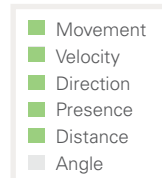


# Data Sheet IVS-162

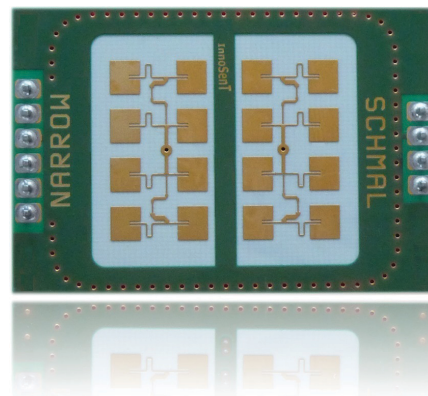
## APPLICATIONS

- Industrial Applications
- Door Opener



## FEATURES:

- » VCO-Transceiver centered @ 24GHz
- » FMCW/FSK capable; therefore measurement of distance as well as recognition of stationary objects possible (depending on modulation)
- » split transmit and receive path for maximum gain
- » stereo (dual channel) operation for direction of motion induction
- » IF-pre-amplifier, bandwidth limited for lowest noise performance
- » compact outline dimensions



## DESCRIPTION

The IVS-162 is the FMCW/FSK-version of the IPS-154. The same outline dimensions as well as the identical antenna pattern make this product perfect for upgrading existing systems

## RoHS-INFO

This product is compliant to the restriction of hazardous substances (RoHS - European Union directive 2011/65/EU).

## ELECTRICAL CHARACTERISTICS

PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNITS
<b>Transmitter</b>						
transmit frequencies	depending on $V_{\text{tune}}$	f	24.000 - 24.250			GHz
freq @ $V_{\text{tune}} = 5,0\text{V}$	@ 25°C	$f_{5,0\text{V}}$	24.100	24.125	24.150	GHz
varactor tuning voltage		$V_{\text{tune}}$	0.5		10	V
varactor tuning impedance				10k		$\Omega$
modulation input					150	kHz
tuning slope				65		MHz/V
temperature drift (frequency)		$\Delta f$		-1		MHz/°C
output power (EIRP)	@ 25°C	$P_{\text{out}}$		15		dBm

<b>Receiver</b>						
I/Q  balance		amplitude		0	6	dB
		phase	60	90	120	°
IF-output		voltage offset	1.0	2.2	4.0	V
IF - amplifier		bandwidth		DC - 50		kHz
		gain		20		dB

### Antenna System Pattern (compare with antenna plot on page 3)

full beam width @ -3dB	azimuth	horizontal		45		°
	elevation	vertical		38		°
side-lobe suppression	azimuth	horizontal		15		dB
	elevation	vertical		20		dB

### Power supply

supply voltage		$V_{\text{CC}}$	4.75	5.00	5.25	V
supply current	IF-amp included	$I_{\text{CC}}$		35	50	mA

### Environment

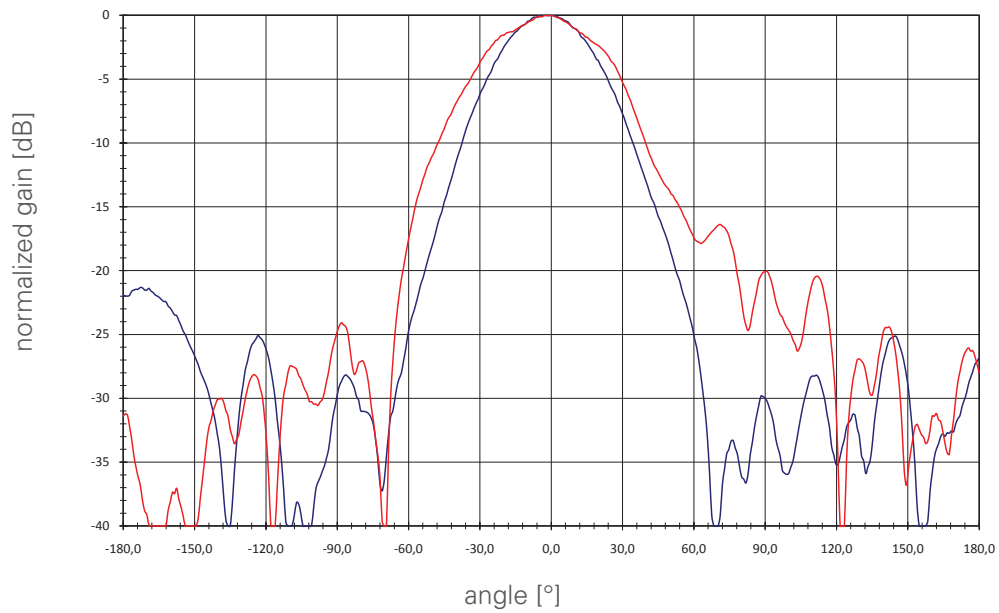
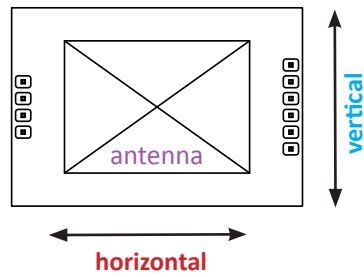
operating temperature		$T_{\text{OP}}$	-20		+60	°C
storage temperature		$T_{\text{STG}}$	-40		+85	°C

