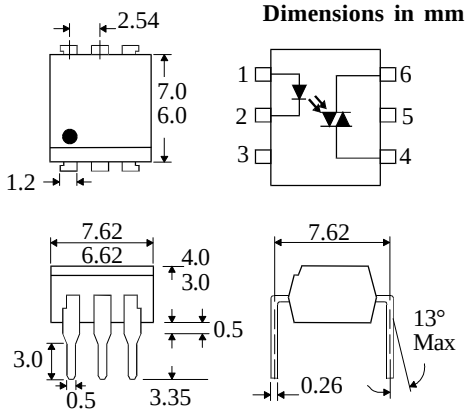
**IS3052**

# OPTICALLY COUPLED RANDOM PHASE NON-ZERO CROSSING TRIAC DRIVERS

## DESCRIPTION

The IS3052 is an optically coupled isolator consisting of a Gallium Arsenide infrared emitting diode coupled with a light activated silicon bilateral switch performing the functions of a triac mounted in a standard 6 pin dual-in-line package. The IS3052 provides random phase control of high current triacs or thyristors. The IS3052 features greatly enhanced static dv/dt capability to ensure stable switching performance of inductive loads.

**Dimensions in mm**



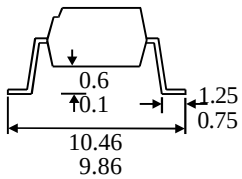

## FEATURE

- Options :-
  10mm lead spread - add G after part no.
  Surface mount - add SM after part no.
  Tape&reel - add SMT&R after part no.
- High Isolation Voltage ($5.3kV_{RMS}$ ,$7.5kV_{PK}$ )
- 550V Peak Blocking Voltage
- All electrical parameters 100% tested
- Custom electrical selections available

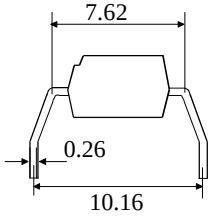
## APPLICATIONS

- Solenoid / Valve Controls
- Lamp Ballasts
- Static AC Power Switch
- Interfacing Microprocessors to 115 and 240Vac Peripherals
- Solid State Relays
- Incandescent Lamp Dimmers
- Temperature Controls
- Motor Controls

**OPTION SM**
**SURFACE MOUNT**




**OPTION G**




## ABSOLUTE MAXIMUM RATINGS
**(25 °C unless otherwise noted)**

| | |
|---|---|
| Storage Temperature | -40°C - +100°C |
| Operating Temperature | -40°C - +85°C |
| Lead Soldering Temperature (1.6mm from case for 10 seconds) | 260°C |
| Input-to-output Isolation Voltage (Pk) (60 Hz , 1sec. duration) | 7500 Vac |

## INPUT DIODE

| | |
|---|---|
| Forward Current | 60mA |
| Reverse Voltage | 3V |
| Power Dissipation (derate linearly 1.33mW/°C above 25°C) | 100mW |

## OUTPUT PHOTO TRIAC

| | |
|---|---|
| Off-State Output Terminal Voltage | 550V |
| RMS Forward Current | 100mA |
| Forward Current (Peak) | 1.2A |
| Power Dissipation (derate linearly 4.0mW/°C above 25°C) | 300mW |

## POWER DISSIPATION

| | |
|---|---|
| Total Power Dissipation (derate linearly 4.4mW/°C above 25°C) | 330mW |


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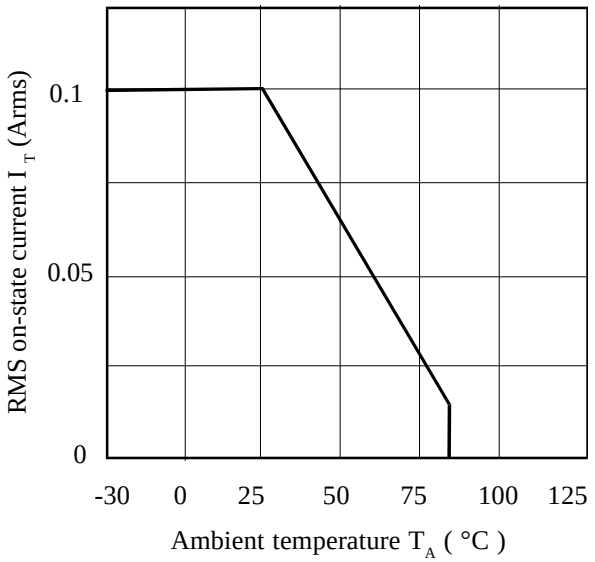
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**ELECTRICAL CHARACTERISTICS ( $T_A$ = 25°C Unless otherwise noted )**

