

DESCRIPTION

The B3RX1613 is a protected low noise front end for X-band marine radar receivers. It comprises an internal microstrip limiter, a low noise amplifier, an image rejection mixer and an electronically tuned local oscillator.

Frequency range	9360 to 9460	MHz
IF output frequency	60	MHz
Noise figure	4.5	dB

GENERAL DATA

Operating voltage	5.0	V DC
Operating current	80	mA
Overall dimensions	100 x 23 x 42 mm nom	
Net weight	100	g approx
Waveguide size	WR90 (WG16)	

MAXIMUM AND MINIMUM RATINGS

	Min	Max	
Operating voltage (see note 1)	-	+6.0	V
Tuning voltage	0	45	V
RF input:			
repetitive, 1 μ s at 1 kHz	-	400	W
peak, 1 μ s	-	800	W
Body temperature:			
operating	-30	+90	$^{\circ}$ C
storage	-40	+100	$^{\circ}$ C
Vibration (50 Hz)	-	10	g
Shock (0.5 ms, half sine)	-	100	g

TYPICAL OPERATION

Operating Conditions

Operating voltage	5.0 \pm 0.2	V
Signal frequency	9410 \pm 50	MHz
Local oscillator frequency:		
tuning voltage 5 V	9410	MHz max
tuning voltage 35 V	9530	MHz min

Typical Performance (at 25 $^{\circ}$ C)

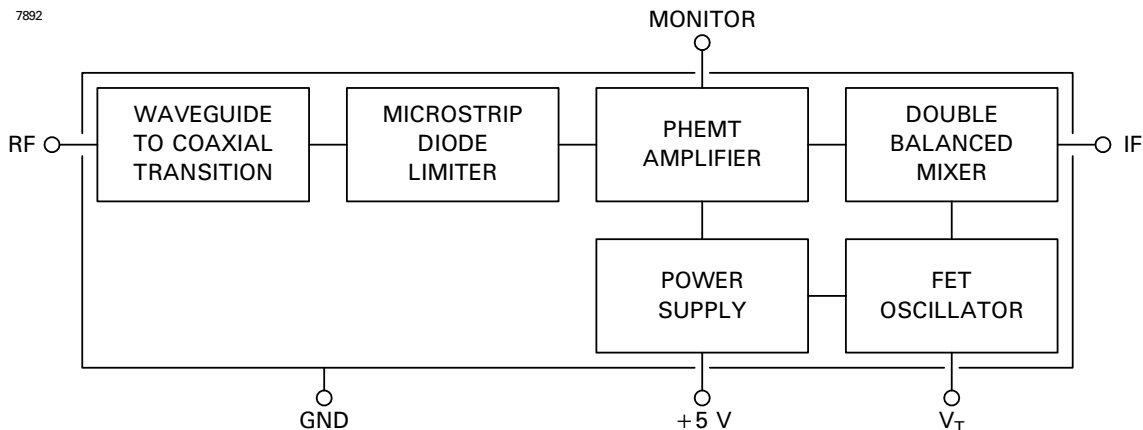
	Min	Typ	Max	
Operating current	-	80	100	mA
Noise figure	-	4.5	5.5	dB
Conversion gain	1.0	4.0	-	dB
Image rejection ratio	15	20	-	dB
Input VSWR	-	-	3.5:1	
Tuner voltage ($f_{io} = 9470$ MHz)	11	-	19	V
Tuning rate	4.0	-	18	MHz/V
Frequency pulling (see note 2)	-	-	2.0	MHz
Local oscillator switch-on drift (3 to 40 minutes)	-	-	4.0	MHz
Local oscillator leakage				
from RF port	-	-	-16	dBm
Input power at 1 dB compression	-8.0	-2.0	-	dBm
Saturated IF output	0.8	1.0	-	V
Monitor voltage	30	50	70	mV
Local oscillator temperature drift	0	-200	-400	kHz/ $^{\circ}$ C
Intermediate frequency (3 dB bandwidth)	50	60	70	MHz
IF output impedance	-	50	-	Ω
Tuner input impedance	400	-	-	k Ω

