

RFM3103s/RFM3113 Ultra-Wideband Microwave Dual Up Converter

Versatile and scalable 3U open architecture

- SOSA-aligned design
- Rugged and compact design
- Excellent phase-noise performance and high-dynamic range
- System lockable, built-in LO generation
- External LOs capability for greater versatility



Mercury's SpectrumSeries™ RFM3103s/RFM3113 is a modular, ultra-wideband dual up converter that enables next-generation electronic warfare (EW) systems SOSA-aligned capabilities. Offering high-dynamic range and a low spurious output, the RFM3103s/RFM3113 is optimized for future upgradeability by implementing SOSA open standards into the design as they are defined. Packaged in a low-SWaP 3U module, the RFM3103s/RFM3113 offers a versatile local oscillator (LO) with low phase noise and fast tuning speeds. Additionally, the exciter is versatile in various environments such as air cooled, conduction cooled and air flow-by, creating a broader spectrum of usability for greater performance in rugged, deployed environments.

SOSA Alignment

Built to meet SOSA specifications as they emerge, open systems-focused users can exploit the architecture commonality benefits immediately. The design streamlines the deployment of the latest technology by increasing efficiency and maintaining interoperability and configurability. Alignment is achieved without compromising Mercury's high standards for security and ruggedness.

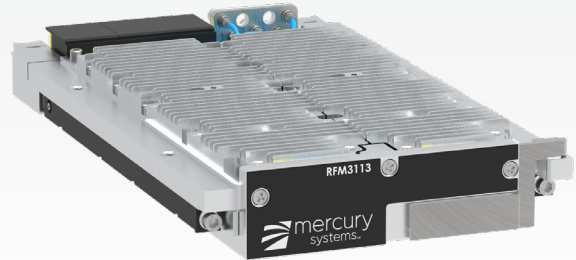
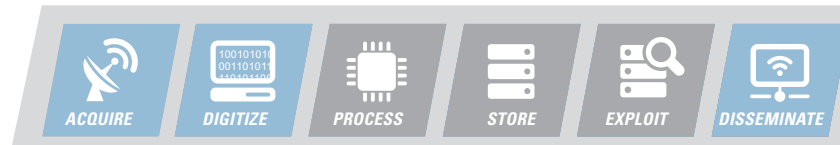


Figure 1. SpectrumSeries RFM3103s/RFM3113 EA OpenVPX up converter

Mercury Systems is a leading commercial provider of secure processing subsystems designed and made in the USA. Optimized for customer and mission success, Mercury's solutions power a wide variety of critical defense and intelligence programs.



Specifications

Packaging

Format/Size: 3U OpenVPX, single slot,

Power: 45W Maximum

Control Interface: 1GbE (consult factory for more options)

Weight: <1kg (rugged air-cooled)

Commercial and rugged air-cooled or rugged conduction-cooled SOSA-conformant options.

RF Up converter Specifications*

RF Output Coverage: 6GHz to 18GHz

Noise Figure: 23 dB typical (26 dB max) 20dB

Gain (max IF to RF): 21dBm

OP1DB (with max gain): 30dBm

Attenuation: 31dB in 0.5dB steps

Single-Tone, Signal-Related

Spurious: -55dBc (@ -10dBm input and max gain)

Single-Tone, Internally

Generated Spurious: -80dBm (@ -10dBm input and max gain)

IF Input Center Frequency:** 1.875GHz

IF Bandwidth: 1.375GHz to 2.375GHz

IF Band Flatness: ±1.5dB

Tuning Speed: 25 µsecs typical (To within 10 kHz)

Tuning Resolution: 10MHz

VSWR (In/Out): 2:1

Native LO Generation Specifications

Reference Input: 10MHz-100MHz: 100MHz preferred

Composite phase noise***

100 Hz: -70 dBc/Hz

1 kHz: -80 dBc/Hz

10 kHz: -90 dBc/Hz

100 kHz: -95 dBc/Hz

1 MHz: -99 dBc/Hz

10 MHz: -125 dBc/Hz

20 MHz: -130 dBc/Hz

100 MHz: -133 dBc/H

* This product contains two fully independent up converter modules

** The IF input has a direct mode that allows 100MHz to 6 GHz to be routed directly to the RF output bypassing the RF translation chain and IF Filters.

*** Phase noise is based upon a 100MHz clean reference, such as OCXOs used for system references.

† This product contains two fully independent up converter modules

What SOSA Delivers



Speed

Rapid technology insertions at the speed of innovation



SWaP

Effectively addresses size, weight and power constraints (SWaP)



Low Cost

Reductions in sustainment costs enable more and better systems to be deployed



Competition

Increased competition to drive affordability and innovation



Compatibility

Enhanced compatibility so systems can scale across platforms and domains



Security

Improved security to enable better threat mitigation

Need more help? Need a variant of this product?

Contact Mercury's Mixed Signal Engineering team at: digital.rf@mercy.com or visit www.mrcy.com/mixed-signal-processing for a detailed list of mixed-signal products.

Request the full, export controlled datasheet by emailing digital.rf@mercy.com.

Mercury Systems – Innovation That Matters®

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