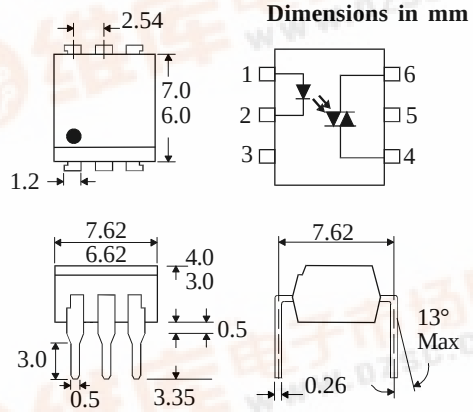
IS3052

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.



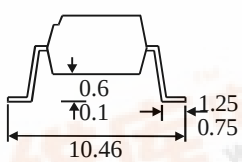
FEATURE

- 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

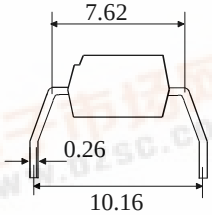
APPLICATIONS

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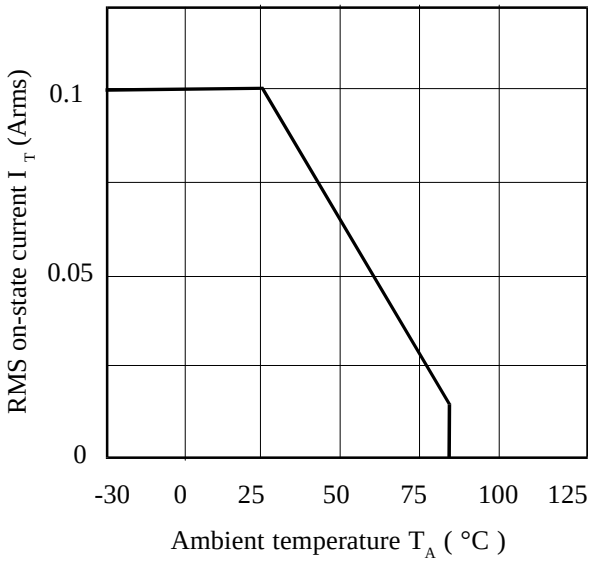
ELECTRICAL CHARACTERISTICS (T_A = 25°C Unless otherwise noted)

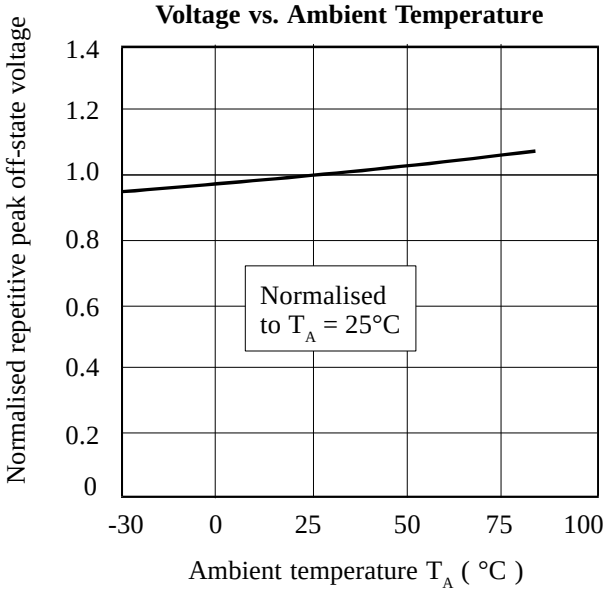
PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage (V_F) Reverse Current (I_R)		1.2	1.5 100	V µA	I_F = 10mA V_R = 3V
Output	Peak Off-state Current (I_{DRM}) Peak Blocking Voltage (V_{DRM})	 550		100	nA V	V_{DRM} = 550V (note 1) I_{DRM} = 100nA
	On-state Voltage (V_{TM})		1.5	3.0	V	I_{TM} = 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 7500			V_{RMS} V_{PK}	See note 3 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.

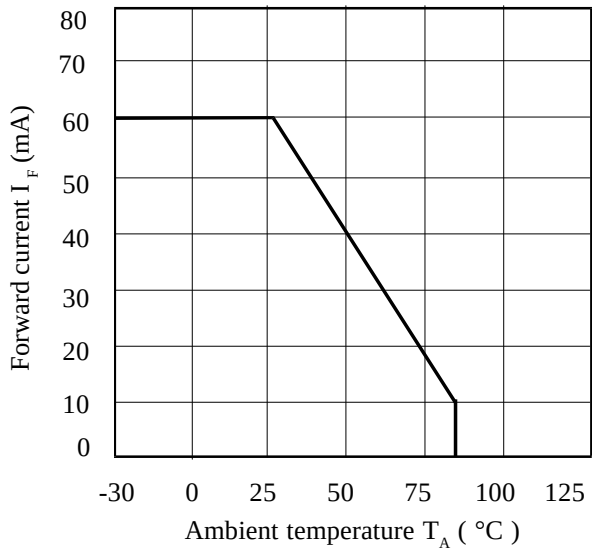
RMS On-state Current vs. Ambient Temperature



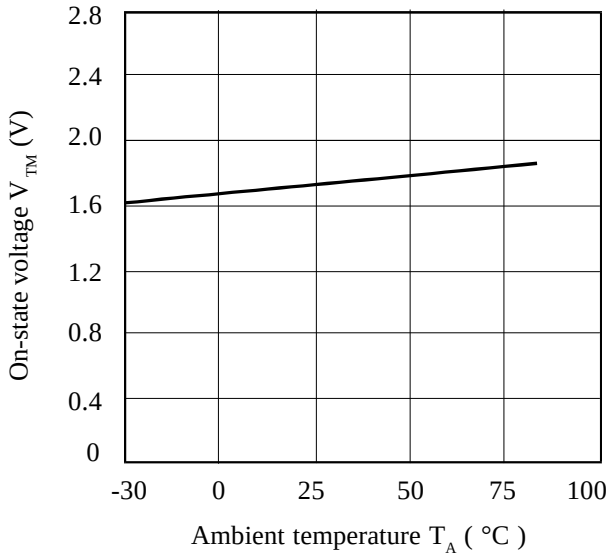
Normalised Repetitive Peak Off-state Voltage vs. Ambient Temperature



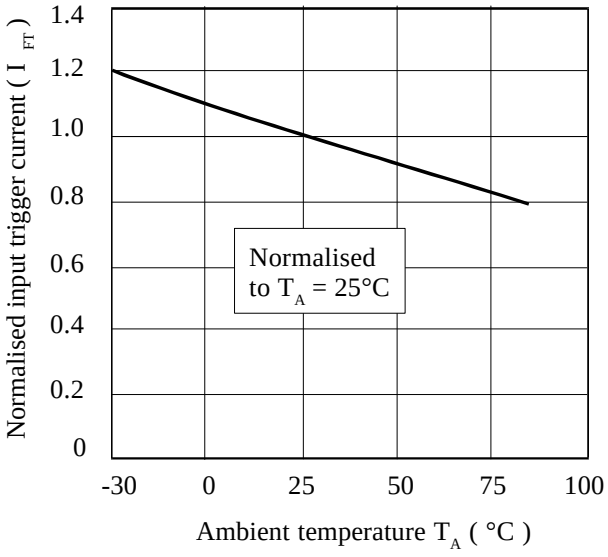
Forward Current vs. Ambient Temperature



On-state Voltage vs. Ambient Temperature



Normalised Input Trigger Current vs. Ambient Temperature



On-state Current vs. On-state Voltage