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SMT resistors deliver 5W power rating, 0.001 Ω resistance values...

IRC'S OPEN AIR CURRENT SENSE RESISTORS PROVIDE RELIABLE OVER-CURRENT PROTECTION FOR SOFTWARE-DRIVEN POWER INTERRUPT SYSTEMS

BOONE, NC (February 22, 2010) — Giving power electronics design engineers a reliable hardware-based over-current circuit protection method that can serve as a fail-safe for software-driven power interrupt systems, TT electronics IRC provides their OARS-XP Series metal element resistors, with the ability to withstand high surge currents and extreme temperature cycling environments. The devices are being specified for PWM control circuits and motor controllers, as well as fault detection and power factor correction (PFC) circuits.

“Many over-current protection schemes that are dependent on a software interrupt system may not be able to react quickly enough to a transient power surge to prevent damage to the circuit,” explained IRC application engineer Bryan Yarborough. “By designing in the OARS-XP Series resistors as a fail-safe, power electronics engineers can deliver reliable surge current protection for their circuits.”

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IRC's OAR-XP SERIES RESISTORS PROVIDE FAIL-SAFE OVER-CURRENT PROTECTION, PG. 2

In addition, Yarborough explained, the OARS-XP Series resistors can be used to limit fault current surges in battery charging circuits and power supplies. “Their extremely low resistance values – down to 0.001Ω – minimize their power dissipation until a fault current condition exists.”

The OARS-XP Series resistors consist of a flameproof 0.25” wide metal element resistance alloy welded to compliant copper terminals designed to compensate for the TCE (thermal coefficient of expansion) mismatch between the device and the PC board. Unlike other resistor technologies, such as thin film/thick film chips or foil devices, the alloy used in the open-air metal element provides stable resistance values that even at high temperatures will not experience degradation of performance at extreme temperatures. Its unique open-air design allows the heat to be dissipated into the air rather than conducted to the PC board where thermally-sensitive components are located.

The OARS-XP Series resistors are rated for 5W, with resistance values from $1m\Omega$ to $25m\Omega$, with tolerances to $\pm 1\%$. Absolute TCR is $\pm 40\text{ppm}/^\circ\text{C}$. Inductance values are less than 10 nanohenries, with operating temperature ranging from -40°C to $+125^\circ\text{C}$. IRC will also produce devices outside these specifications to meet customer requirements. Lead-free RoHS-compliant and zero ohm jumper versions are also available.

Typical pricing for the OARS-XP Series resistors is approximately \$1.09 each in minimum order quantities of 1200 pieces. Lead time is from stock to 11 weeks.

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IRC's OAR-XP SERIES RESISTORS PROVIDE FAIL-SAFE OVER-CURRENT PROTECTION, PG. 3

For more information on IRC's OARS-XP Series resistors, please access the Web site at <http://www.irctt.com/products.aspx?frmCategory=22>. For additional information, please contact TT electronics' North American sales office at 4222 S. Staples St., Corpus Christi, TX 78411; call 361-985-3166; or email sales@ttelectronics-na.com.

IRC Inc. is a leading international manufacturer of advanced film, metal glaze and wirewound resistive products with facilities in Corpus Christi, Texas, Boone, N.C., Smithfield, N.C., and Barbados. IRC is part of TT electronics plc, a global electronics company manufacturing a broad range of advanced electronic components, assemblies and sensor modules for the automotive, telecommunications, computer and aerospace markets. TT electronics' Web site can be found at: www.ttelectronics.com.

– 30 –

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