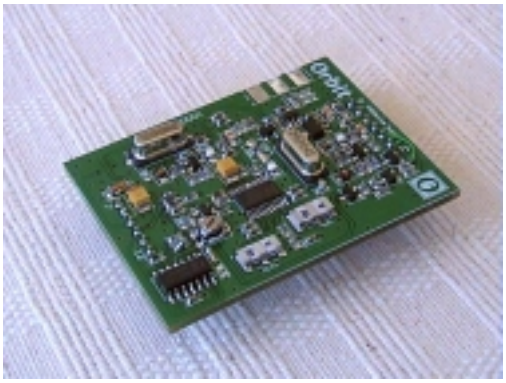
Features



- 151.625 MHz (Other frequencies available 148MHz to 152 MHz)
- Data rates to 19.2 kbps
- -105 dBm receiver sensitivity
- RSSI output
- Carrier Detect Output
- CRYSTAL stabilised
- Fast TX and RX settling and switching times

Applications

- EPOS TERMINALS
- REMOTE TELEMETRY & TELECOMMAND
- REMOTE METER READING
- DOMESTIC AND COMERCIAL SECURITY
- GPS AND INVENTORY MANAGEMENT

General Description

The TRA150D radio transceiver module was designed to provide reliable wireless operation at moderate data rates for use throughout the world.

The TRA150D is a low power ASK transceiver that has been designed to interface directly to a micro controller.

The module has been optimised for fast turn on and exhibits a power down mode for low current operation.

In conjunction with a high performance antenna, the unit has a typical range up to several km.

The module is compatible with our WDXX range of controllers for evaluation, development and turnkey solutions.

The receiver section uses a single conversion super-het design,

Absolute Maximum Ratings: Transceiver

Operating temperature:	-20°C to +80°C
Storage temperature:	-40°C to +100°C
Supply Voltage	6V
Data input	Vcc + 0.3v
RF Input	0dBm

Electrical Characteristics:

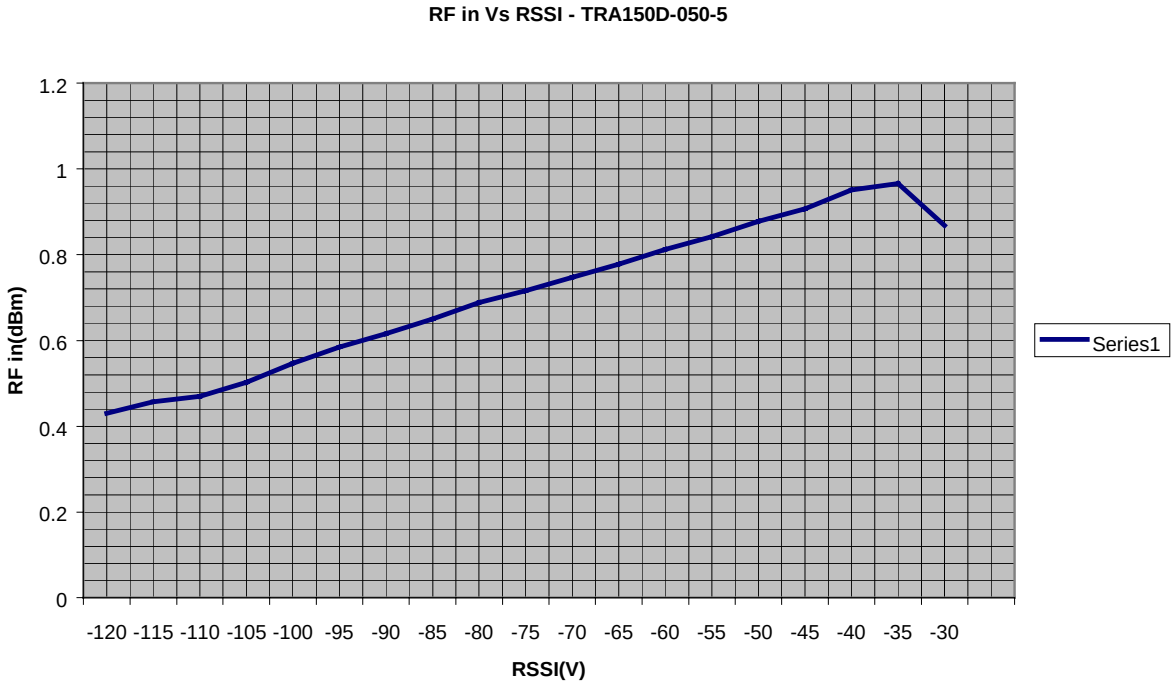
Performance data measured at 20°C and +5 volt supply and RF = 151.625 MHz. version

	pin	min.	typ.	Max.	units	notes
DC LEVELS						
Supply voltage	7	4.75	5	5.25	V	
Supply current (receiver enabled)	7		35		mA	
Supply current (transmitter enabled)	7		85		mA	
Supply current (Power down mode)			250		uA	
Data input/output high	2,4	0.7xVcc		Vcc	V	
Data input/output low	2,4	0		0.0xVcc	V	
RF						
Receiver sensitivity (12 dB SINAD)	2		-105	-110	dBm	
Image rejection			50		dB	
RF power out (transmitter)			50		mW	
ASK depth			25	35	dB	
Overall frequency accuracy			+/-20		KHz	
RF input compression level			-30		dBm	
E.M.C.						
Spurious responses upto 1GHz			<-30		dB	
LO leakage, conducted			<50		dBm	
LO leakage, radiated			<50		dBm	
DYNAMIC TIMING						
RX enable to valid RSSI / CD				100	uS	
RX enable to stable receiver data out			100		uS	
TX enable to full RF out			80	100	uS	
Allowable data pulse widths		1			uS	1
Data Bit rate		50		65,000	bps	

