



Random Switching  
Triac Driver

## DESCRIPTION

The TD3052 consists of an AlGaAs LED optically coupled to a Random Phase triac driver chip. The TD3052 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

- Random phase switching
- 600V blocking voltage
- High input-to-output isolation (5kV MIN)
- 10mA turn-on (trigger) current
- High reliability

## APPLICATIONS

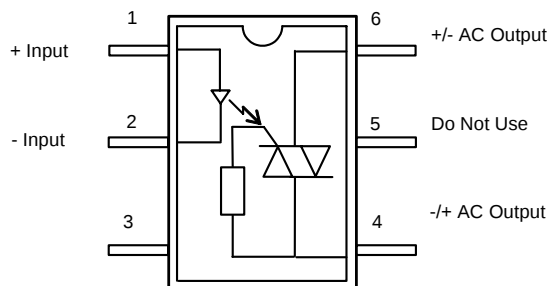
- Home appliances
- Motor control
- Solid state relays
- Valve control
- Solenoids
- Dimmers
- High Power Triacs

## OPTIONS/SUFFIXES\*

- -H 0.4" Lead spacing (see mechanical dimension)
- -S Surface Mount Leadform Option
- -TR Tape and Reel Option
- -V Signifies VDE approval

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

## SCHEMATIC DIAGRAM



## ABSOLUTE 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 |

\*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.

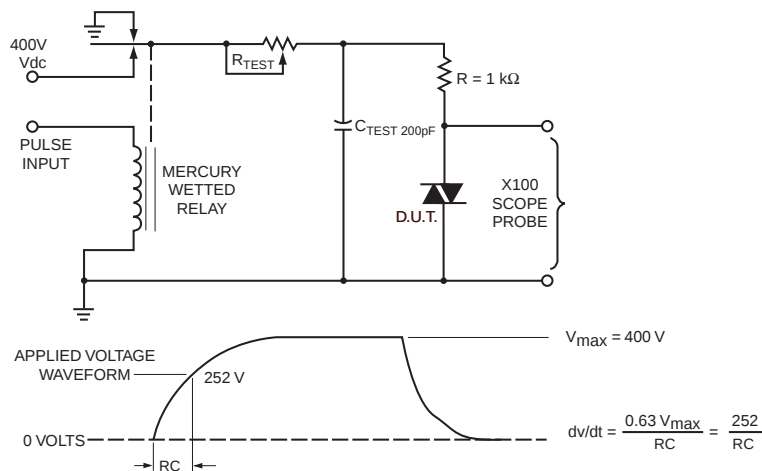
## APPROVALS

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

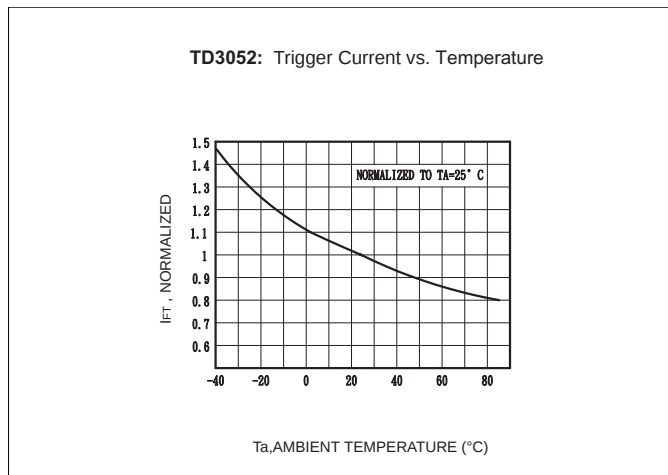
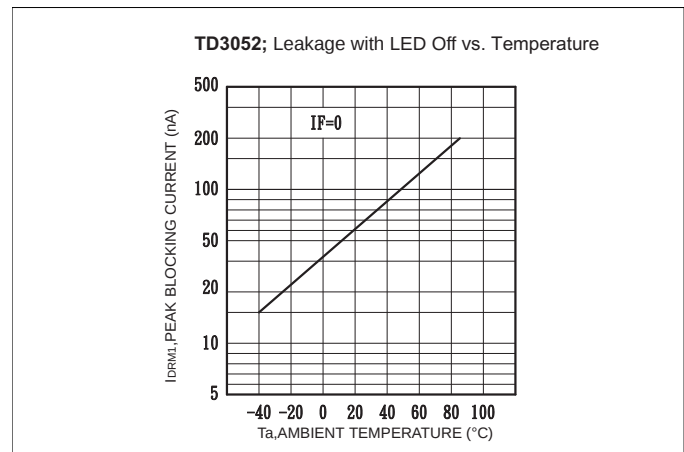
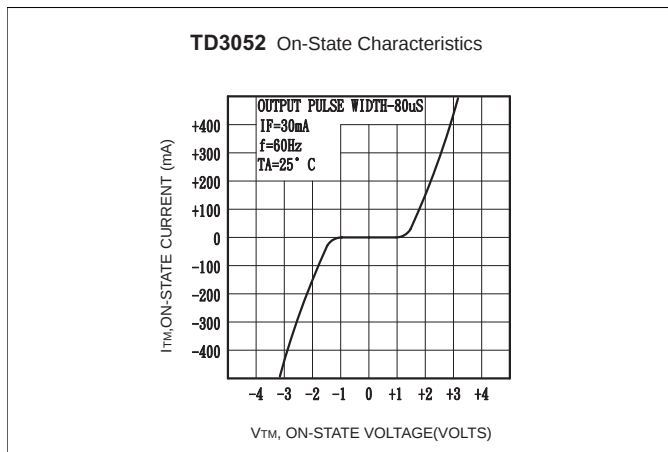
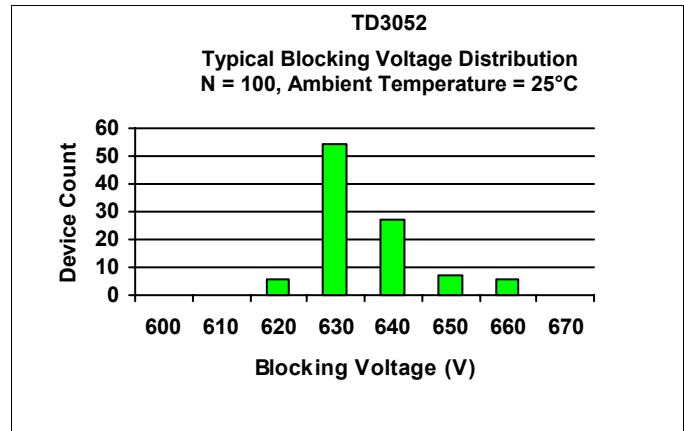
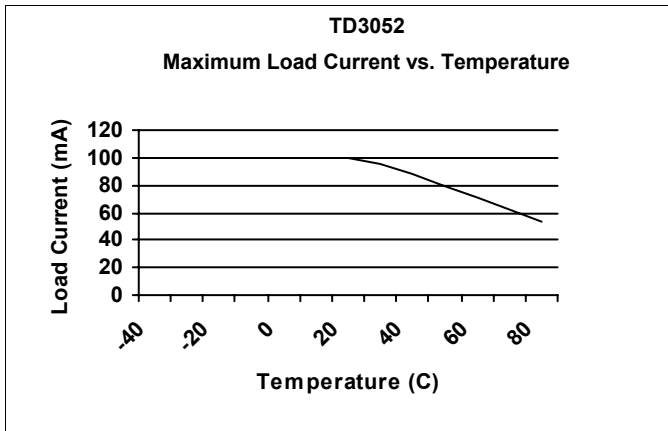
## ELECTRICAL CHARACTERISTICS - 25°C

