

DESCRIPTION

The e2v range of RoHS compliant performance monitors provide down-converter/up-converter functionality and are used as a transponder in X-band radar systems.

B3RX1013 produces two RF pulses, delayed by up to 200 µs following the magnetron RF pulse.

Output power level will track incident input power level (from the external radar system magnetron), using an internal closed-loop detector circuit to track input power level variations.



GENERAL DATA

RF input frequency range	3020 to 3080	MHz
Maximum tuning range	200	MHz max.
Spurious oscillations	-60	dBm max.
Mass.....	1.0	kg approx.

MAXIMUM AND MINIMUM RATINGS

	Min	Max	
Supply voltage (+12 V)	+11.5	+12.6	V
Supply current (+12 V)	-	300	mA
Supply voltage (-12 V)	-12.6	-11.0	V
Supply current (-12V).....	-	200	mA
Control voltage range	0	+10	V
Max. control voltage input	-	+12	V
RF input power range	-5	+15	dBm
Input pulse width.....	1.0	-	µs
Power tracking (nominal)	10	-	dB
Tracking accuracy:			
+25 °C ambient	-1.5	+1.5	dBm
over temperature	-3.0	+3.0	dBm
RF output power (second pulse) (see note 1):			
minimum level.....	-	-35	dBm
maximum level	-15	-	dBm
RF output power range.....	22	-	dB
Output step level:			
second pulse to noise floor	12	-	dB
first pulse to second pulse			
-5 dBm to +12 dBm input (+20 °C).....	6.0	10.5	dB
-5 dBm to +12 dBm input			
(-50 to +80 °C).....	5.0	10.5	dB
+12 dBm to +15 dBm input power	7.5	10.5	dB
Enable – PM off (line ‘low’).....	-	0.8	V
Enable – PM on (line ‘high’).....	2.0	5.5	V

Automatic Frequency Control (AFC)

AFC lock:

control about magnetron frequency			
(see note 2)	±1	±3	MHz
time to lock from Enable ‘high’	-	3.0	s

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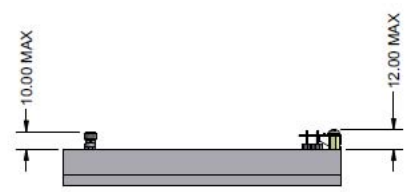
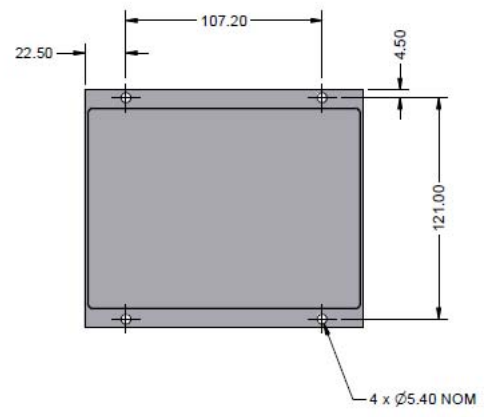
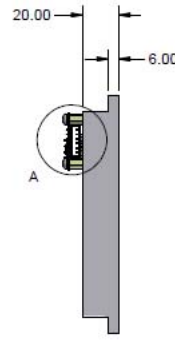
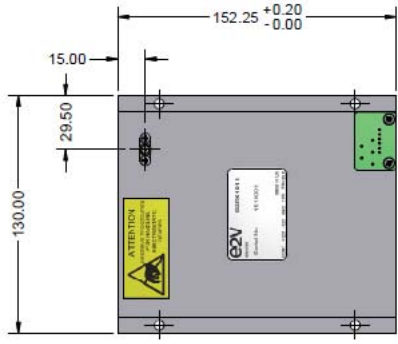
MAXIMUM AND MINIMUM RATINGS (continued)

	Min	Max	
Pre-Trigger			
Trigger (high)	2.5	12	V
Trigger (low)	-	0.7	V
Trigger timing before magnetron pulse			
(see note 3)	100	150,000	ns
Trigger impedance.....	10	-	kΩ
Delay (see note 4).....	160	200	µs
Transmitted pulse lengths	3.5	4.5	µs
Inter-pulse spacing	3.5	4.5	µs
Transmission pulses (see note 5).....	60	-	pulses
Operating prf range	500	700	Hz
Operating temperature	-30	+80	°C
Mechanical shock			
(1,000 cycles, 10 ms @ 3 Hz, 3 axes)	-	20	g
Mechanical vibration			
(2 Hz – 13.2 Hz).....	-1.0	+1.0	g
(13.2 Hz – 100 Hz).....	-	0.7	g

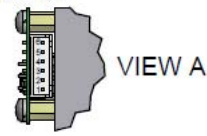
NOTES

1. -35 dBm to -15 dBm for -5 dBm to +12 dBm input.
-35 dBm to -20 dBm for +12 dBm to +15 dBm input.
2. AFC will ramp output RF frequency through the exact magnetron input frequency to ensure maximum sensitivity.
3. Measured from rising edge.
4. Delay measured from rising edge of system magnetron RF pulse to rising edge of first output RF pulse.
5. Minimum number of transmitted pulses from the host radar system, within frequency and power specification, into the monitor antenna of the performance monitor.

MECHANICAL OUTLINE



S 6B-XH-A Connector



Connector Pin Assignments	
1	Enable
2	Trigger
3	Ground (0V)
4	-12V
5	+12V
6	Control

Finish.....Surtec 650 passivation
 (to MIL-DTL-5541F, Type II, Class 3, RoHS compliant)
 RF outputSMA (female) connector