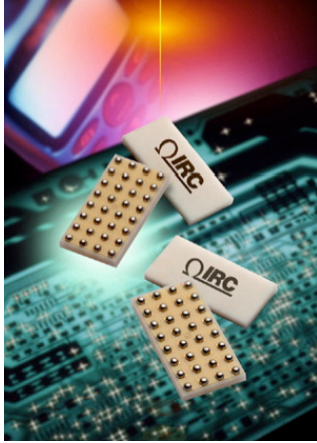


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High-frequency chips and ball grid array networks terminate digital data lines...

IRC'S HIGH SPEED DIGITAL TRANSMISSION LINE TERMINATORS DELIVER NEAR-IDEAL RESISTOR PERFORMANCE AT HIGH FREQUENCIES

CORPUS CHRISTI, Texas (March 23, 2005) – Providing digital design engineers with a means to terminate high speed transmission lines in computer and communications busses and memory circuits, TT Electronics IRC Advanced Film Division recently developed a series of high speed digital line terminators capable of operating at frequencies up to 40GHz. Available as discrete chips and ceramic BGA network packages, these resistors are designated as the PFC HF Series and the CHC Series, respectively, and provide a near-ideal termination performance at 50 and 75Ω for high frequency digital transmission lines.

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IRC'S HIGH SPEED DIGITAL LINE TERMINATORS DELIVER NEAR-IDEAL PERFORMANCE, PG 2

According to Jerry Seams, applications engineering manager for IRC's Advanced Film Division, the company's high-frequency resistors have been characterized using time domain techniques more familiar to digital engineers, in addition to the traditional analog/RF frequency domain measurements. "At high data rates, digital engineers maximize signal integrity by minimizing reflections on transmission lines and by using a terminator that maintains constant impedance over the complete frequency range," Seams explained. "Our terminators allow extremely low parasitic inductance and capacitance, and high data rate component models are available for traditional lumped element circuit simulators."

Applications include termination circuits in high speed routers and switches, as well as copper-to-fiber and fiber-to-copper data conversion circuits, Seams explained.

The PFC HF Series resistors feature ultrastable TaNFilm[®] tantalum nitride thin film elements on ceramic chips in 0603 and 0805 standard chip sizes, in 50 Ω and 75 Ω ratings with resistance tolerances to $\pm 1\%$; and TCRs to $\pm 25\text{ppm}/^\circ\text{C}$. When subjected to a digital signal with a 100ps rise time, signal reflection at the terminator is <10 percent. Operating temperature range is -55°C to $+150^\circ\text{C}$. The resistors feature wraparound terminations, a non-leaching nickel barrier and an epoxy overcoat.

The CHC Series resistor networks are BGA (ball grid array) on ceramic substrates with a variety of isolated or bussed termination schematics in either 1.0mm pitch (3x9; 4x9) or 0.65mm pitch (2x5; 4x8; 4x10) arrays. When subjected to a digital signal with a 100ps rise time, the signal reflection at the CC0910B terminator is <2 percent. The TaNFilm tantalum nitride thin film elements feature resistance values from 22 Ω to 10K Ω with tolerances to $\pm 1\%$ and TCRs to $\pm 100\text{ppm}$. Operating temperature range for the BGA networks is -40°C to $+85^\circ\text{C}$. IRC will also produce parts outside these specifications to meet customer requirements, including custom network arrays.

Typical pricing for the PFC-HF Series starts at \$0.45 each in 2,500 quantities with lead times from 6 to 8 weeks. The CHC Series BGAs are priced at \$1.06 each in 5,000 quantities with lead times from 8 to 10 weeks.

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IRC'S HIGH SPEED DIGITAL LINE TERMINATORS DELIVER NEAR-IDEAL PERFORMANCE, PG 3

To request a sample of IRC's termination resistors, or for more information, contact the TT electronics IRC Advanced Film Division Sales & Marketing Department at 361-992-7900; via mail at 4222 S. Staples St., Corpus Christi, TX 78411; e-mail at afdsales@irctt.com or visit the IRC Web site at www.irctt.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.

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