

DESCRIPTION

The B7RX1002 is a low noise front end for S-band marine radar receivers. It comprises a low noise amplifier with condition monitoring output, an image rejection mixer and an electronically tuned local oscillator. (See Note 4.)

Frequency range 3020 to 3080 MHz
I.F. output frequency 60 MHz
Noise figure 2.5 dB

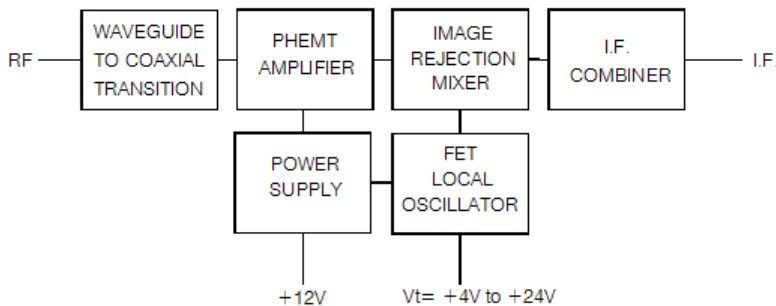
GENERAL DATA

Operating voltage 12 V d.c.
Operating current 100 mA
Overall dimensions . .182.8 x 114.5 x 39 mm max
7.197 x 4.508 x 1.535 inches max
Net weight 700 g (1.5 pounds) approx
Waveguide size WR284 (WG10)

MAXIMUM AND MINIMUM RATINGS

	MIN	MAX
Operating voltage (see note 1).	-	13 V
Tuning voltage	-	25 V
R.F. input power	-	0.5 W
Body temperature:		
Operating	-25	+75 °C
Storage	-40	+100 °C
Vibration (50Hz)	-	10 g
Shock (0.5ms, half sine)	-	100 g

BLOCK DIAGRAM



TYPICAL OPERATION

Operating Conditions

Operating voltage	12.0 ± 0.2	V
Signal frequency	3050 ± 30	MHz
Local Oscillator frequency tuning voltage 4V	3080 MHz	max
tuning voltage 24V	3140 MHz	min

TYPICAL Performance (at 25 °C)

	Min	Typ	Max
Operating current	-	70	100 mA
Noise figure	-	2.5	3.0 dB
Conversion gain	6.0	8.0	- dB
Image rejection ratio	18	20	dB
Frequency pulling	-	0.2	0.35 MHz
(See note 2)			
Local oscillator switch on drift (3 to 40 mins)	-	-	4.0 MHz
Local oscillator leakage from RF port	-	-	-30 dBm
Input power at 1dB compression	-10	-	- dBm
F.M. bandwidth	500	-	1000 Hz
Local Oscillator temperature drift	-300	-80	130 kHz/°C
I.F. output impedance	-	50	- Ω
Tune I/P impedance	100	-	kΩ
Monitor output voltage (see note 3):			
amplifier functioning	3.0	3.5	4.0 V
amplifier not functioning	0	0.3	0.5 V

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.
4. Tested together with B3LT1008 limiter to give >30dB STC range.



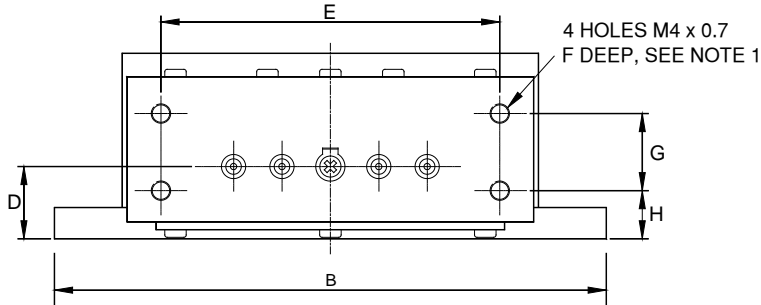
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OUTLINE (All dimensions without limits are nominal)

