

# BROADBAND UP/DOWN CONVERTER

## SERIES IA



SUPPLYING HIGH PERFORMANCE, INNOVATIVE AND SOPHISTICATED RF, MICROWAVE, MILLIMETER WAVE COMPONENTS AND INTEGRATED ASSEMBLIES WORLDWIDE.

### DESCRIPTION

Ultra Electronics, Herley series IA Broadband Up/Down Converters offer multi-octave frequency conversion for use in modern EW systems. Typical applications include down conversions of the microwave spectrum into a Digital RF Memory (DRFM) and then up-conversion back to the microwave spectrum frequency range.

In addition, the series IA converters offer a common synthesized local oscillator (LO), low spurious, high dynamic range with fast switching and programmable gain enabling ease of integration into multiple platforms.

The series IA proprietary technology provides excellent performance and ultra low phase noise performance. Typical phase noise performance is -80 dBc/Hz at 10 kHz and -100 dBc/Hz at 100 kHz offset.

Custom frequency plans are available to meet your specific application needs.

Contact the factory to discuss your special requirements.

### FEATURES

- Multi-octave bandwidth 2-18 GHz
- 1000 MHz instantaneous bandwidth
- High dynamic range
- Ultra low phase noise
- Fast switching
- Low Spurious
- Excellent gain flatness
- Wide operating temperature
- Programmable gain

### OPTIONS

- High band frequency extension to 40 GHz
- Low band frequency extension down to 500 MHz
- Internal reference with auto sense phase locking to 10 MHz or 100 MHz



HERLEY

Ultra  
ELECTRONICS

Bringing more benefits to RF, microwave and millimeter-wave technology for defense systems, integrated subsystems, components... and more

#### DOWN CONVERTER

##### Electrical performance

- RF input frequency 2-18 GHz
- Max input power -5 dBm
- IF output frequency ranges 100-1100 MHz or 2100-3100 MHz
- Instantaneous bandwidth 1 GHz
- Conversion gain 30 dB
- Gain adjust -10 to 30 dB, 1 dB steps
- Flatness <4 dB across any 800 MHz instantaneous bandwidth
- Conversion gain variation <4 dB across entire 2-18 GHz range
- Spurious >1 kHz from carrier -60 dBc within any 800 MHz IBW at -5 dBm output power
- Noise figure 14 dB
- Output power @ P 1 dB, 17 dBm
- Output IP3, 27 dBm
- Output IP2, 37 dBm
- 2 tone IM3, -40 dBc @ -25 dBm in total power (max gain)
- Input VSWR 2.0:1
- Output VSWR 1.8:1
- Switching speed 1 msec
- Frequency and gain control via RS-232, Ethernet or Parallel TTL

#### UP CONVERTER

##### Electrical performance

- IF input frequency ranges 100-1100 MHz or 2100-3100 MHz
- Max input power 0 dBm
- RF output frequency 2-18 GHz
- Instantaneous bandwidth 1 GHz
- Conversion gain 25 dB
- Gain adjust 0 to 25 dB in 1 dB steps
- Flatness <4 dB across any 800 MHz instantaneous bandwidth
- Conversion gain variation <4 dB across entire 2-18 GHz range
- Spurious >1 kHz from carrier -50 dBc within any 800 MHz IBW at -20 dBm to -10 dBm input power
- Noise figure 14 dB
- Output power @ P 1 dB, 17 dBm
- Output IP3, 27 dBm
- Output IP2, 37 dBm
- 2 tone IM3, -40 dBc @ -10 dBm in total power, -13 dBm tones
- Input VSWR 2.0:1
- Output VSWR 1.8:1
- Switching speed 1 msec
- Frequency and gain control via RS-232, Ethernet or Parallel TTL

#### COMMON INTEGRATED LO

##### Electrical performance

- Input reference frequency range 10 MHz or 100 MHz
- Input reference power level  $0 \pm 3$  dBm
- Step size 1 MHz

#### TYPICAL LO PHASE NOISE

Offset	SSB Phase Noise
• 100 Hz	-65 dBc/ Hz
• 1 kHz	-90 dBc/ Hz
• 10 kHz	-100 dBc/ Hz
• 100 kHz	-105 dBc/ Hz
• 1 MHz	-110 dBc/ Hz
• 10 MHz	-130 dBc/ Hz

#### CONNECTORS AND CONTROL

- IF, RF and Reference inputs SMA-F
- IF and RF outputs SMA-F
- 9 pin D-sub for RS-232, RJ45 for Ethernet and 25 pin for Parallel TTL

#### POWER, DIMENSIONS AND ENVIRONMENTAL

- AC input voltage 120 VAC to 240 VAC, 50/60 Hz
- 1U standard 19" rack, 25" depth
- Operating temperature 0° C to +50° C
- Non-operating temperature -30° C to +70° C

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making a difference

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