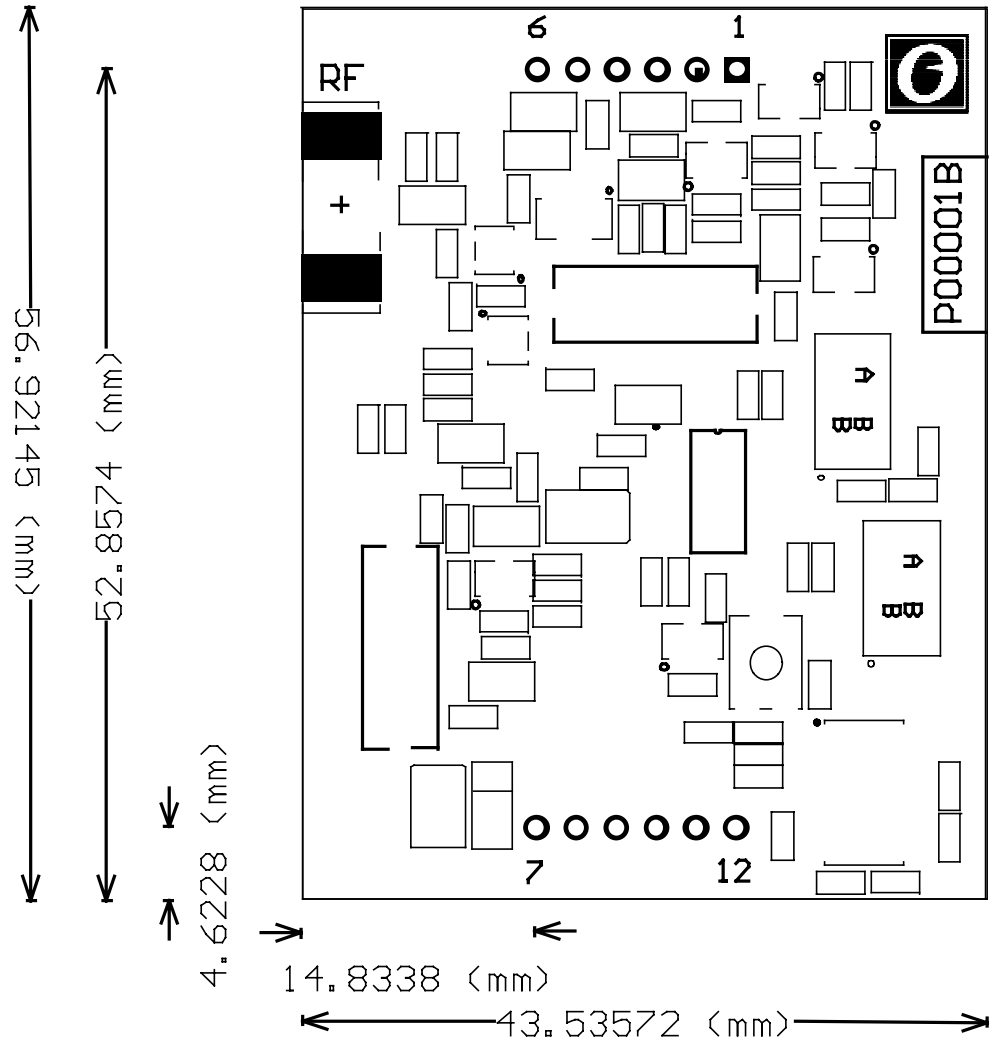
Notes

1) The data slicer is optimised for a 50:50 duty cycle hence for reliable communications data should be encoded using a suitable scheme such as Manchester Encoding, although pulse width modulation up to 70:30/30:70 can also be used.

Pin No.	Pin Name	Description
1	D1	Digital IO (RC1)
2	+5V	VCC, DC Power source (200mA max)
3	D2	Digital IO (RC2)
4	A1	Digital IO (RB7)
5	D3	Digital IO (RC3)
6	A2	Digital IO (RB6)
7	D4	Digital IO (RC4)
8	A3	Digital IO (RB5)
9	D5	Digital IO (RC5)
10	A4	Digital IO (RB4)
11	D6	Digital IO (RB5)
12	GND	Common, 0V
13	D7	Digital IO (RB6)
14	GND	Common, 0V
15	D8	Digital IO (RB7)
16	GND	Common, 0V



MECHANICAL DETAILS



Application Information

Antenna Design

The design and positioning of the antenna is as crucial as the module performance itself in achieving a good wireless system range. The following will assist the designer in maximising system performance.

The antenna should be kept as far away from sources of electrical interference as physically possible. If necessary, additional power line decoupling capacitors should be placed close to the module.

The antenna 'hot end' should be kept clear of any objects, especially any metal as this can severely restrict the efficiency of the antenna to receive power. Any earth planes restricting the radiation path to the antenna will also have the same effect.

Best range is achieve with a ground independent, 3dB or better gain, ground-independent antenna.

Good range can be achieved with either a straight piece of wire, rod or PCB track @ ¼ wavelength (500mm). Further range may be achieved if the ¼ wave antenna is placed perpendicular in the middle of a solid earth plane measuring at least 500mm radius. In this case, the antenna should be connected to the module via some 50 Ohm characteristic impedance coax

Applications Support Hotline

Your questions may be forwarded to us at the following email address;

mailto:support@orbitcoms.com

Ordering Information

Standard Product;

Part No	Description
TRA150D-050-5	151.625 MHz Transceiver
TRA150D-050-5S	151.625 MHz Transceiver with SMA connector and EMC sheild

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