NOTES

1. Positive only, negative voltage will cause damage.
2. Input power 100 W.

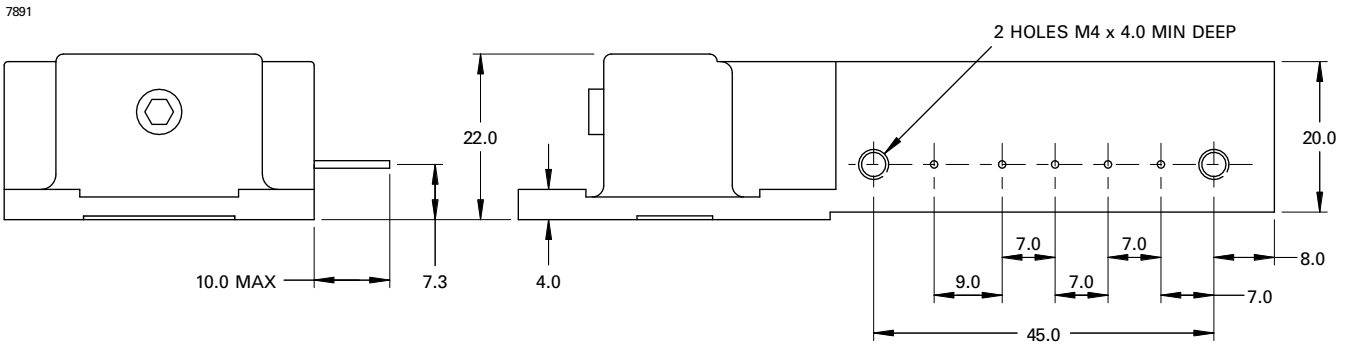
BLOCK DIAGRAM

7892



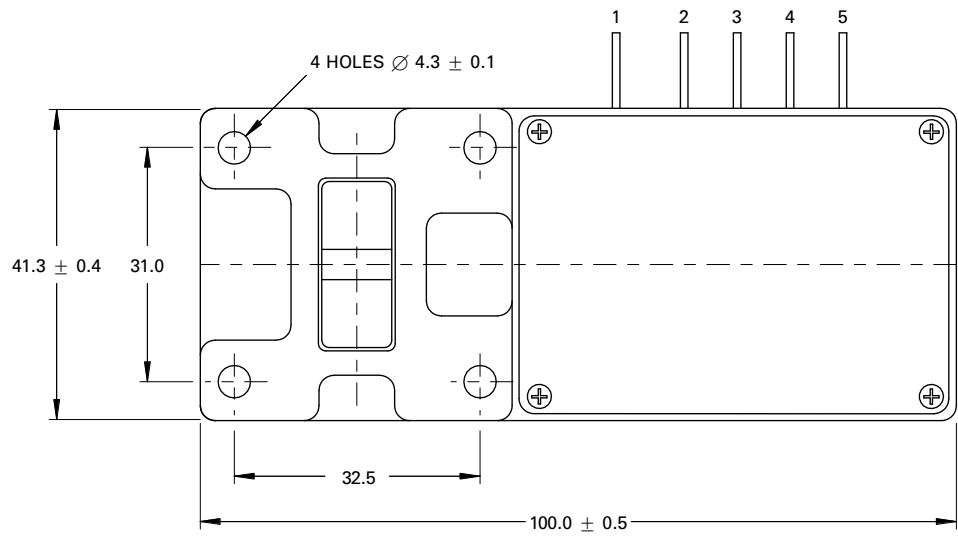
OUTLINE (All dimensions in millimetres)

Dimensions without limits are nominal



Pin connections

- 1 Ground
- 2 IF output
- 3 Monitor
- 4 +5 V supply
- 5 Tuning voltage



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