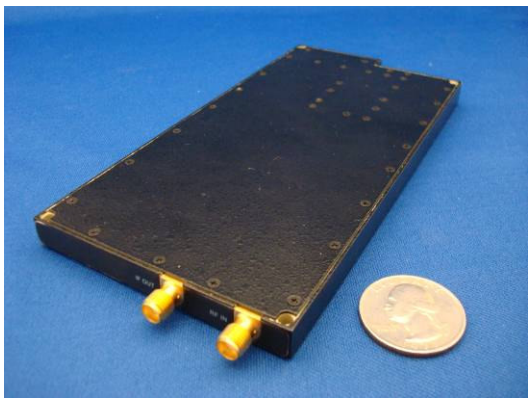

Technical Data Sheet

MFE-6000 Miniature 6GHz Frequency Extender

FEATURES

- 6000 MHz frequency extension of MSDD-3000 digitizer capabilities
- Five band preselector
- Fast 500usec tune time
- -105 dBc/Hz phase noise, 100kHz offset
- Low 12 dB noise figure
- High +5 dBm IP3
- Miniature 6.75 inch^3, 6 oz. package
- Seamless control from MSDD-3000 tuner

DESCRIPTION

The MFE-6000 combines the latest state-of-the-art integrated circuit receiver technology with highly integrated filters to produce a miniature synthesized frequency extender with excellent RF performance and extraordinarily low size, weight, and power. The MFE-6000 is specifically intended to extend the capabilities of the Midwest Microwave Solutions MSDD-3000 Digitizer for software-defined radio (SDR) applications. The MFE-6000 accepts RF inputs from 20 MHz to 6 GHz. Input signals less than 3000 MHz are passed directly to the follow on tuner without processing while signals above 3000 MHz are converted to an IF output frequency in the range of 650 MHz to 1700 MHz. For frequencies above 3000 MHz, the RF front end of the frequency extender performs filtering of the input signal to reject image and IF responses as well as provide rejection to local oscillator radiation. The filtered input signal is then amplified prior to low noise frequency conversion and additional filtering before the IF signal is passed to the MSDD-3000. A low phase noise, fast-tuning synthesizer provides the frequency extender with additional strong signal performance by minimizing reciprocal mixing. The unit is powered by the M-3000 series of tuners and digitizers and consumes less than 2 watts.

The entire frequency extender is packaged in a miniature 3 x 6 x .375 inch shielded aluminum case, providing a rugged design suitable for field and portable use/abuse. The extender is controlled seamlessly from an MSDD-3000 Digitizer which is in turn controlled through an industry-standard 10/100/1000 Ethernet RJ-45 connector. The command set open specification is available from MMS Inc.

APPLICATIONS

Communications receivers, SIGINT systems, test equipment, SDR test beds.

MSDD-3000 Digitizers shown with MFE-6000 6 GHz Frequency Extenders

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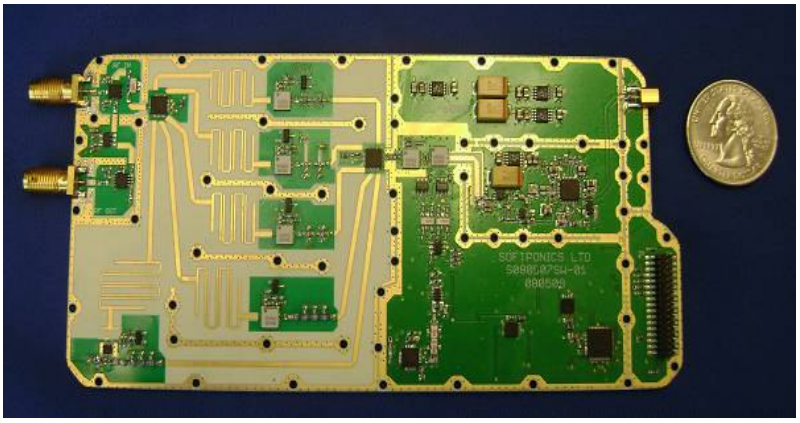
Website www.mms-rf.com Rev 10 July 2009

MIDWEST MICROWAVE SOLUTIONS INC



MFE-6000 RF PC Board

EXTENDER ANALOG	
Input Frequency range	20 to 6000 MHz
Output Frequency range	20 to 3000 MHz (bypass mode) 650-1700 MHz (RF in = 3-6 GHz)
RF input	50 ohms nominal
VSWR	3:1 max, <2.01 typical at tuned frequency
Preselection	5 fixed filter bands (600 MHz BW nom)
Noise figure	12 dB max, 3000-6000 MHz
Gain to IF Out	-3 dB min 20-3000 MHz 3 dB +/-3 dB, 3000-6000 MHz
Maximum RF input without damage	+15 dBm
Input third-order intercept point	+20 dBm min 20-3000 MHz -3 dBm min, 3000-6000 MHz
IF bandwidth	100 MHz min
Gain control	Manual, 20 dB (.5 dB steps)
Image rejection	70 dB minimum (>80 dB typical)
IF rejection	70 dB minimum (80 dB typical)
LO level at RF input	-80 dBm maximum (-90 dBm typical)
Phase noise	
20-kHz offset	-85 dBc/Hz typical
100-kHz offset	-105 dBc/Hz typical
1-MHz offset	-125 dBc/Hz typical
Receiver tuning speed	500 microsecond typical
Internally generated spurious	-100 dBm equivalent RF input typical,

PHYSICAL	
Power consumption	2W max
Weight	6 oz
Size	3 x 6 x 0.375 inches module
RF input connector	SMA Female
IF input connector	SMA Female
Operating temperature range	-20 to +60°C
Specified performance	25 ± 5°C
Non-operating temperature range	-40 to +70°C
Operating altitude	0 to 12,000 ft (0 to 3657 m)

Specifications subject to change without notice as we improve our products

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