# NXP introduces eXtremely Rugged XR LDMOS RF power transistors

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Designed for the toughest engineering environments, NXP Semiconductors N.V. today unveiled its new XR family of “eXtremely Rugged” LDMOS RF power transistors. The XR family is designed tough-as-nails to withstand the harsh fault conditions often found in applications such as industrial lasers, metal etching and concrete drilling. Based on NXP’s industry-leading LDMOS technology, the XR family extends LDMOS into the few remaining domains that are serviced by VDMOS and bipolar transistors today. NXP will showcase its first XR RF power transistor, the BLF578XR, this week at the IEEE MTT-S International Microwave Symposium 2011 (IMS2011) in Baltimore, Maryland.

Sudden and severe load disturbances are commonplace in certain RF power applications. The RF power transistor is expected to survive them all, without failure or degradation, through years of active life. These load disturbances are replicated in the lab by inducing mismatches at the load side, with the severity of the mismatch recorded as a voltage standing wave ratio (VSWR). While most base-station and broadcast applications require “rugged” RF power transistors to survive a VSWR of 10:1 through all phases, the “eXtremely Rugged” BLF578XR easily survives repeated VSWR tests of 125:1 - the highest level measured by the test unit. This is particularly critical for certain ISM applications that require the RF power transistor to survive a VSWR test that can exceed 100:1.

“Our new eXtremely Rugged family offers best-in-class ruggedness, opening new markets for RF power that were previously unthinkable. The mismatch test, where we’ve demonstrated that the BLF578XR can survive a VSWR of 125:1, speaks for itself. To further demonstrate just how rugged the XR is, we’ve taken this one step further to replicate a host of extreme fault conditions, and have found no impact on the performance of the BLF578XR. We welcome RF power engineers to see this for themselves - at IMS2011, in our ‘Unbreakable’ video and in their own labs,” said Mark Murphy, director of RF power products, NXP Semiconductors. “As a leading volume supplier with over 15 years in this market, NXP is continuing to push the boundaries in high performance radio frequency technology by delivering leading performance LDMOS with VDMOS-like ruggedness and without any added cost structure.”

The new BLF578XR is an extremely rugged version of NXP’s ubiquitous BLF578, an RF power transistor workhorse for a multitude of broadcast and ISM applications. In most applications, the BLF578XR will be a simple plug-in replacement for the BLF578.

The BLF578XR features NXP’s most advanced LDMOS technology,

and is designed for applications where extreme ruggedness is required.

- Frequency range: 0 to 500 MHz
- Gain: 24 dB at 225 MHz
- Efficiency: 70 % at 225 MHz
- VSWR: 125:1 at 1200 W through all phases
- Peak output power: 1400 W (pulsed)
- Thermally enhanced: 0.14 K/W

NXP BLF578XR samples are available now, with volume shipping to begin in Q3 2011.

**More information:** Further information is available at: www.nxp.com/pip/BLF578XR.html

Provided by NXP