

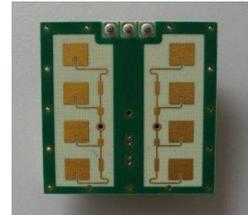
DATA SHEET

Product Family: K-Band Transceivers

K-Band Transceiver with two integrated patch antennas IPM-165 (and variants IPM-165_UK / IPM-165_F)

Description:

- radar-based motion detector
- available in different frequency ranges:
Standard; _F and _UK variants
- Standard version selected by signal level
- advanced PHEMT-oscillator with low current consumption
- split transmit and receive path for maximum gain
- mono (single channel) operation
- very small outline dimensions



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
- Applying multimeters e.g. for resistance measurement between any of the connector pins may cause damage to the module.



Absolute Maximum Ratings:

Parameter	Symbol	Rating	Units
supply voltage	V_{CC}	5.5	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	$f_{Standard}$	24.000	24.125	24.250	GHz	
	$f_{IPM-165_UK}$	24.150	24.200	24.250	GHz	
	$f_{IPM-165_F}$	24.075	24.125	24.175	GHz	
output power (EIRP)	P_{out}		16		dBm	
temperature drift	Δf		- 1		MHz/°C	
antenna pattern	horizontal		80		°	azimuth
	vertical		32		°	elevation
side lobe suppression	horizontal		13		dB	azimuth
	vertical		13		dB	elevation
IF output	voltage offset	- 300		300	mV	
signal level*	category A (low)	263		399	mV _{P-P}	
	category B or E (medium)	400		549	mV _{P-P}	
	category C (high)	550		850	mV _{P-P}	

* Relative output signal level/voltage measured at room temperature in a dedicated InnoSenT test setup.

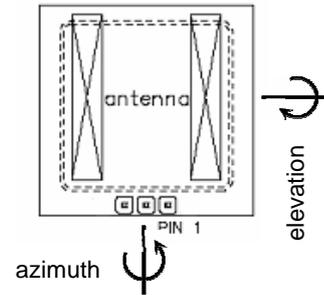
Electrical Characteristics (continued):

supply voltage	V _{CC}	4.75	5.0	5.25	V	
supply current	I _{CC}		30	40	mA	
pulse length	t _{pulse}		10		μs	
operating temperature	T _{OP}	- 20		+ 60	°C	
outline dimensions		~ 25 x 25 x 7 (12.7)			mm	compare drawing

Interface:

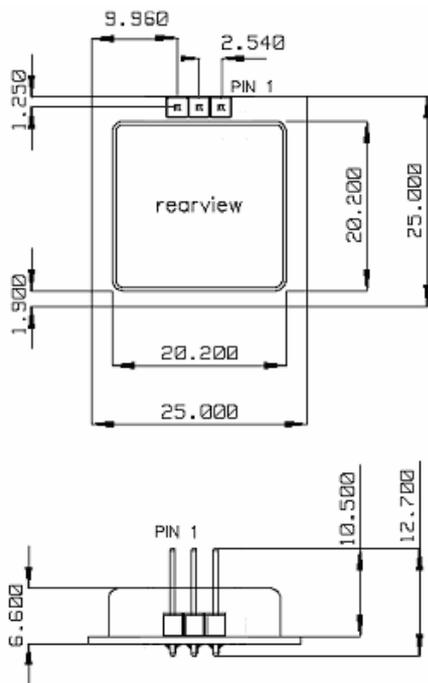
The sensor provides a 2.54 mm grid, single row pin header (square pin □ 0.635 mm).

Pin #	Description	In/Out	Comment
1	V _{CC}	input	supply voltage (+ 5 V)
2	IF1	output	signal output
3	GND	input	analog ground



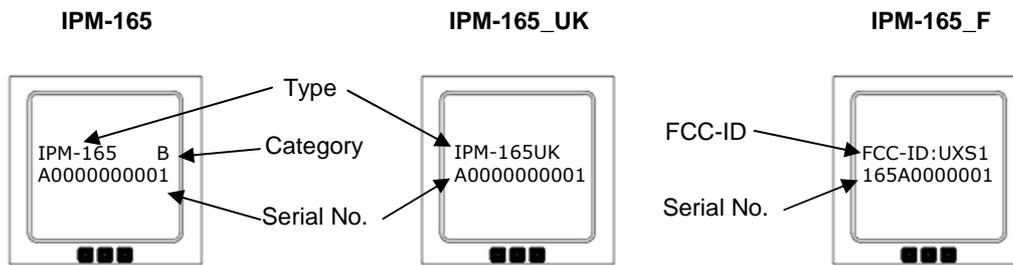
Mechanical Outlines:

(dimensions in mm)



Labeling

The sensors are labeled on the backside with the following information:



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).



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