SOLID STATE OPTRONICS

TD3063


Zero-Volt Switching
Triac Driver

DESCRIPTION

The TD3063 consists of a single input LED optically coupled to a zero-volt crossing triac driver. The TD3063 provides high input-to-output isolation and is designed to drive high-powered triacs. Typical uses include interfacing logic level control signals to equipment powered from 110Vac and 220Vac lines.

FEATURES

- Zero-volt switching
- 600V blocking voltage
- High input-to-output isolation
- High reliability
- 5mA turn-on current

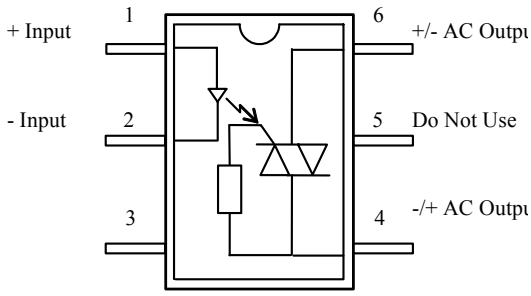
APPLICATIONS

- Home appliances
- Motor control
- Solid state relays
- Valve control
- Solenoids
- Exercise equipment

OPTIONS/SUFFIXES

- -H High Output Isolation
- -S Surface Mount Option
- -TR Tape and Reel

SCHEMATIC DIAGRAM



MAXIMUM RATINGS

PARAMETER	UNIT	MIN	TYP	MAX
Storage Temperature	°C	-55		125
Operating Temperature	°C	-40		85
Continuous Input Current	mA			40
Transient Input Current	mA			400
Reverse Input Control Voltage	V	6		
Output Power Dissipation	mW			500

APPROVALS

Solid State Optronics, Inc.
1.888.377.4776
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ELECTRICAL CHARACTERISTICS - 25°

PARAMETER	UNIT	MIN	TYP	MAX	TEST CONDITIONS
INPUT SPECIFICATIONS					
LED Forward Voltage	V		1.2	1.5	If = 10mA
LED Reverse Voltage	V	6	12		Ir = 10uA
Turn-On Current	m A	5	2.5		Io = 100mA
Turn-Off Current	m A		0.5		
OUTPUT SPECIFICATIONS					
Blocking Voltage	V	600			Io = 1uA
Continuous Load Current	m A			100	Iin = 5mA
Holding Current	µ A		250		
Leakage Current	µ A			1	Vo = 600V
On-State Voltage	V		2	3	Iin = 5mA
Critical Rate of Rise	V / µ s	1000	1500		
COUPLED SPECIFICATIONS					
Isolation Voltage	V	2500			T = 1 minute
-H Suffix	V	3750			T = 1 minute
Coupled Capacitance	p F		2		

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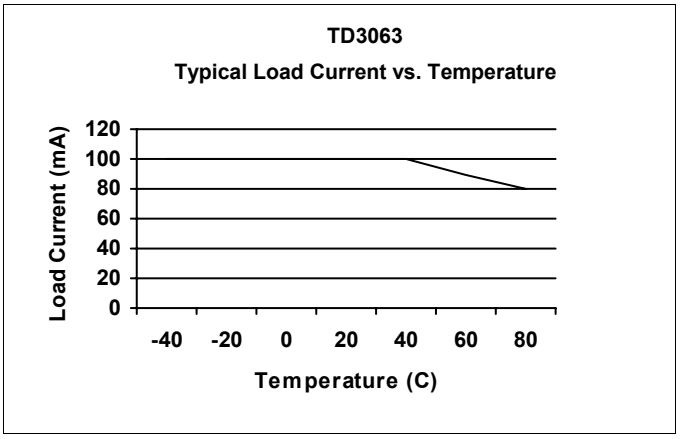
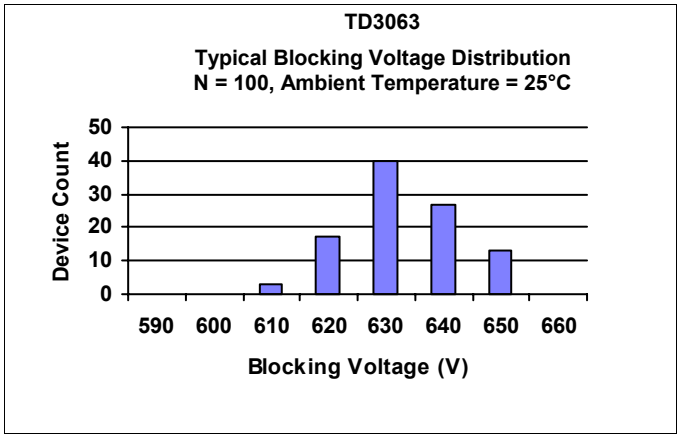
PERFORMANCE DATA





