



OPTICALLY COUPLED BILATERAL SWITCH NON-ZERO CROSSING TRIAC

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

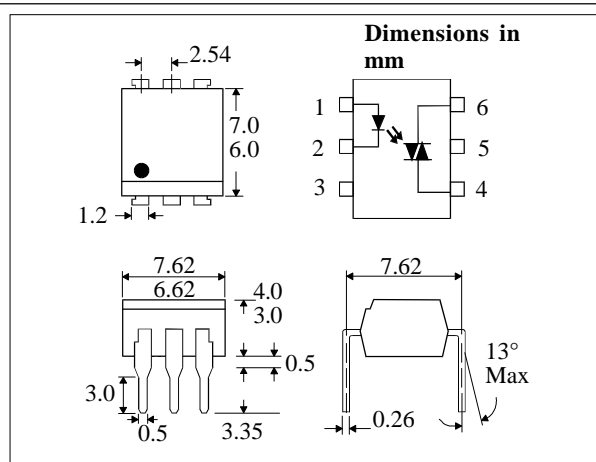
The MOC3009,301_ series are optically coupled isolators consisting of a Gallium Arsenide infrared emitting diode coupled with a light activated silicon bilateral switch performing the functions of a triac mounted in a standard 6 pin dual-in-line package.

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 ($5.3kV_{RMS}, 7.5kV_{PK}$)
- 250V Peak Blocking Voltage
- All electrical parameters 100% tested
- Custom electrical selections available

APPLICATIONS

- CRTs
- Power Triac Driver
- Motors
- Consumer appliances
- Printers



ABSOLUTE MAXIMUM RATINGS (25 °C unless otherwise noted)

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

INPUT DIODE

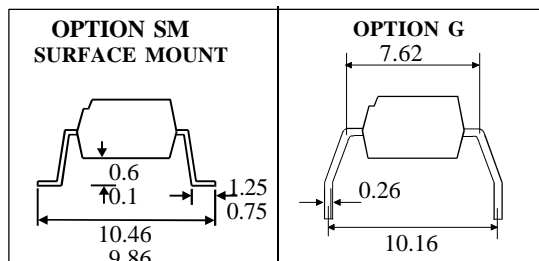
| | |
|--|------|
| Forward Current | 50mA |
| Reverse Voltage | 6V |
| Power Dissipation | 70mW |
| (derate linearly 0.93mW/°C above 25°C) | |

OUTPUT PHOTO TRIAC

| | |
|---------------------------------------|-------|
| Off-State Output Terminal Voltage | 250V |
| Forward Current (Peak) | 1A |
| Power Dissipation | 300mW |
| (derate linearly 4.0mW/°C above 25°C) | |

POWER DISSIPATION

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



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ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