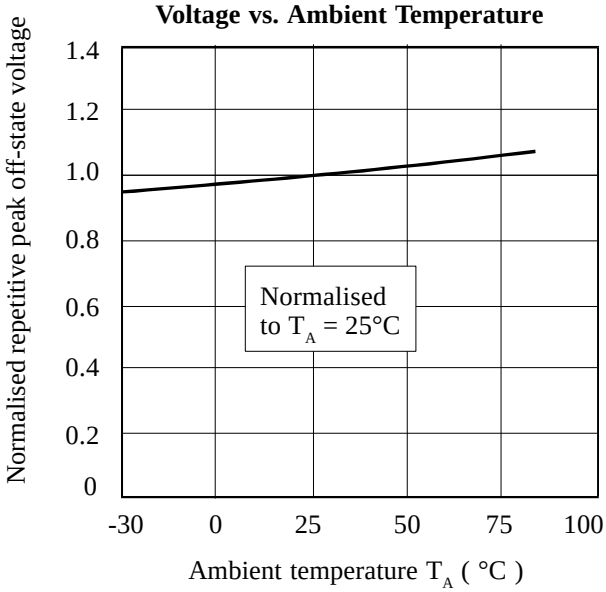
| PARAMETER | | MIN | TYP | MAX | UNITS | TEST CONDITION |
|---|---|---|---|---|---|---|
| Input | Forward Voltage ($V_F$)<br>Reverse Current ($I_R$) | | 1.2 | 1.5<br>100 | V<br>µA | $I_F$ = 10mA<br>$V_R$ = 3V |
| Output | Peak Off-state Current ( $I_{DRM}$ )<br>Peak Blocking Voltage ( $V_{DRM}$ ) | <br>550 | | 100 | nA<br>V | $V_{DRM}$ = 550V (note 1 )<br>$I_{DRM}$ = 100nA |
| | On-state Voltage ( $V_{TM}$ ) | | 1.5 | 3.0 | V | $I_{TM}$ = 100mA ( peak ) |
| | Critical rate of rise of off-state Voltage@ 400V ( dv/dt ) ( note 1 ) | 1000 | | | V/µs | |
| Coupled | Input Current to Trigger ( $I_{FT}$ )(note 2 ) | | | 10 | mA | $V_D$ = 3V ( note 2 ) |
| | Holding Current , either direction ( $I_H$ ) | | 200 | | µA | |
| | Input to Output Isolation Voltage $V_{ISO}$ | 5300<br>7500 | | | $V_{RMS}$<br>$V_{PK}$ | See note 3<br>See note 3 |

Note 1. Test voltage must be applied within dv/dt rating.
Note 2. Guaranteed to trigger at an $I_F$ value less than or equal to max. $I_{FT}$, recommended $I_F$ lies between Rated $I_{FT}$ and absolute max. $I_{FT}$.
Note 3. Measured with input leads shorted together and output leads shorted together.

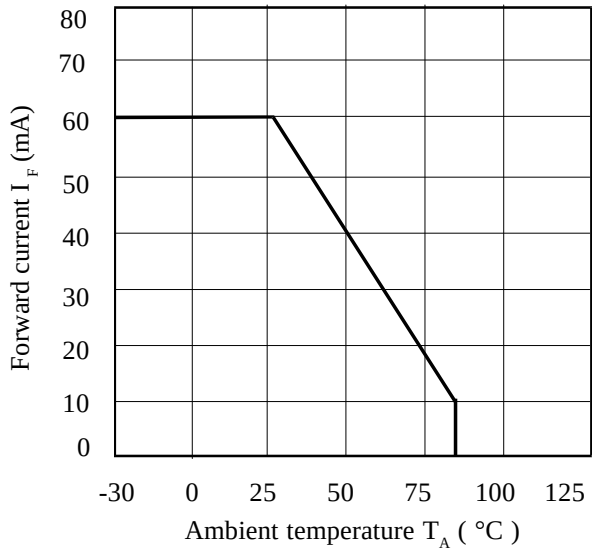
**RMS On-state Current vs. Ambient Temperature**



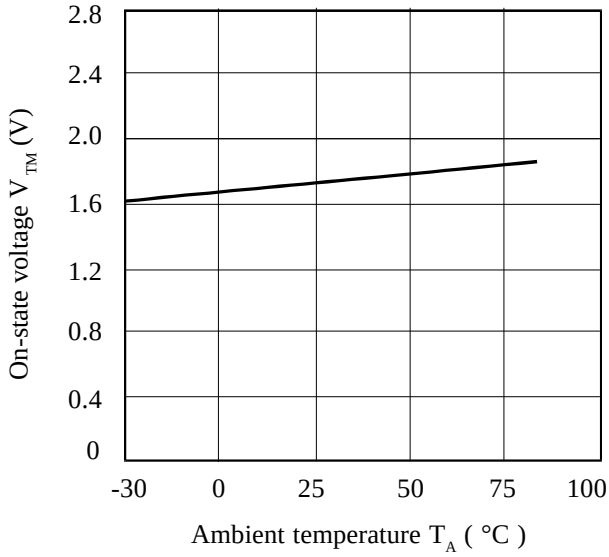

**Normalised Repetitive Peak Off-state Voltage vs. Ambient Temperature**



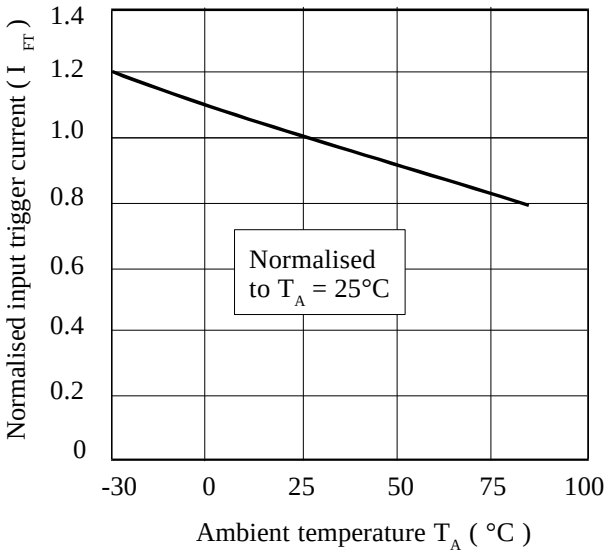

**Forward Current vs. Ambient Temperature**




**On-state Voltage vs. Ambient Temperature**




**Normalised Input Trigger Current vs. Ambient Temperature**




**On-state Current vs. On-state Voltage**