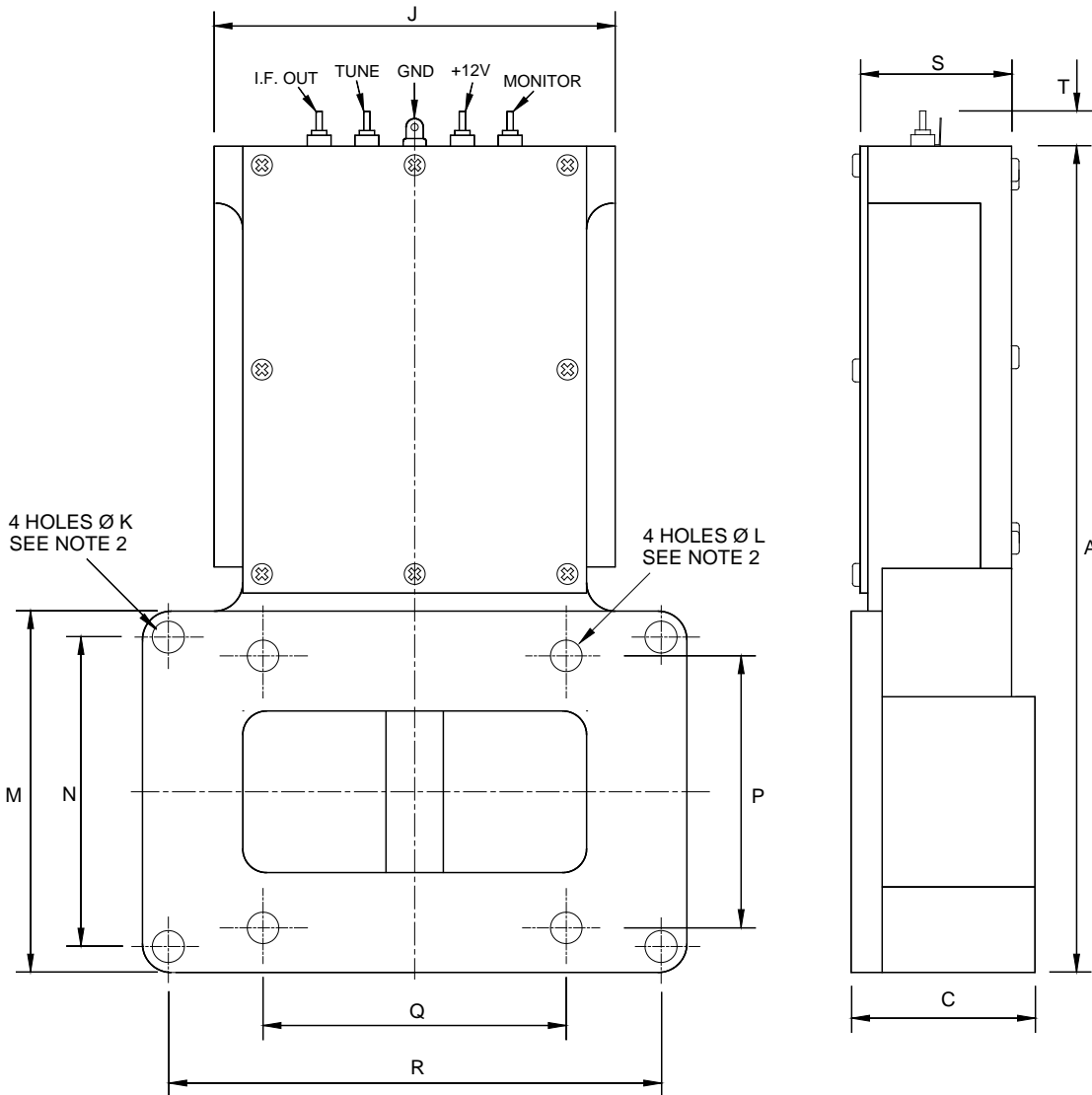
Outline Notes

1. Positional tolerance 0.2 mm (0.008 inch) diameter
2. Positional tolerance 0.15 mm (0.006 inch) diameter



Ref	Millimetres	Inches
A	173.8 ± 0.5	6.843 ± 0.020
B	114.0 ± 0.5	4.488 ± 0.020
C	38.5 ± 0.5	1.516 ± 0.020
D	15.0	0.591
E	70.0	2.756
F	6.0 min	0.236 min
G	16.0	0.630
H	10.0	0.394
J	84.0 ± 0.5	3.307 ± 0.020
K	6.7 ± 0.1	0.264 ± 0.004
L	6.6 ± 0.1	0.260 ± 0.004
M	76.0 ± 0.5	2.992 ± 0.020
N	65.08	2.562
P	57.2	2.252
Q	63.5	2.500
R	103.2	4.063
S	31.7 ± 0.5	1.248 ± 0.020
T	8.5 max	0.335 max

Inch dimensions have been derived from millimetres.



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