ZERO-VOLT SWITCHING

This solid state relay has been designed with a driver circuit that controls the operation of two back-to-back silicon controlled rectifiers (SCRs), each responsible for one half of the AC cycle. If an AC signal is examined, the turn on, turn off and zero-volt switching can be seen. Figure 1 shows a typical 60 Hz, 120Vac signal with a corresponding relay input signal:

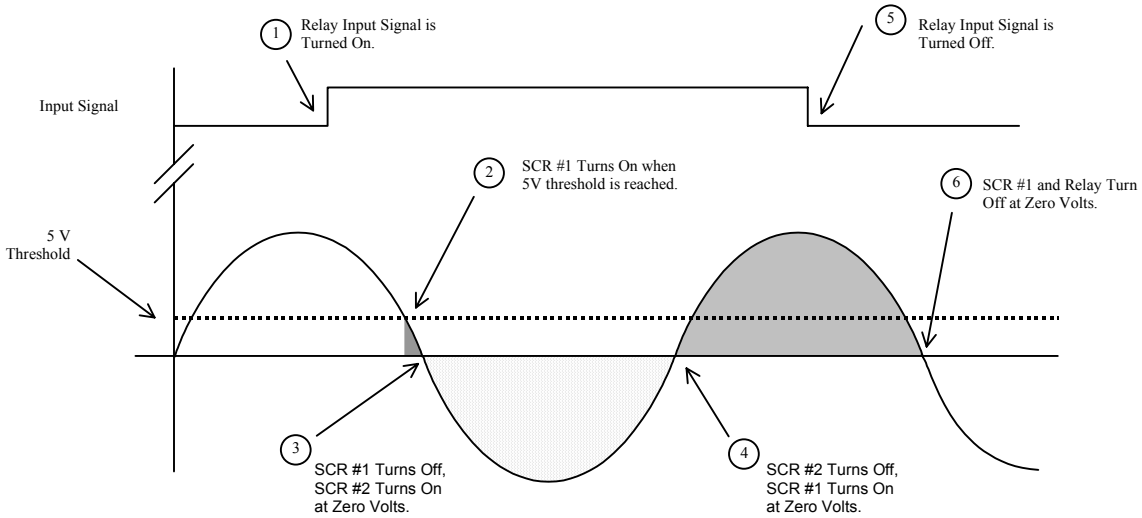


Figure 1 shows the sequence of zero-volt switching operation. At Stage 1, an input signal is applied to the relay. The relay will not turn on until the threshold voltage of 5V is reached. Once this point is reached (Stage 2), SCR #1 (designated as the SCR which controls positive AC voltage) turns on. However, SCR #1 only conducts for an instant, as the cycle quickly crosses zero. At this point (Stage 3), SCR #1 will turn off and SCR #2 (negative AC voltage) turns on. Likewise, at the next zero cross (Stage 4), SCR #2 will turn off and SCR #1 conducts again. Even though the input signal is terminated at Stage 5, the relay will continue to conduct (typical SCR behavior) until Stage 6, when SCR #1 crosses zero and ceases to conduct. Please note that turn on can likewise begin on the negative phase of the AC cycle with a -5V threshold, though only the positive phase is shown here.

