

# Eclipse RF™ Products

## REF6301



The **REF6301** is a versatile 3U VPX module consisting of an integrated GPS receiver, an oven controlled crystal oscillator, and an optional RF distribution module, providing commutation of 8 VHF and 4 UHF antenna elements against an array reference.

The REF6301 is a member of the sixth generation of system components for BAE Systems' Eclipse RF™ products. It is designed to provide time and frequency reference signals to digital receivers, such as the RXR6322 and RXR6422.

### Key features and benefits

- Built-in GPS receiver assesses satellite network and provides system-wide time and frequency standard signals
- Oven Controlled Crystal Oscillator (OCXO) integrates with GPS to offer excellent short-term phase stability
- Embedded miniaturized RF distribution module provides eight VHF and four UHF RF inputs and eliminates the need for an external commutator
- 3U VPX form factor complies with VITA 46, 48, and 67 standards for simple integration
- Optional CSAC Cesium source module may be used in place of distribution module and enables extremely stable frequency reference during loss of GPS signal

## REF6301 specifications

10 MHz input level	+3 dBm +/- 3 dB
10 MHz tracking range	+/-1 Hz (offset)
10 MHz output (6 standard coax)	+7 dBm +/- 2 dB
Acceptable GPS RF input level	L1: -122 to -87 (signal) dBm, -161 to -141 (noise) dBm/Hz L2: -126 to -93 (signal) dBm, -161 to -141 (noise) dBm/Hz
1 pulse per second input or output (1 standard coax)	+4.25 +/- 0.75 V (1K ohms) or +3.7 +/- 0.4 V (50 ohms)
1 pulse per second input duration	15 uS minimum
1 pulse per second via backplane	LVDS standard (6 standard LVDS)
1 PPS to 10 MHz synchronization	+/- 15 nanoseconds
1 PPS jitter (1 sigma)	20 picoseconds
1 PPS timing accuracy (after 10 min. warm-up)	+/- 20 nanoseconds RMS
Ephemeris data update rate	10 per second
10 MHz accuracy	1 part in 1 X 10 <sup>-10</sup> (typical instantaneous) 0.5 parts in 1 X 10 <sup>-10</sup> (100 second average) 1 part in 1 X 10 <sup>-12</sup> (24 hour average)
10 MHz output (channel to channel isolation)	35 dB minimum
1 PPS output (channel to channel isolation)	50 dB minimum
10 MHz harmonics	-30 dBc maximum
Non-harmonic spurious	-80 dBc maximum
Steady state power	35 watts
Peak warm-up power	39 watts

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