

## News and New Products

## Integrated ORing controller and MOSFETs run fast and cool for redundant supplies

By Margery Conner, Technical Editor -- EDN, 8/14/2008



**Picor's Cool-ORing family of devices integrates high-speed ORing-MOSFET controllers with low-on-state-resistance MOSFETs that achieve a typical dynamic response of 160 nsec and a typical on-state resistance as low as 1.5 m $\Omega$ .**

In their quest for near-100% uptime, designers of high-availability-system applications, such as telecom and datacom servers, employ redundant power systems: If one power supply fails, a redundant supply can pick up the load. Redundant- and backup-power supplies enter the load along with ORing MOSFETs, which ideally should have a minimal on-state resistance and fast dynamic response to power source failures. **Picor's** Cool-ORing family, comprising the PI2121, PI2123, and PI2125 devices, integrate high-speed ORing-MOSFET controllers with low-on-state-resistance MOSFETs that typically achieve a dynamic response within 160 nsec. The 8V, 24A PI2121 targets use in applications with bus voltages of 5V or lower; the 15V, 15A PI2123 suits applications with bus voltages of 9.6V or lower; and the 30V, 12A PI2125 suits applications with bus voltages of 12V. The typical on-state resistances for the three parts are 1.5, 3, and 5.5 m $\Omega$ , respectively. Each part can also work in parallel to address higher current requirements through a master/slave feature. The devices detect normal-forward, excessive-forward, light-load, and reverse-current flow through their internal MOSFETs, and they report fault conditions through an active low-fault-flag output. A temperature-sensing function indicates a fault if the maximum junction temperature exceeds 160°C. You can program the undervoltage and overvoltage thresholds using external resistor dividers.

The family also includes discrete versions of the ORing controllers. The high-speed, active-ORing PI2001 controller targets use with industry-standard single or paralleled MOSFETs; The PI2003 controller suits use in -48V, redundant-power architectures and for systems requiring operation during input-voltage transients as high as 100V for 100 msec; and the high-speed, active-ORing PI2002 controller IC has a load-disconnect feature that functions like that of the PI2122 but works with industry-standard, back-to-back N-channel MOSFETs.

The PI2121, PI2123, and PI2125 come in 17-pin, 5×7×2-mm-high, thermally enhanced LGA packages and sell for \$1.98 (10,000). The discrete Cool-ORing controllers are available in a 3×3-mm, 10-lead TDFN packages and sell for 84 cents for the PI2001 and PI2003 and 92 cents (10,000) for the PI2002. An eight-lead SOIC-package option costs 76 cents for the PI2001 and PI2003 and 83 cents for the PI2002 (10,000).