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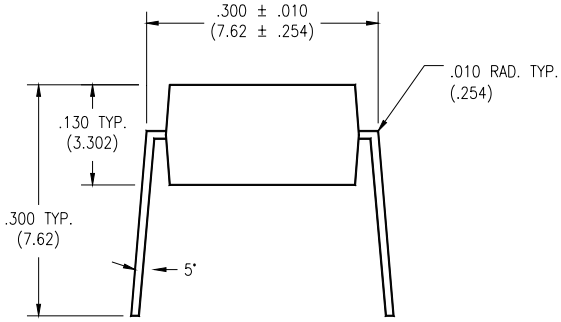
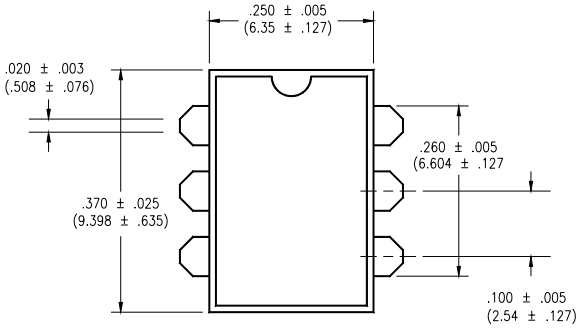
MECHANICAL DIMENSIONS

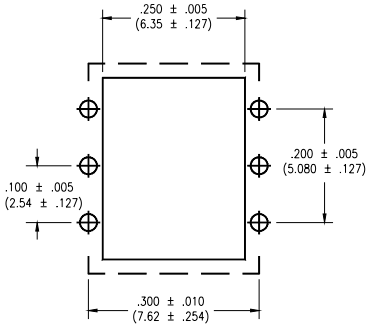
6 PIN DUAL IN-LINE PACKAGE



END VIEW

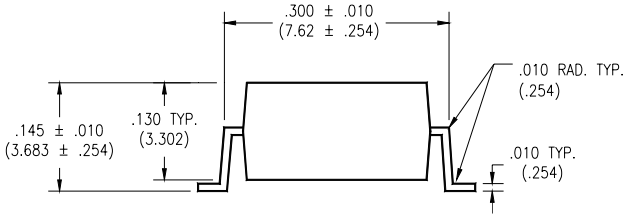


TOP VIEW

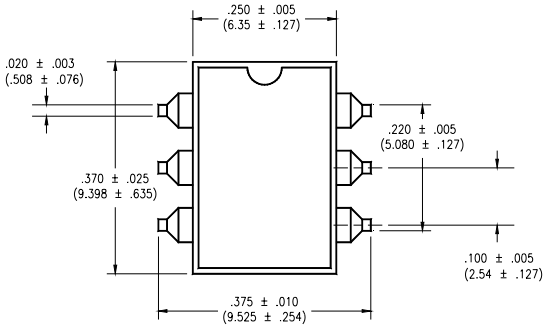


BOTTOM VIEW/
BOARD PATTERN

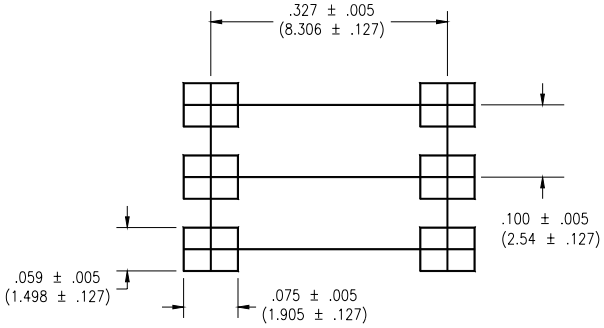
6 PIN SURFACE MOUNT DEVICE



END VIEW



TOP VIEW



BOTTOM VIEW/
BOARD PATTERN

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