### Mechanical Outlines

outline dimensions	compare drawing	height length width	8.3 (19) 44.0 30.0			mm
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## TX- ANTENNA PATTERN

Antenna Orientation:



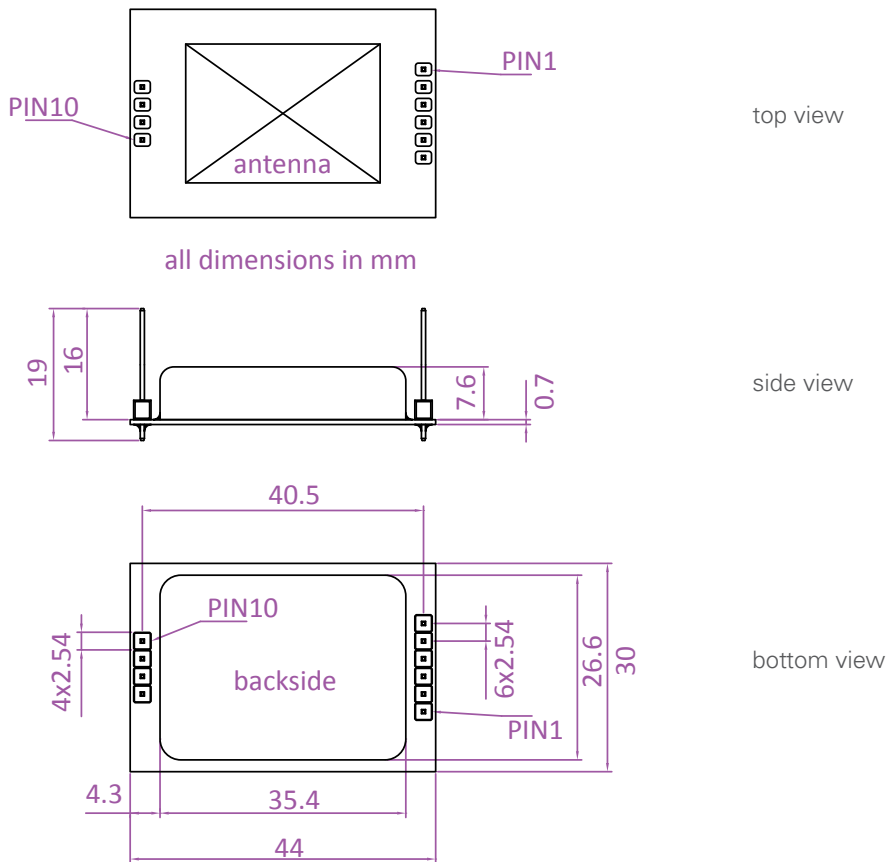
PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNITS
full beam width @ -3dB		horizontal		45		°
		vertical		38		°
side-lobe suppression		horizontal		15		dB
		vertical		20		dB

## INTERFACE

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

PIN #	DESCRIPTION	IN / OUT	COMMENT
1	$V_{\text{tune}}$	input	varactor tuning voltage
2	enable	input	active low
3	$V_{\text{cc}}$	input	supply voltage (+5 V)
4	GND	input	analog ground
5	IF1	output	signal I(nphase)
6	IF2	output	signal Q(uadrature)
7	GND	input	analog ground
8	GND	input	analog ground
9	NC		not connected
10	NC		not connected

## MECHANICAL OUTLINES



## ESD-INFORMATION



This 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.