SOLID STATE OPTRONICS

TD3042

Zero-Volt Switching
Triac Driver

RoHS compliant

DESCRIPTION

The TD3042 consists of a single input LED optically coupled to a zero-volt crossing triac driver. The TD3042 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
- 400V blocking voltage
- High input-to-output isolation (5kVrms MIN)
- Trigger current 10mA MAX
- High dV/dt (1kV/us MIN, 2kV/us TYP)

APPLICATIONS

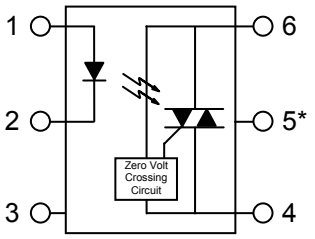
- Home appliances
- Motor/ Drive controls
- Solid state relays
- Solenoid / Valve control
- Temperature Control

OPTIONS/SUFFIXES*

- -S Surface Mount Leadform Option (50 pcs / tube)
- -TR Tape and Reel Option (1000 pcs / reel)
- -V Signifies VDE approval
- -H 0.4" Lead Spacing (see mechanical dimension)

NOTE: Suffixes listed above are not included in marking on device for part number identification.

SCHEMATIC DIAGRAM



*DO NOT CONNECT
Triac Substrate

1. Anode
2. Cathode
3. N/C
4. MAIN Terminal
5. N/C*
6. MAIN Terminal

ABSOLUTE MAXIMUM RATINGS*

PARAMETER	UNIT	MIN	TYP	MAX
Storage Temperature	°C	-55		125
Operating Temperature	°C	-40		85
Continuous Input Current	mA			50
Transient Input Current	mA			400
Reverse Input Control Voltage	V			6
Total Power Dissipation	mW			330
Soldering Temperature (10s)	ºC			260

*The values indicated are absolute stress ratings. Functional operation of the device is not implied at these or any conditions in excess of those defined in electrical characteristics section of this document. Exposure to Absolute Ratings may cause permanent damage to the device and may adversely affect reliability.

APPROVALS

- UL and C-UL Approved File # E201932
- VDE Approved, Lic # 40011225

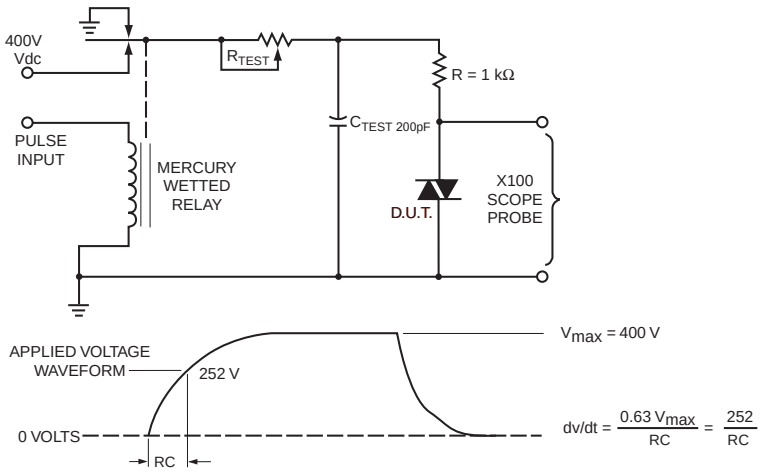
ELECTRICAL CHARACTERISTICS - 25°C

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
Reverse Leakage Current	μ A			10	Vr = 4V
OUTPUT SPECIFICATIONS					
Blocking Voltage	V	400			Io = 1uA
Peak Blocking Current	n A		60	500	Vdrm = Rated
On-state Voltage	V		1.8	3	Itm = 100mA
Critical Rate of Rise (See Note 1 below)	V / μ s	1,000	2,000		If = 0mA
COUPLED SPECIFICATIONS					
Isolation Voltage	V	5000			T = 1 minute
Trigger Current (See Note 2 below)	m A			10	Main terminal voltage = 3V
Inhibit Voltage	V		5	20	If = 5mA
Isolation Resistance	G Ω	50			DC 500V
Holding Current	μ A		100		
Leakage Current	μ A			1	If = Rated, Vdrm = Rated, Off State

Note 1: This is for static dV/dt. Test circuit below

Note 2: Resistive load. For inductive loads, higher drive current is recommended.

