Ka-band PAs and doubler target wireless communications applications

Janine Love - July 11, 2005

Houston, Texas—Mimix Broadband, Inc. introduced a new line of Ka-band gallium arsenide (GaAs) monolithic microwave integrated circuit (MMIC) products, including power amplifiers and a doubler, covering the 27 to 34 GHz frequency bands. The new power amplifiers and doubler use 0.15 micron gate length GaAs pseudomorphic high electron mobility transistor (pHEMT) device model technology.

Operating across 27 to 33 GHz, the model 30SPA0536 PA delivers +36dBm saturated output power with 21-dB gain and +/- 1-dB gain flatness while drawing 2.1 mA at +5 VDC. Operating from 28 to 31 GHz, model 30MPA0562 PA delivers +30-dBm saturated output power with 27-dB gain. Model 30SPA0557 operates across 27 to 32 GHz, delivers +34-dBm saturated output power and 21-dB gain.

Model 30DBL0537 is an active doubler that accepts 14.5 to 17 GHz RF input, and is specified for +2-dBm input power, +20-dBm output power, and draws 190 mA from a +5-VDC supply.

When used in conjunction with the 30SPA0536, the 30DBL0537 provides a solution for highly integrated uplinks for commercial and defense applications, eliminating the need for a more complex heterodyne up-converter system design. The new amplifiers and doubler are well suited for wireless communications applications, such as millimeter-wave point-to-point radio, LMDS, Satcom and VSAT applications.

"These parts provide 'state-of-the-art' power levels at the Ka-band frequencies used for satellite uplinks, with good PAE and match, and exceptionally good lifetime, in 4-mil substrate thickness that facilitates handling at the die level," stated Dr. Jim Harvey, CTO of Mimix Broadband, Inc. "In addition to providing these parts as die, Mimix is developing a range of packaged versions to facilitate low cost manufacture of Ka-band up-converters."

Mimix performs 100% on-wafer RF, DC and output power testing on these products, as well as 100%
visual inspection to MIL-STD-883 method 2010. The chips also have surface passivation to protect and provide rugged parts with backside via holes and gold metallization to allow either a conductive epoxy or eutectic solder die attach process.

Samples are available now, with production quantities available in 6 to 8 weeks. Click here for links to data sheets.