Murata's Chip PTC Thermistor Product Line

Chip PTC thermistors for "overcurrent" protection

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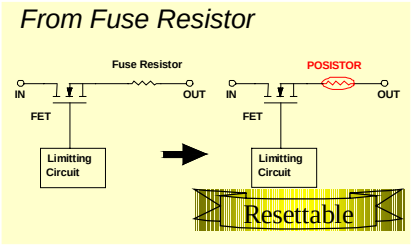
Overcurrent protection is necessary to prevent a small, relatively controllable problem from becoming a much larger, more involved issue. The potentially damaging overcurrent can be attributed to the appearance of excessive voltages, component failure, or and accidental shorting of the circuit. Currents exceeding the level the circuit was designed to handle can produce excessive heat in the circuit. The higher heat level could result in damaged circuit components, or worse, fire. The purpose of the overcurrent protection device is to prevent the excessive current from producing damaging heat. Historically, circuit designers have heavily relied on one-time fuses to provide overcurrent protection. This can be costly and rather time consuming in the long run. Through technological advances, Murata has developed an alternative to the traditional fuse – the PRG18 Series.

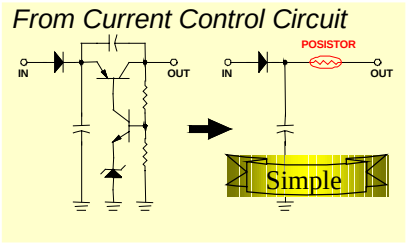
The PRG18 Series is a resetable chip PTC thermistor. Unlike traditional fuses, the PRG18 Series PTC does not melt open to provide overcurrent protection. The PTC simply increases in resistance to limit the current to a level that does not produce damaging heat (the excessive current through the PTC causes internal heating which in turn raises the temperature of the PTC and results in an increase in resistance). The PTC will reset when the power is removed, allowing the unit to cool down. At present, Murata's PRG18 Series is the only ceramic PTC Series of its class, which offers resistances below 100 ohms. Other features include the PTC's ability to be used as a current suppressive resistor while having over-current protection, noise free operation, Pb (lead) free electrode, and its suitability as a countermeasure for short circuit testing in safety standards.

Target applications for Murata's PRG18 Series includes Notebook PCs (PTC used in battery pack and main board – replacing existing chip resistors / fuses), Power Supplies (PTC used in DC/DC converter and SW power supplies – replacing existing transistor circuit) and the Semiconductor Laser (PTC used in optical sensor). The above figures illustrate the replacement of the chip resistor, fuse and transistor with the PRG18 Series PTC.

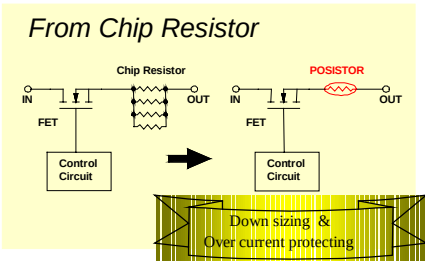
Replacement by PRG series



Protection of Control IC



Protection of Output Circuit



Protection of Charge Circuit

The PRG18's small package size and simplification of existing circuit designs makes it far superior to its existing counterparts. The versatility of this component makes it highly marketable to industries that make or use ICs. In summary, Murata's PRG18 Series PTC is the logical choice for effective overcurrent protection.

For more information on this product, please contact your local muRata sales office or consult our website at ***www.murata.com*** .