STATIC dV/dt TEST CIRCUIT



PERFORMANCE DATA

Fig.1 On-State Characteristics

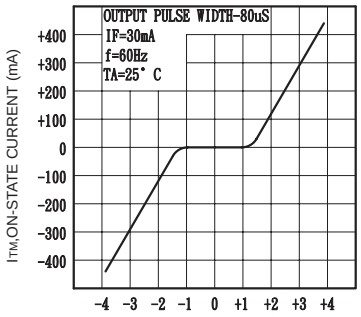


Fig.2 Inhibit Voltage versus Temperature

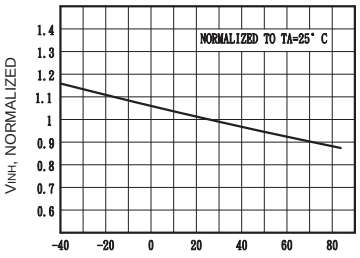


Fig.3 Leakage with LED Off versus Temperature

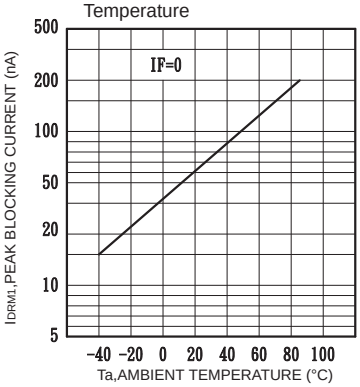


Fig.4 I_{DRM2} ,Leakage in Inhibit State versus Temperature

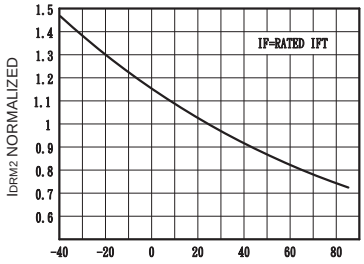
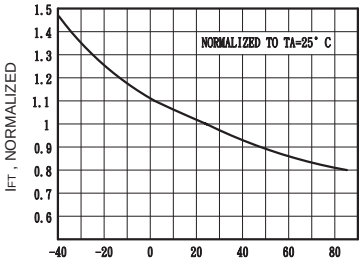
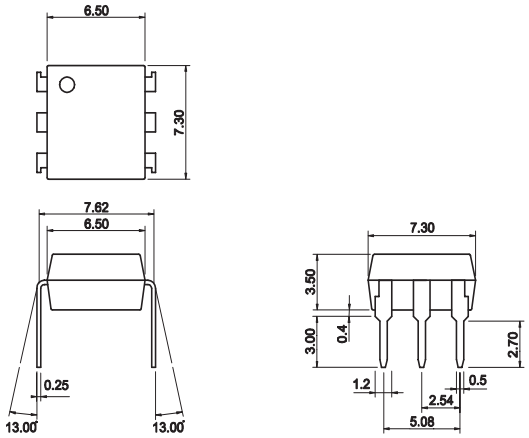


Fig.5 Trigger Current versus Temperature

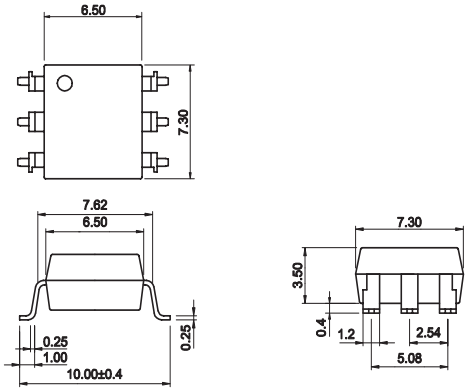


MECHANICAL DIMENSIONS

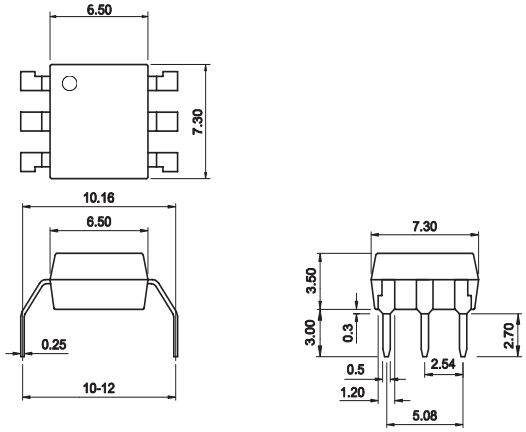
6 PIN DUAL IN-LINE PACKAGE (Through Hole)



6 PIN SURFACE MOUNT DEVICE (SMD)



-H Suffix 0.4" Lead Spacing



TOLERANCE :+ 0.25mm

Unit in (mm)

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