

Product Overview

FAN4146: Ground Fault Interrupter

For complete documentation, see the data sheet.

The FAN4146 is a low-power controller for AC outlet appliance leakage circuit interrupters (ALCI) and two-wire residual current devices (RCD). The FAN4146 detects hazardous grounding conditions and open circuits the line before a harmful shock occurs.

Internally, the FAN4146 contains a diode rectifier, precision bandgap 12V shunt regulator, precision low V_{OS} offset-sense amplifier, time delay noise filter, window-detection comparators, and an SCR driver. With the addition of a minimum number of external components, the FAN4146 detects and protects against a hot-wire-to-ground fault. The minimum number of components and the small SuperSOT™ package allow for a small-form-factor, low-cost application solution.

The FAN4146 circuitry has a built-in rectifier and shunt regulator that operates with a low quiescent current. This allows for a high-value, low-wattage-series supply resistor. The internal temperature compensated shunt regulator, sense amplifier, and bias circuitry provide for precision ground-fault detection. The low V_{OS} offset-sense amplifier allows direct coupling of the sense coil to the amplifier's feedback signal. This eliminates the large 50/60Hz AC-coupling capacitor. The internal delay filter rejects high-frequency noise spikes common with inductive loads. This decreases false nuisance tripping. The internal SCR driver is temperature compensated and designed to satisfy the current requirements for a wide selection of external SCRs.

The minimum number of external components and the 6-pin SuperSOT™ package enable for a low-cost, compact design and layout. The FAN4146ESX is an enhanced temperature range device.

Features

- For two wire ALCI and RCD applications
- Precision sense amplifier and bandgap reference
- Built-in AC rectifier
- Direct DC coupled to sense coil
- Built-in noise filter
- Low-voltage SCR disable
- SCR gate driver
- Adjustable sensitivity
- Minimum external components
- Meets UL943B requirements

For more features, see the data sheet

Applications

- Building & home control
- Consumer appliances

Part Electrical Specifications

Product	Compliance	Status	Channels	V _{CC} Min (V)	V _{CC} Max (V)	I _T Max (mA)	V _I Typ (V)	T _A Min (°C)	T _A Max (°C)	Package Type
FAN4146ESX	Pb-free	Active		-1.5	16	15	12.7	-35	85	TSOT-23-6
	Halide free									
FAN4146SX	Pb-free	Active		-1.5	16	15	12.7	0	70	TSOT-23-6
	Halide free									

For more information please contact your local sales support at www.onsemi.com.

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