MOC3051, MOC3052
MOC3051X, MOC3052X

OPTICALLY COUPLED RANDOM PHASE NON-ZERO CROSSING TRIAC DRIVERS

ROHS COMPLIANT

APPROVALS

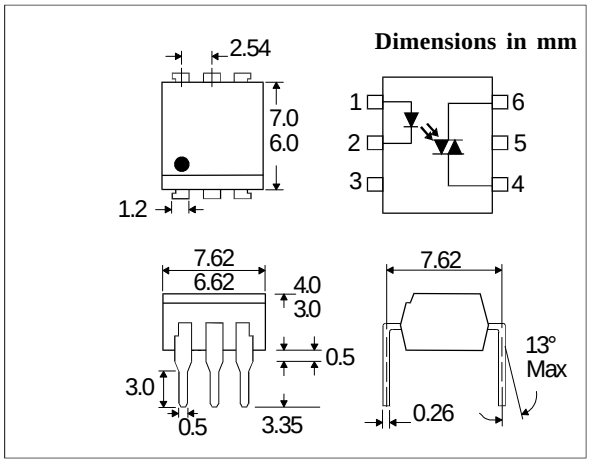
- UL recognised, File No. E91231

'X' SPECIFICATION APPROVALS

- VDE 0884 in 3 available lead form : -
  - STD
  - G form
  - SMD approved to CECC 00802

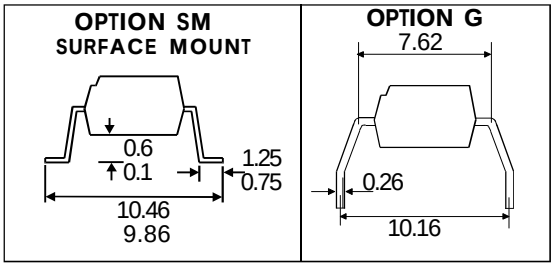
DESCRIPTION

The MOC305_ series are optically coupled isolators 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 MOC305_ series provide random phase control of high current triacs or thyristors. The MOC305_ series 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 ($5.3kV_{RMS}$,$7.5kV_{PK}$)
- 600V 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

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ABSOLUTE MAXIMUM RATINGS
(25 °C unless otherwise noted)

Storage Temperature	-55^0C - $+150^0$C
Operating Temperature	-40^0C - $+100^0$C
Lead Soldering Temperature (1.6mm from case for 10 seconds)	260^0C

INPUT DIODE

Forward Current	50mA
Reverse Voltage	6V
Power Dissipation (derate linearly 1.33mW/^{0}C above 25^0C)	70mW

OUTPUT PHOTO TRIAC

Off-State Output Terminal Voltage	600V
Forward Current (Peak)	1A
Power Dissipation (derate linearly 4.0mW/^{0}C above 25^0C)	300mW

POWER DISSIPATION

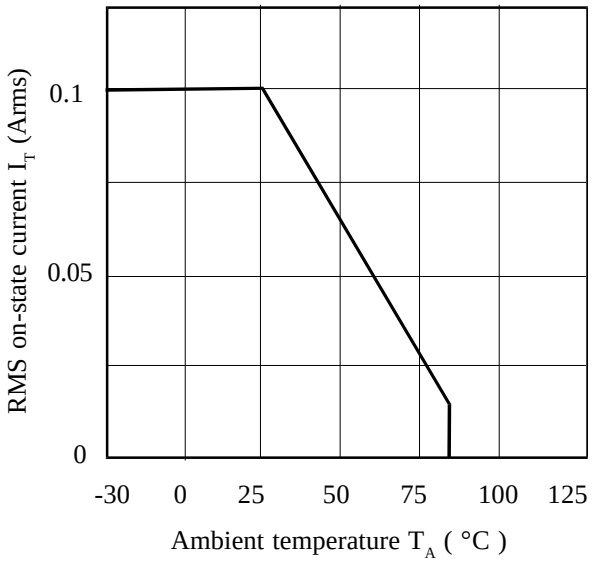
Total Power Dissipation (derate linearly 4.4mW/^{0}C above 25^0C)	330mW

