

**DESCRIPTION**

The B3RX1657 is a low noise front end for X-band marine radar receiver. It comprises a low noise amplifier with monitor circuit, an image rejection mixer and an electronically tuned local oscillator.

Frequency range . . . . . 8800 to 9000 MHz  
I.F. output frequency . . . . . 60 MHz  
Noise figure . . . . . 1.5 dB

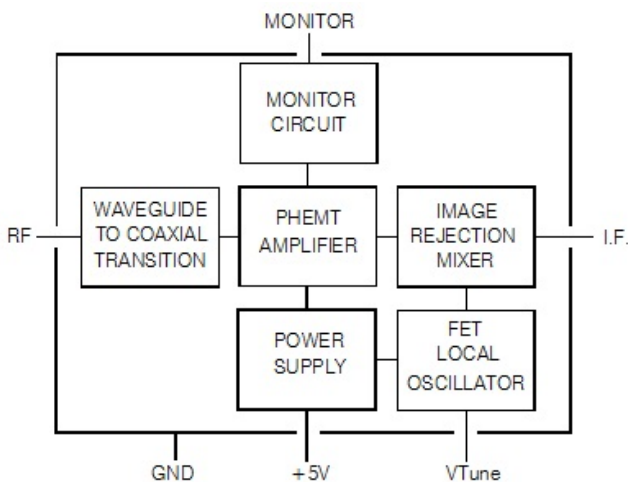
**GENERAL DATA**

Operating voltage . . . . . 5 V d.c.  
Operating current . . . . . 50 mA  
Overall dimensions . . . . . 88 x 31 x 42 mm max  
Net weight . . . . . 100 g approx  
Waveguide size . . . . . WR90 (WG16)

**MAXIMUM AND MINIMUM RATINGS**

	MIN	MAX	
Operating voltage (see note 1).	-	+6	V
Tuning voltage . . . . .	0	45	V
R.F. input (1uS,1kHz, repetitive) . . . . .	-	500	mW
Body temperature:			
Operating . . . . .	-30	+85	°C
Storage . . . . .	-55	+125	°C
Vibration (50Hz) . . . . .	-	20	g
Shock (11ms, half sine) . . . . .	-	25	g

**BLOCK DIAGRAM**



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**TYPICAL OPERATION**

**Operating Conditions**

Operating voltage . . . . . 5.0 +/- 0.2V  
Signal frequency . . . . . 8900 +/- 100MHz  
Local Oscillator frequency tuning voltage 4V . . . . . 8860 MHz max  
tuning voltage 24V . . . . . 9060 MHz min

**TYPICAL Performance (at 25 °C)**

	Min	Typ	Max	
Operating current . . . . .	-	50	80	mA
Noise figure . . . . .	-	1.5	2.0	dB
Conversion gain . . . . .	4.0	6.0	-	dB
Image rejection ratio . . . . .	15	20	-	dB
Frequency pulling . . . . .	-	0.2	0.6	MHz
(See note 2)				
Input power at 1dB compression . . . . .	-5	-3	-	dBm
Saturated I.F. output . . . . .	0.8	1.0	-	V
Local Oscillator Switch on drift (3min to 40min) . . . . .	-	-	4	MHz
Local Oscillator temperature drift . . . . .	0	-250	-350	kHz/°C
Tune rate . . . . .	8	12	18	MHz/V
I.F. frequency (3dB B.W.) . . . . .	50	60	70	MHz
I.F. output impedance . . . . .	-	50	-	Ω
Tune I/P impedance . . . . .	1	-	-	MΩ
Monitor voltage . . . . .	30	50	70	mV

**NOTES**

1. Positive only; negative voltage must not be applied.
2. Input power 10 dBm.
3. External voltages must not be applied to the I.F. or monitor terminals.

**OUTLINE (All dimensions in mm; dimensions without limits are nominal)**

