

I/O Ports (PS2, MIDI, Gameport, etc) – Motherboards

Application Overview

Problem/Solution

Manufacturers are faced with providing a safe and reliable product for their customers, and protecting the I/O ports is an important consideration. To meet regulatory agency requirements, these ports must have some way of interrupting or limiting current in the event of an overload or a short-circuit. Using a PolySwitch resettable device in series between the connector and the host power supply can provide an effective solution while simultaneously lowering manufacturers' warranty costs.

PolySwitch resettable devices offer a low-cost solution because, once the fault and power to the circuit are removed, the device automatically resets and is ready for normal operation.

Device Selection

The most commonly used PolySwitch resettable devices for these applications are the microSMD, miniSMD, RUE, and RUSB series.



Typical Agency Approval Requirements

If the manufacturer is required to meet UL1950 or IEC60950 specifications, the current at the connector must be limited to 5A in less than 60 seconds. By limiting current during a short-circuit situation, a PolySwitch device will help the manufacturer meet this requirement.

Technology Comparison

The circuit designer has many options available, including fuses and power management circuits. Fuses provide current interruption; however, the device can provide protection only once, and then it must be replaced. The designer can also choose to use a power management circuit, but the cost can be prohibitive.

Figure 1. I/O Port Circuit