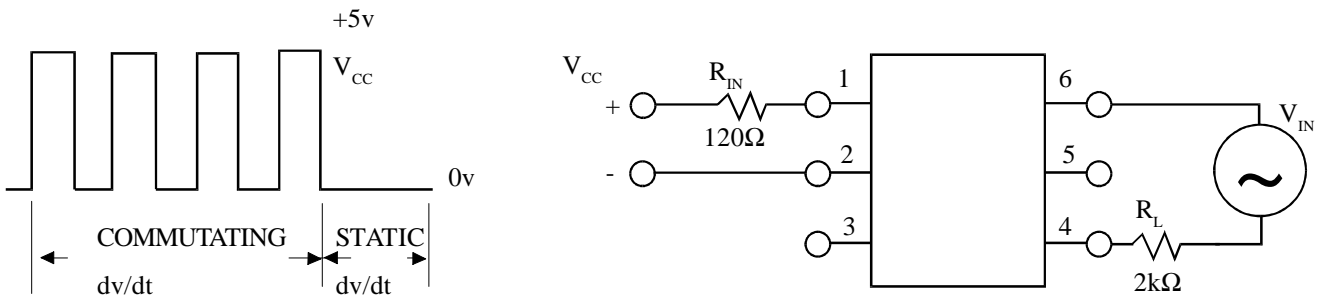
| PARAMETER | | MIN | TYP | MAX | UNITS | TEST CONDITION |
|-----------|---|-----|-----|---------------------|--|---|
| Input | Forward Voltage (V_F) Reverse Current (I_R) | | 1.2 | 1.5 | V μA | $I_F = 10\text{mA}$ $V_R = 6\text{V}$ |
| Output | Peak Off-state Current (I_{DRM}) Peak Blocking Voltage (V_{DRM}) On-state Voltage (V_{TM}) Critical rate of rise of off-state Voltage (dv/dt) (note 1) Critical rate of rise of commutating Voltage (dv/dt) (note 1) | 250 | | 100 | nA V V $\text{V}/\mu\text{s}$ $\text{V}/\mu\text{s}$ | $V_{\text{DRM}} = 250\text{V}$ (note 1) $I_{\text{DRM}} = 100\text{nA}$ $I_{\text{TM}} = 100\text{mA}$ (peak) $I_{\text{load}} = 15\text{mA}$, $V_{\text{IN}} = 30\text{V}$ (fig 1.) |
| Coupled | Input Current to Trigger (I_{FT}) (note 2) MOC3009 MOC3010 MOC3011 MOC3012 Holding Current , either direction (I_H) Input to Output Isolation Voltage V_{ISO} | | | 30 15 10 5 | mA mA mA mA μA V_{RMS} V_{PK} | $V_D = 3\text{V}$ (note 2) See note 3 See note 3 |

Note 1. Test voltage must be applied within dv/dt rating.

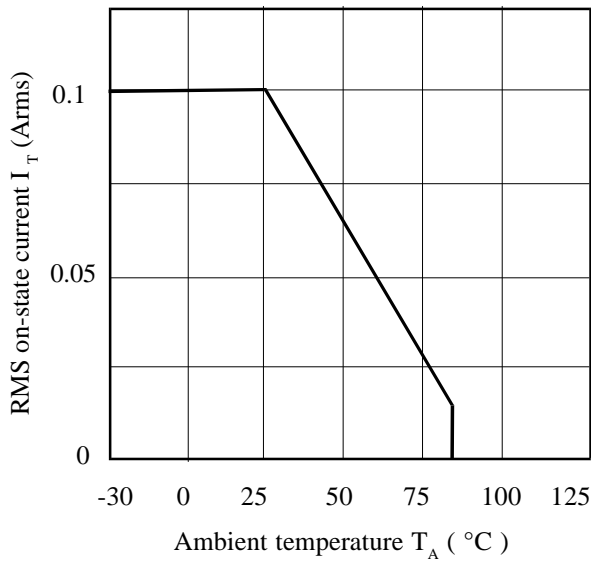
Note 2. Guaranteed to trigger at an I_F value less than or equal to max. I_{FT} , recommended I_F lies between Rated I_{FT} and absolute max. I_{FT} .

Note 3. Measured with input leads shorted together and output leads shorted together.

