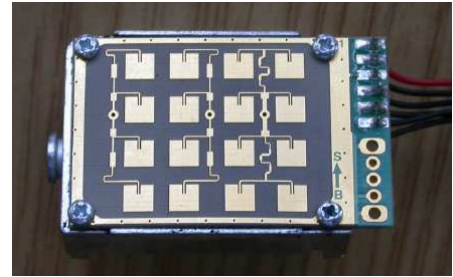
User Manual

Product Family: K-Band Transceivers

Stereo K-Band Transceiver with two integrated patch antennas, IF-pre-amplifier and two electronic selectable antenna patterns IPQ-05

Description:

- radar-based motion detector centered @ 24.125 GHz
- advanced PHEMT-oscillator with low current consumption
- split transmit and receive path for maximum gain
- stereo (dual channel) operation for direction of motion identification
- integrated IF-pre-amplifier
- enable input for oscillator shut down
- small outline dimensions
- two electronic selectable antenna patterns



Absolute Maximum Ratings:

Parameter	Symbol	Rating	Units
supply voltage	V_{CC}	5.25	V
operating temperature (out of spec)	T_{OP}	- 40 / + 85	°C
storage temperature	T_{STG}	+ 90	°C

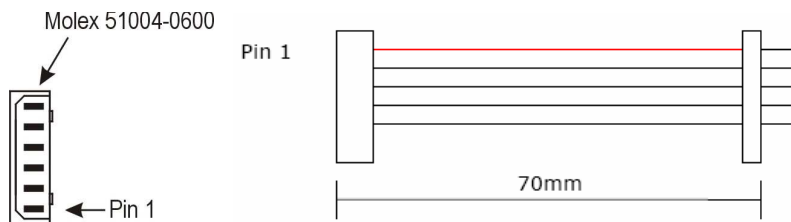
Electrical Characteristics:

Parameter	Symbol	min.	typ.	max.	units	comment
transmit frequency	$f_{transmit}$	24.075	24.125	24.175	GHz	
	$f_{@room\ temperature}$	24.105		24.145	GHz	
output power (EIRP)	P_{out}		15	20	dBm	
temperature drift	Δf		- 1		MHz/°C	
antenna pattern Tx (3dB)	horizontal		53		°	azimuth
	vertical		33		°	elevation
antenna pattern Tx (10dB)	horizontal		130		°	azimuth
	vertical		60		°	elevation
side lobe suppression Tx	horizontal			13	dB	azimuth
	vertical			13	dB	elevation
antenna pattern Rx1 (3dB)	horizontal		53		°	azimuth
	vertical		33		°	elevation
antenna pattern Rx1 (10dB)	horizontal		130		°	azimuth
	vertical		60		°	elevation
side lobe suppression Rx1	horizontal			13	dB	azimuth
	vertical			13	dB	elevation
antenna pattern Rx2 (3dB)	horizontal		47		°	azimuth
	vertical		33		°	elevation
antenna pattern Rx2 (10dB)	horizontal		85		°	azimuth
	vertical		64		°	elevation
side lobe suppression Rx	horizontal			13	dB	azimuth
	vertical			13	dB	elevation

Electrical Characteristics (cont'd):

Parameter	Symbol	min.	typ.	max.	units	comment
I/Q balance	amplitude			6	dB	
	phase	60	90	120	°	
IF output	voltage offset	1.0	2.2	4.0	V	
IF-amplifier	gain	19	20	21	dB	
	bandwidth	DC			kHz	upper frequency limited by operational amplifier
switching voltage	high level	2		5.5	V	narrow antenna pattern
	low level	GND		0.5	V	broad antenna pattern
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		~ 40 x 25 x 24			mm	

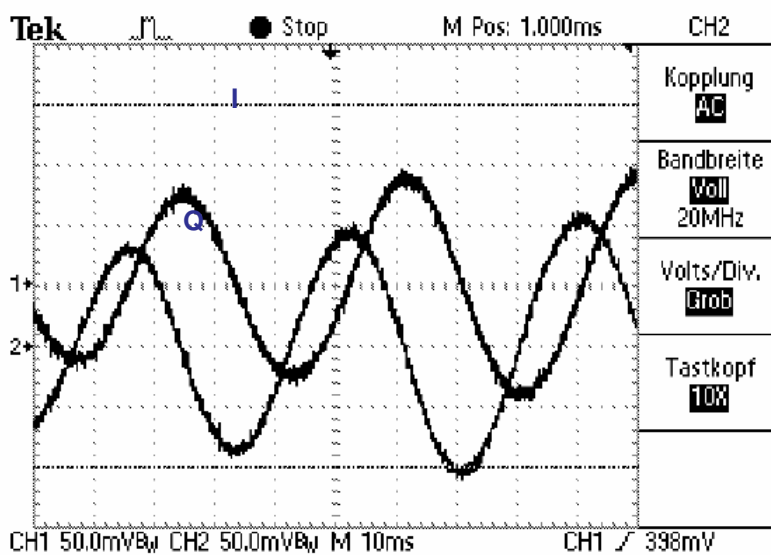
Interface:



Pin #	Description	In/Out	Comment
1	enable	input	active low
2	V _{CC}	input	supply voltage (+5 V)
3	GND	input	analog ground
4	IF1	output	Signal I(nphase)
5	IF2	output	Signal Q(uadrature)
6	not connected		

mates with: Molex P/N 53014, 53015 and 53025

I/Q Channel:



Signal Q is leading if an object moves towards the radar transceiver.

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).



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 IPQ-05 modules are authorized to use the FCC Grants and IC Certificates of the IPQ-05 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: UXS-IPQ05" and "Contains IC: 6902A-IPQ05".

Contact Information:

InnoSenT GmbH
Am Roedertor 30
97499 Donnersdorf
Germany

Phone: +49 (0) 9528-9518-0
Fax: +49 (0) 9528-9518-99

E-Mail: info@InnoSenT.de
Web: www.InnoSenT.de