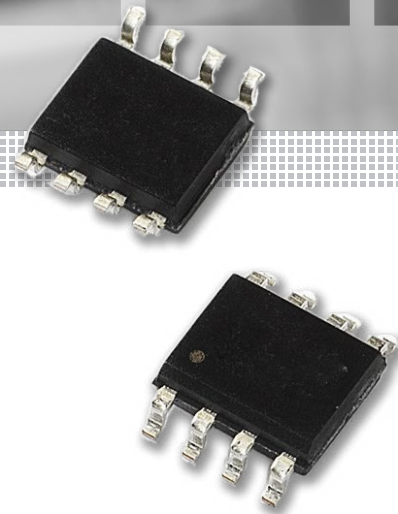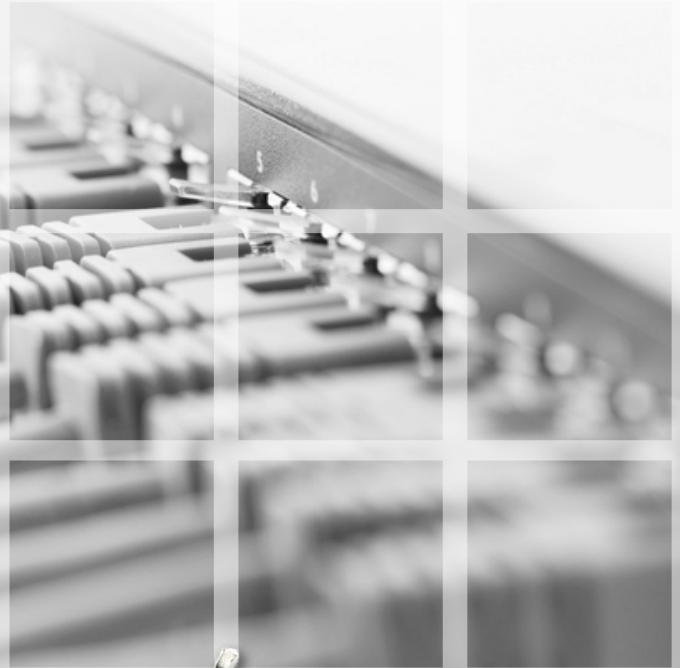# Hybrid Protection Module
Safeguards Sensitive Ethernet Components

Known-good Solution for Protecting Downstream PHY Chips from Damaging ESD and Lightning-induced Surge Currents

Offers both over current and differential only overvoltage protection for applications such as 10/100/1000 BaseT ports

The low loading capacitance and high surge capability makes the SP4031 ideal for protecting telecommunication ports such as Ethernet and other high speed data interfaces.

Target Application:

- 10/100/1000 BaseT Ethernet
- ITU K.21 Basic level compliance
- ADSL/VDSL/G.fast modem
- Industrial Ethernet

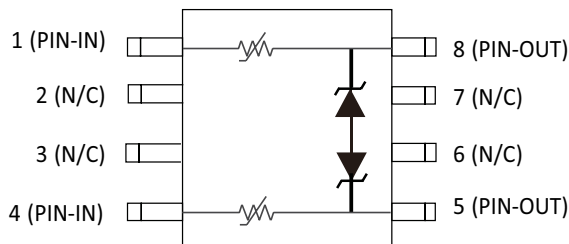# Hybrid Protection Module for 10/100/1000BaseT Ethernet

Features:

- Known-good design for overvoltage and over current events

- Through package routing, low breakdown voltage and low parasitic capacitance

- Resettable fuses, which senses over current and voltage events, and eliminates the path to the chip under protection

Benefits:

- Proven, turnkey solution against overvoltage and surge

- Tuned to interact well with ethernet speeds up through 1000 Mbits

- Creates a temporary high impedance which interrupts the signal lines during a high current event.
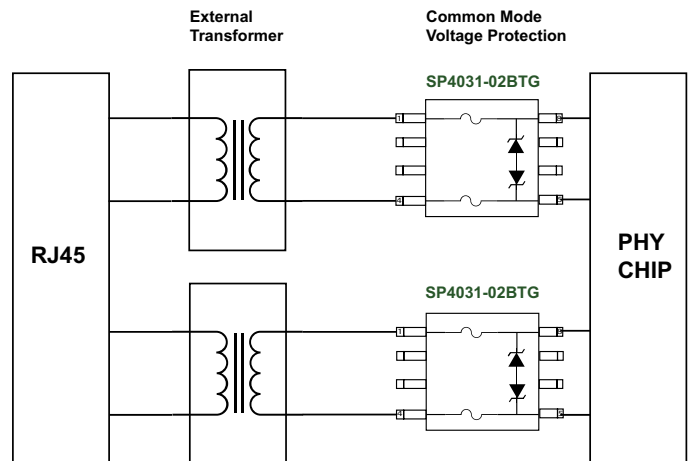
Functional Block Diagram

Flow through package layout allows PCB trace routing directly through the SP4031 without changing pitch dimensions, thus having less impact on normal signal high frequency components.

Application Diagram Example

During a prolonged overvoltage event such as a power fault, this component will present a high impedance. The high impedance state will reset once the power fault event has ended. During a fast transient event, the component will clamp, thus protecting any downstream chip sets.

Ordering Number	Ipp (A)	Breakdown Voltage (V)	Clamping Voltage (V)	Dynamic Resistance (Ω)	V_{ESD} Contact (kV)	Diode Capacitance (pF)	Package
SP4031-02BTG	35	4.5(Typ)	6.0(Typ)	0.45	±30	2.5(Max)	SOIC-8