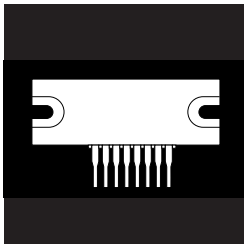
Design Concept

OM9311SP5

OPTO-COUPLED, HIGH-SIDE POWER SWITCH IN A PLASTIC SIP PACKAGE



15 Amp, Optically Isolated, "High-Side" Power Switch Module

FEATURES

- Sourcing, "High-Side" Switching to 100 Volts
- Output Current Continuous To 15 Amps
- Peak Output Current To 22 Amps
- Low ON Resistance PMOS FET Output
- Protected Output Power FET
- Broad Range, Single Supply Operation
- Opto-Coupled, Isolated Input Signal
- Noise Immune, Schmitt Trigger Circuitry
- Guaranteed ON/OFF Threshold
- High (Effective) Gain: Output/Input 1000
- Reverse Input Polarity Protection
- Input Current Limiting
- Industrial or Hermetic Military Specified Versions
- Electrically Isolated Package(s)

2.1

DESCRIPTION

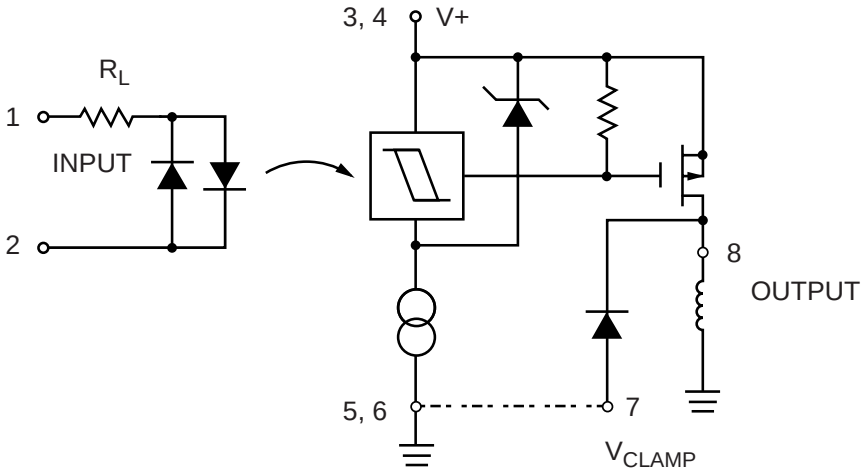
The OM9311SP5 is an optically coupled, multi-chip-module (MCM) for high-current sourcing (i.e. "high-side" switching) applications. The (Input) infrared emitting diode is coupled to an integrated detector and Schmitt trigger circuit. This provides hysteresis and affords both the noise immunity and pulse shaping needed for gating a high-power PMOS FET. The PMOS FET is rated for continuous operation at 15 amps, and is guaranteed for 100 volts. The output power FET is protected from both excessive gate voltage and inductive load transients. The dual combination of an internal regulated source and a constant current sink provides versatile, single supply operation over a broad voltage range. Both Industrial and Military specified versions are available, and both the input (signal) and package are electrically isolated from the high-power circuitry.

Note: Product design and detailed specifications are not finalized as this data book is being published. For additional information regarding this opto-power module, or similar custom MCM, please contact your sales representative or Omnirel Corp.

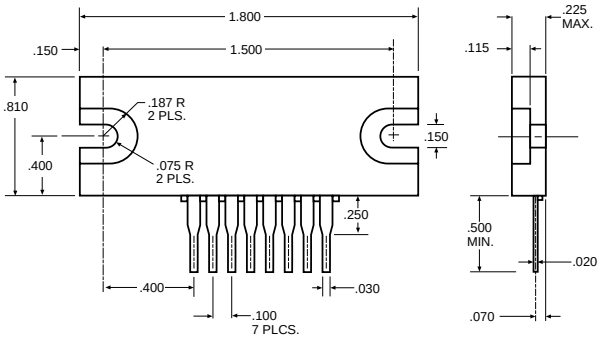
ABSOLUTE MAXIMUM RATINGS

Supply Voltage Range, V_{SS} . . . . . 15 V to 100 V
Peak Output Current (100ms, <5% duty), I_{DF} . . . . . 22 A
Continuous Output Current, I_{OUT} . . . . . 15 A
Peak Forward Input Current (300µsec 2% duty) . . . . . 50 mA
Continuous Forward Input Current, I_F . . . . . 30 mA
Reverse Input Current, I_{rev} . . . . . 30 mA
Input To Output Isolation Voltage . . . . . 3750 V(rms)
Operating Temperature Range, T_A
Industrial MCM . . . . . - 40° C to + 85° C
Military Specified MCM . . . . . - 55° C to + 125° C
Storage Temperature Range, T_{stg} . . . . . - 65° C to + 150° C

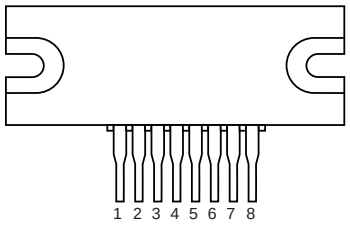
BLOCK DIAGRAM



MECHANICAL OUTLINE



PIN CONNECTION



Pin 1:	Hi Input	Pin 5:	Ground
Pin 2:	Low Input	Pin 6:	Ground
Pin 3:	V_{CC}	Pin 7:	Clamp
Pin 4:	V_{CC}	Pin 8:	Output