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

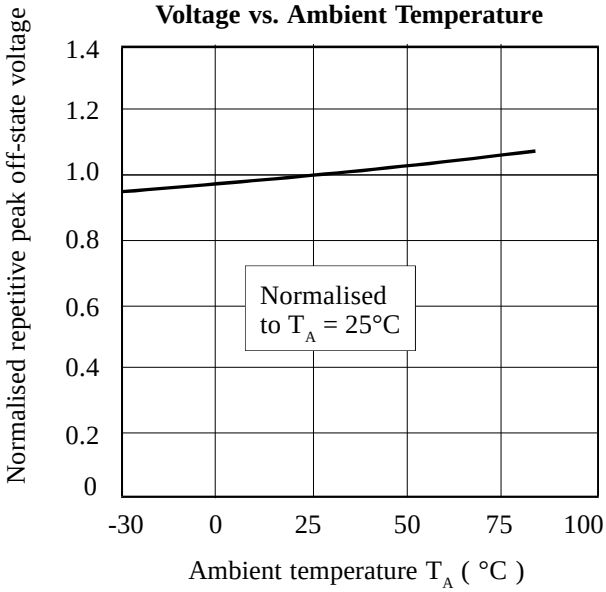
PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage (V_F)		1.2	1.5	V	I_F = 10mA
	Reverse Current (I_R)			10	µA	V_R = 6V
Output	Peak Off-state Current (I_{DRM})			100	nA	V_{DRM} = 600V (note 1)
	Peak Blocking Voltage (V_{DRM})	600			V	I_{DRM} = 100nA
	On-state Voltage (V_{TM})		1.5	3.0	V	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)					
	MOC3051			15	mA	V_D = 3V (note 2)
	MOC3052			10	mA	
	Holding Current , either direction (I_H)		100		µA	
	Input to Output Isolation Voltage V_{ISO}	5300			V_{RMS}	See note 3
		7500			V_{PK}	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.

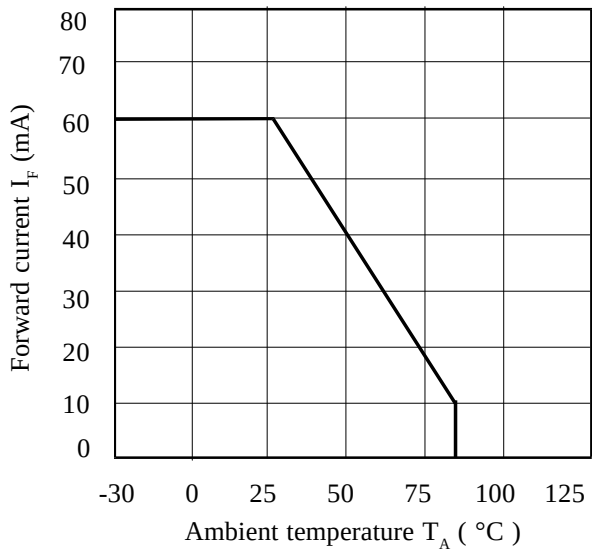
RMS On-state Current vs. Ambient Temperature



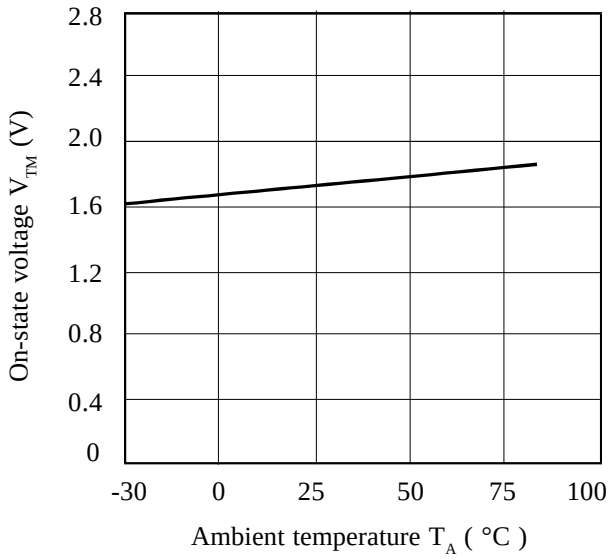
Normalised Repetitive Peak Off-state Voltage vs. Ambient Temperature



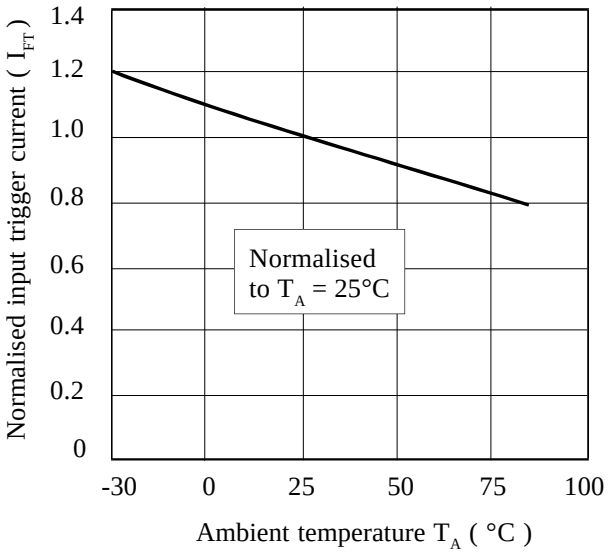
Forward Current vs. Ambient Temperature



On-state Voltage vs. Ambient Temperature



Normalised Input Trigger Current vs. Ambient Temperature



On-state Current vs. On-state Voltage