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.
### 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: -90 dBC/Hz
  - 10 kHz: -95 dBC/Hz
  - 1 MHz: -99 dBC/Hz
  - 10 MHz: -125 dBC/Hz
  - 100 MHz: -130 dBC/Hz

* This product contains two fully independent up converter modules

** The IF input has a direct mode that allows 100MHz to 6GHz 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 SODA 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@mrcy.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@mrcy.com.