Ultra-Low Noise Tri-Band Frequency Synthesizers with Integrated VCO

Hittite Microwave Corporation has launched two full-featured Fractional-N PLL Frequency Synthesizers with integrated Voltage Controlled Oscillators (VCOs). The HMC837LP6CE and HMC840LP6CE synthesizers include a wideband, low noise VCO with auto-calibration subsystem, low noise PFD and dividers, and a precision charge-pump.

The HMC837LP6CE and HMC840LP6CE synthesizers deliver exceptional phase noise and industry-leading spurious performance while consuming only 630 mW. No other pre-packaged PLL solution is capable of reliably delivering this level of phase noise performance: -227 dBc/Hz Figure-Of-Merit (FOM) in fractional-N mode and -230 dBc/Hz FOM in integer-N mode. The integrated double side band phase noise for these products is lower than -50 dBc.

The phase detector (PD) features cycle slip prevention (CSP) technology to allow faster frequency hopping times. Ultra low in-close phase noise and low spurious also allows wider loop bandwidths for faster frequency hopping and low micro-phonics.

With common channel spacing (200 kHz, 20 kHz loop bandwidth), Spurious-Free Dynamic Range (SFDR) of 78 dB is typical. Even under worst case conditions, with the synthesizer tuned very close to an integer multiple of the comparison frequency, SFDR still exceeds 52 dB.

The HMC837LP6CE is tunable over three separate frequency bands: 1025 MHz to 1150 MHz, 2050 MHz to 2300 MHz, and 4100 MHz to 4600 MHz. The HMC840LP6CE is tunable over three separate frequency bands: 1310 MHz to 1415 MHz, 2620 MHz to 2830 MHz, and 5240 MHz to 5660 MHz.

Both the HMC837LP6CE and the HMC840LP6CE are housed in 6 x 6 mm plastic leadless surface mount packages and provide excellent temperature stability from -40 °C to +85 °C. Released data sheets may be found at www.hittite.com. Samples and evaluation PC boards are available from stock and can be ordered via the company's e-commerce site or via direct purchase order.

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