| PARAMETER                     | UNIT    | MIN  | TYP  | MAX | TEST CONDITIONS |
|-------------------------------|---------|------|------|-----|-----------------|
| <b>INPUT SPECIFICATIONS</b>   |         |      |      |     |                 |
| LED Forward Voltage           | V       |      | 1.2  | 1.5 | If = 10mA       |
| LED Reverse Voltage           | V       | 6    | 12   |     | Ir = 10uA       |
| Turn-On Current               | m A     |      | 5    | 10  | Io = 100mA      |
| Turn-Off Current              | m A     |      | 0.5  |     |                 |
| <b>OUTPUT SPECIFICATIONS</b>  |         |      |      |     |                 |
| 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 |     |                 |
| <b>COUPLED SPECIFICATIONS</b> |         |      |      |     |                 |
| Isolation Voltage             | V       | 5000 |      |     | T = 1 minute    |
| Coupled Capacitance           | p F     |      | 2    |     |                 |

## STATIC dV/dt TEST CIRCUIT

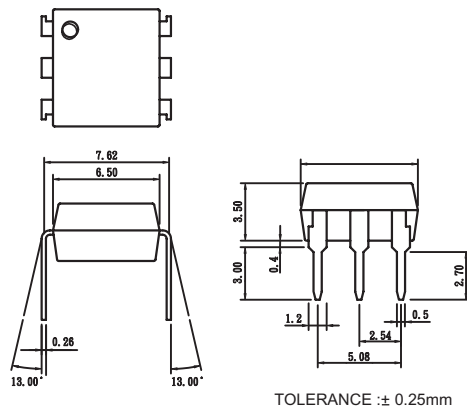


## PERFORMANCE DATA

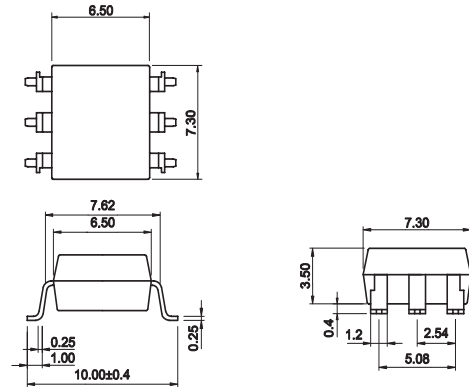


## MECHANICAL DIMENSIONS

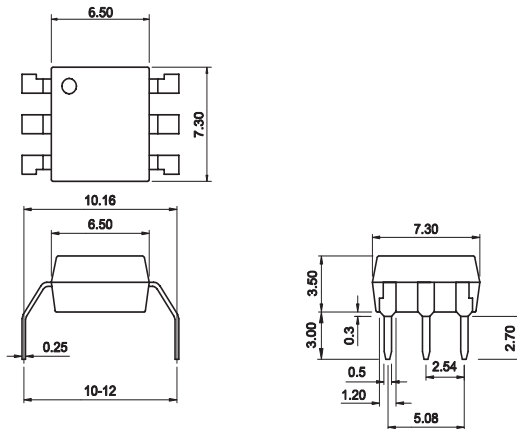
### 6 PIN DUAL-IN-LINE PACKAGE (Through-hole)



### 6 PIN SURFACE MOUNT DEVICE (SMD)



### -H Suffix (0.4" / 10mm Lead Spacing)



**Unit (mm)**

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