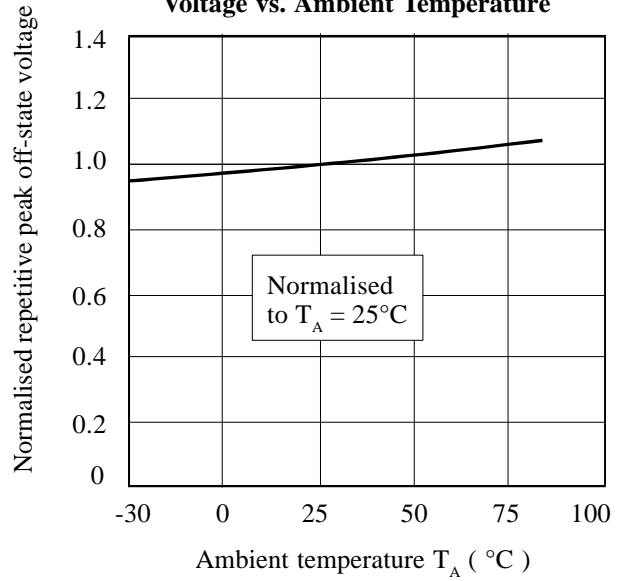
FIGURE 1



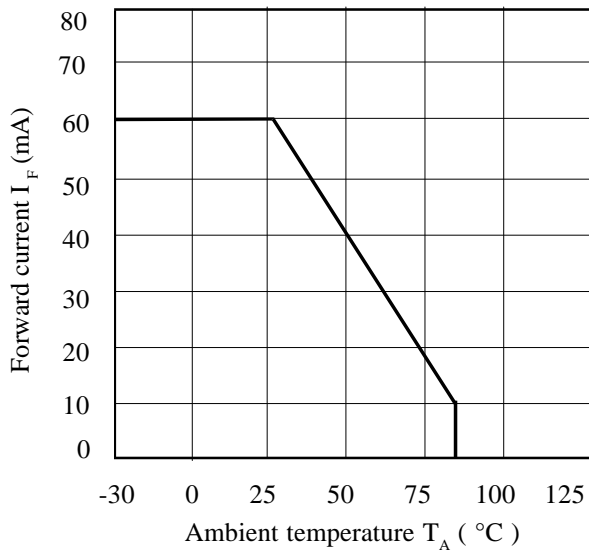
RMS On-state Current vs. Ambient Temperature



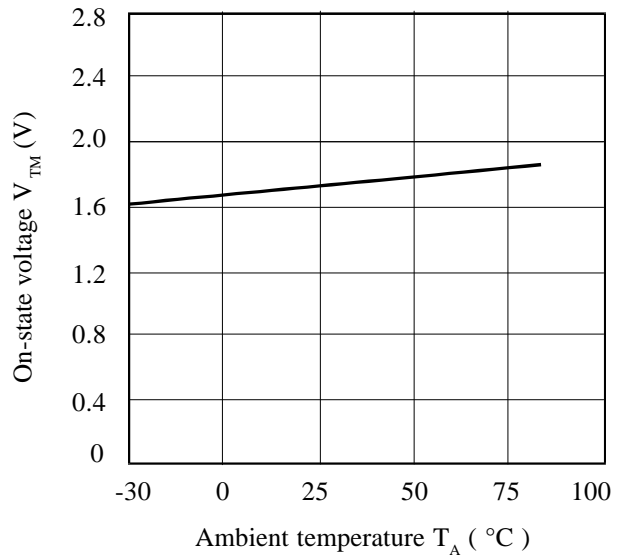
Normalised Repetitive Peak Off-state Voltage vs. Ambient Temperature



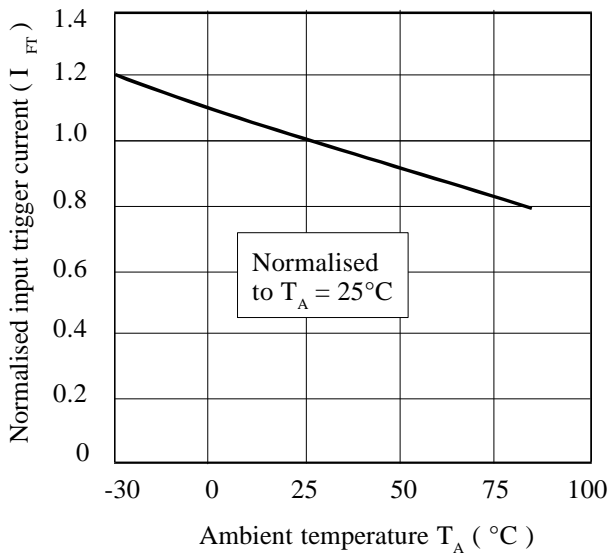
Forward Current vs. Ambient Temperature



On-state Voltage vs. Ambient Temperature



Normalised Input Trigger Current vs. Ambient Temperature



On-state Current vs. On-state Voltage

