

## DESCRIPTION

The B3RX1658 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 a voltage controlled internal local oscillator. An external sample of the local oscillator suitable for AFC mixer drive is supplied via a female sma connector.

Frequency range . . . . . 8975 to 9125 MHz  
I.F. output frequency . . . . . 100 MHz  
Noise figure . . . . . 1.6 dB

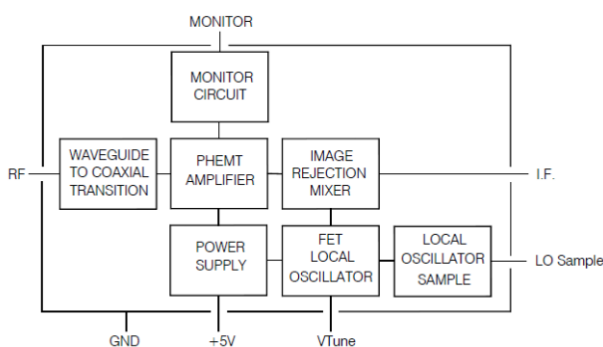
## GENERAL DATA

Operating voltage . . . . . 5 V d.c.  
Operating current . . . . . 55 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 +/- 0.2 V  
Signal frequency . . . . . 9050 +/-75 MHz  
Local Oscillator frequency  
tuning voltage 2V . . . . . 8875 MHz max  
tuning voltage 24V . . . . . 9025 MHz min

## TYPICAL Performance (at 25 °C)

	Min	Typ	Max	
Operating current . . . . .	-	55	80	mA
Noise figure . . . . .	-	1.6	2.0	dB
Conversion gain . . . . .	4.0	6.0	-	dB
Image rejection ratio . . . . .	20	-	-	dB
Frequency pulling . . . . .	-	0.2	0.6	MHz
(See note 2)				
Input power at 1dB compression . . . . .	-6	-	-	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	-200	-350	kHz/°C
Tune rate . . . . .	10	14	18	MHz/V
I.F. frequency (3dB B.W.) . . . . .	90	100	110	MHz
I.F. output impedance . . . . .	-	50	-	Ω
Tune I/P impedance . . . . .	1	-	-	MΩ
Monitor voltage . . . . .	30	50	70	mV
Local oscillator sample level... . . . .	-8	-	-6	dBm

## 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)**

