The **RXT7306** is a quad-channel 3U-VPX wideband digital receiver/transmitter packaged in a rugged, conduction-cooled module. It is ideal for applications requiring high channel density, reliability, and performance at an affordable price.

These modules are designed to support multi-channel phase coherent applications and are suitable for scaling to large system configurations. They also provide an extensive set of features relevant to emerging multi-function and secure system architectures.

The RXT7306 is the first in the seventh generation of products from Eclipse. Eclipse has been delivering high-performance, open-standards based products to the commercial off-the-shelf market for more than 25 years. With 7000-series products, customers receive a flexible combination of RF and digital capabilities that span the spectrum of features necessary to meet emerging system requirements in a package that supports Modular Open Radio Frequency Architecture (MORA) and Sensor Open Systems Architecture (SOSA) standards.
Features and benefits

- Four simultaneous RF input channels per 3U VPX module support embedded systems optimized for size, weight, power, and cost.

- RF input channels are tunable between 2 MHz to 6 GHz covering the frequency bands typically used for voice, digital broadcast and wireless network applications.

- Transmit output channel is tunable from 2 MHz to 18 GHz and may be used for local boresight and test, or as a transmitter in an active system.

- Wideband instantaneous bandwidths up to 150MHz increase the collection of wide spread spectrum signals without channel stacking and post-processing.

- Built in narrow-band digital down converter functions filter and separate the signal of interest, while providing an optimal I&Q sample rate.

- Microsecond tune speed supports high speed scanning and collection of frequency agile transmitters.

- Ultra-low phase noise supports spatial processing and demodulation of higher order phase signals.

- Large Spur Free Dynamic Range (SFDR) enables the capture of extremely weak signals in the presence of strong in-band and out-of-band interference.

- Compliance with modular open standards such as SOSA, MORA and VITA-46, 48, 49.2 and 67 protects the customers’ investment and prevents vendor-lock in.

- Available with a large Xilinx field programmable gate array (FPGA), and capable of supporting user-defined local functions, or a smaller FPGA, results in lower-cost applications.

- High-speed 100GbE interfaces simultaneously transport multi-channel wideband digital data and narrow-band streams.

- RF delay memory on each channel supports continuous capture and replay for further post-processing of signals and events of interest.

Receiver Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuning range</td>
<td>2 MHz to 6 GHz</td>
</tr>
<tr>
<td>Tuning resolution</td>
<td>1 Hz</td>
</tr>
<tr>
<td>Tune speed</td>
<td>Consult factory</td>
</tr>
<tr>
<td>RF input impedance</td>
<td>50 Ohms</td>
</tr>
<tr>
<td>Instantaneous bandwidth</td>
<td>Up to 150 MHz (pre-selector limited in some lower bandwidths)</td>
</tr>
<tr>
<td>VSWR</td>
<td>&lt; 2.5:1</td>
</tr>
<tr>
<td>Max input level</td>
<td>+24 dBm</td>
</tr>
<tr>
<td>Noise figure</td>
<td>14 dB typical, 16 dB maximum</td>
</tr>
<tr>
<td>Single tone SFDR</td>
<td>TBD</td>
</tr>
<tr>
<td>Third-order intermodulation (IMD3)</td>
<td>&gt; 69 dBc</td>
</tr>
<tr>
<td>Number of RF receive channels</td>
<td>4 when ordered as receive-only, 2 when configured with single Tx option</td>
</tr>
</tbody>
</table>

Transmitter Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuning range</td>
<td>2 MHz to 6 GHz</td>
</tr>
<tr>
<td>Step size</td>
<td>2 MHz</td>
</tr>
<tr>
<td>Switching time</td>
<td>Consult factory</td>
</tr>
<tr>
<td>Output power</td>
<td>-30 dBm to max 0 dBm</td>
</tr>
<tr>
<td>Modulation bandwidth 2 MHz to 6 GHz</td>
<td>100 MHz</td>
</tr>
<tr>
<td>Modulation bandwidth 6 GHz to 18 GHz</td>
<td>500 MHz</td>
</tr>
<tr>
<td>Spurious inside bandwidth</td>
<td>&lt; -55 dBc</td>
</tr>
<tr>
<td>Spurious harmonics out-of-band</td>
<td>&lt; -15 dBc</td>
</tr>
<tr>
<td>Phase noise</td>
<td></td>
</tr>
<tr>
<td>100 Hz</td>
<td>-70 dBc/Hz</td>
</tr>
<tr>
<td>1 kHz</td>
<td>-80 dBc/Hz</td>
</tr>
<tr>
<td>10 kHz</td>
<td>-80 dBc/Hz</td>
</tr>
<tr>
<td>100 kHz</td>
<td>-90 dBc/Hz</td>
</tr>
<tr>
<td>1 MHz</td>
<td>-110 dBc/Hz</td>
</tr>
</tbody>
</table>

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