Circuit Protection Initiative Helps Designers Simplify System Design While Improving Safety and Reliability

As consumers become more dependent on their electronic devices and manufacturers continue to increase the functionality of their end-application, there is an inherent risk that a simple error, such as incorrectly plugging in the device or a common electrical event, like electrostatic discharge (ESD) or lightning, will result in a system failure. This in turn can lead to product returns, lawsuits, expensive recalls, lost revenues, decreased personal productivity or damaged brand reputations.

Fortunately, there are semiconductor solutions available that can help manufacturers protect their circuit designs from these hazards. Leveraging proven, advanced process and package technologies, Fairchild Semiconductor is launching a series of circuit protection solution [1]s to help electronic device designers reduce risk while manufacturing products that are safer and more reliable.

As a leading global supplier of high performance power [2] and mobile [3] solutions, Fairchild is aligned with leading electronic manufacturers to help them meet next-generation circuit protection design challenges and to help create competitive advantages.

In addition to the existing line of transient voltage suppressors (TVS), Zener diodes, traditional Schottky diodes and current limiting ICs, Fairchild's newest circuit protection product lines will include a series of off-chip ESD protectors, as well as a family of new reverse polarity protection switches. The new off-chip ESD line will focus on providing coordinated protection in some of the most challenging ESD environments for USB, HDMI™, Mobile High-Definition Link™ and other LVDS applications. The reverse polarity protectors are a new series of in-line switches that achieve low on-resistance during normal bias. The devices also help protect against damage caused by reverse bias and negative transient events, resulting in protection for sensitive IC's against hot-plug transients, reverse battery, and other negative bias conditions up to -30V DC.

Using Fairchild's advanced clamping and "Balanced Capacitance" technology, the new off-chip ESD protectors will help reduce the damage caused by ESD events and will have minimal impact on signal integrity. Fairchild's answer to ESD protection will help reduce both soft failures that require system reboot as well as full electrical overstress (EOS) generated product returns, improving overall customer satisfaction.

Fairchild's reverse polarity protection devices will minimize size, series voltage drop and normal bias operating power loss when compared to traditional Schottky or

diode solutions. Initial devices will generate less than 15mV voltage drop and dissipate less than 15mW during normally biased 1A operation. In addition, these devices will dissipate less then 5µW in a 5V reverse bias event, making heat sinking unnecessary and reducing overall component costs and board space requirements.

www.fairchildsemi.com [4]

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