Off-line switcher IC family features line-compensated overload power protection

Power Integrations introduced the TinySwitch-4 family, the latest generation of its industry-leading TinySwitch series of off-line switcher ICs. Featuring line-compensated overload power protection, TinySwitch-4 devices dramatically reduce the maximum overload power that can be delivered into the load over the entire AC input voltage range. The devices incorporate a 725 V MOSFET that easily allows 80 percent de-rating for high reflected voltage and high bus-voltage designs. Efficiency of greater than 70 percent at five percent load enables designers to meet the stringent European standby specifications scheduled to take effect in 2013, while no-load power consumption of less than 30 mW at 230 VAC meets critical energy-saving requirements in the market today.

The line-compensated overload power protection of TinySwitch-4 ICs is particularly helpful in applications such as PC standby and appliances where unusually high current demands from the load may be indicative of a fault. Prompt action by the power supply to limit the current to a designed maximum value may prevent damage to the circuitry and enhance overall system safety and reliability. The BP/Mpin permits the MOSFET current limit to be adjusted up or down, allowing designers to optimize power delivery and efficiency in a variety of physical implementations. An on-time extension function extends the low-line regulation range, enabling hold-up time to be met with lower values of input capacitance. TinySwitch-4devices also feature latching output overvoltage protection (OVP) configurable for fast AC reset by connecting the EN/UV pin resistor to the AC input

line. Improved auto-restart ensures that power delivery during an output fault is limited to less than3 percent of full load rating.

Comments Chris Lee, product marketing manager at Power Integrations: “The TinySwitch name is synonymous with excellent standby efficiency and ease of design. The high level of integration and comprehensivesystem-level protection inTinySwitch-4 ICs enable ultra-simple power supplies that easily meetsafety specifications as well as all current and proposed efficiency standards such as ENERGY STAREPS V2.0 and ECErPEco design Directive Tier 2.Importantly, TinySwitch-4ICs are pin-compatible with existing TinySwitch-III devices, simplifying the task of migrating to the upgraded device.”

The TinySwitch-4 family is a scalable family of devices covering an extended power range up to 36.5 W, including such power-supply applications as PC standby and other auxiliary supplies,DVD/PVR and other low-power set-top decoders,appliances, industrial systems, utility meters, and chargers/adapters for mobile and cordless phones, digital cameras, portable audio, etc. Three package options are available: the industry standard PDIP and SOIC packages, and the new SMD eSOP package which enables designers to eliminate external heatsinks, instead using PCB copper area for thermal dissipation.

More information is available at http://www.powerint.com/en/products/tinyswitch-family/tinyswitch-4 [1], with an engineering report and 20 W demo board design (RDR-295) downloadable at http://www.powerint.com/sites/default/files/PDFFiles/rdr295.pdf [2].

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