

MOC3020X, MOC3021X, MOC3022X, MOC3023X
MOC3020, MOC3021, MOC3022, MOC3023



OPTICALLY COUPLED BILATERAL SWITCH NON-ZERO CROSSING TRIAC

APPROVALS

- UL recognised, File No. E91231

'X' SPECIFICATION APPROVALS

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

DESCRIPTION

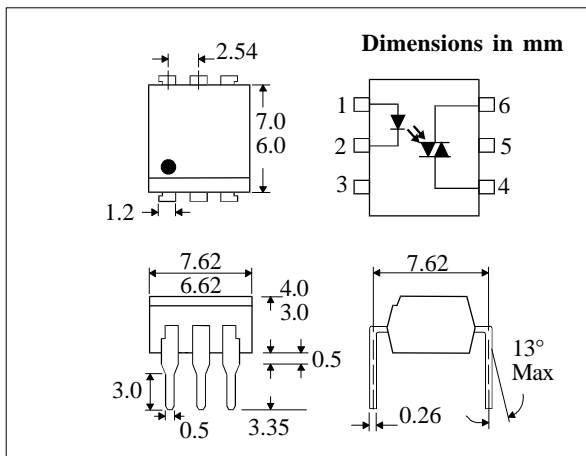
The MOC302_ series are optically coupled isolators consisting of a Gallium Arsenide infrared emitting diode coupled with a light activated silicon bilateral switch performing the functions of a triac mounted in a standard 6 pin dual-in-line package.

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})
- 400V 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-to-output Isolation Voltage (Pk) _7500 Vac
(60 Hz , 1sec. duration)

INPUT DIODE

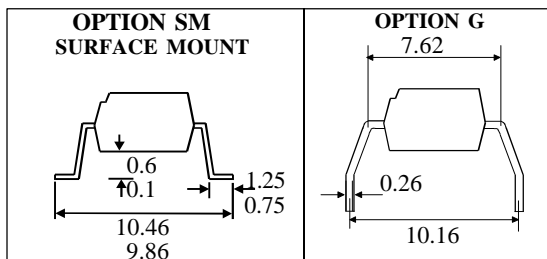
Forward Current _____ 50mA
Reverse Voltage _____ 6V
Power Dissipation _____ 70mW
(derate linearly 0.93mW/°C above 25°C)

OUTPUT PHOTO TRIAC

Off-State Output Terminal Voltage ___ 400V
RMS Forward Current _____ 100mA
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)

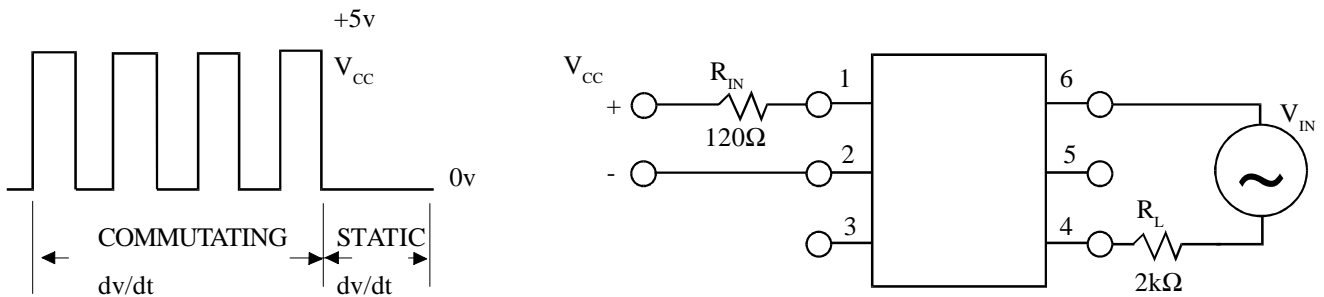
| PARAMETER | | MIN | TYP | MAX | UNITS | TEST CONDITION |
|-----------|---|--------------|-----|---------------------|-------------------------------------|---|
| Input | Forward Voltage (V_F) Reverse Current (I_R) | | 1.2 | 1.5 | V μA | $I_F = 10\text{mA}$ $V_R = 6\text{V}$ |
| Output | Peak Off-state 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) | 400 | | 100 3.0 | nA V V | $V_{\text{DRM}} = 400\text{V}$ (note 1) $I_{\text{DRM}} = 100\text{nA}$ $I_{\text{TM}} = 100\text{mA}$ (peak) |
| Coupled | Input Current to Trigger (I_{FT}) (note 2) MOC3020 MOC3021 MOC3022 MOC3023 | | | 30 15 10 5 | mA mA mA mA | $V_D = 3\text{V}$ (note 2) |
| | Holding Current , either direction (I_H) | | 100 | | μA | |
| | Input to Output Isolation Voltage V_{ISO} | 5300 7500 | | | V_{RMS} V_{PK} | |

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

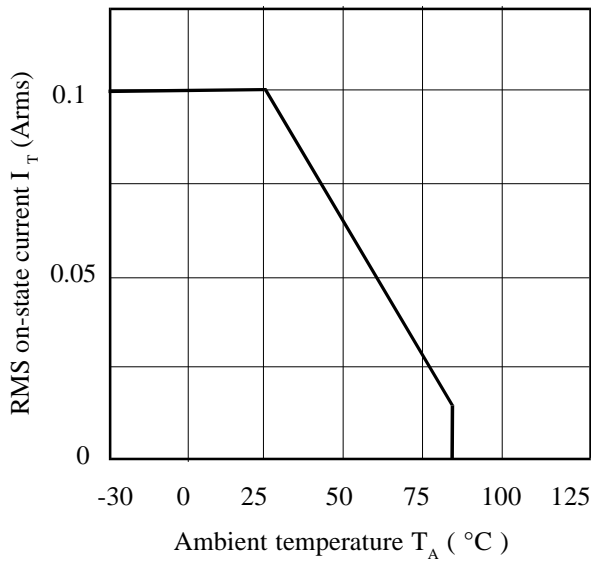
Note 2. Guaranteed to trigger at an I_F value less than or equal to max. I_{FT} , recommended I_F lies between Rated I_{FT} and absolute max. I_{FT} .

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

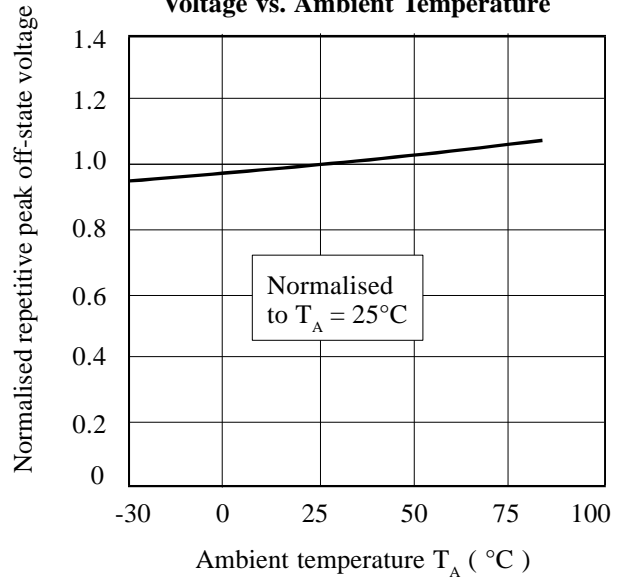
FIGURE 1



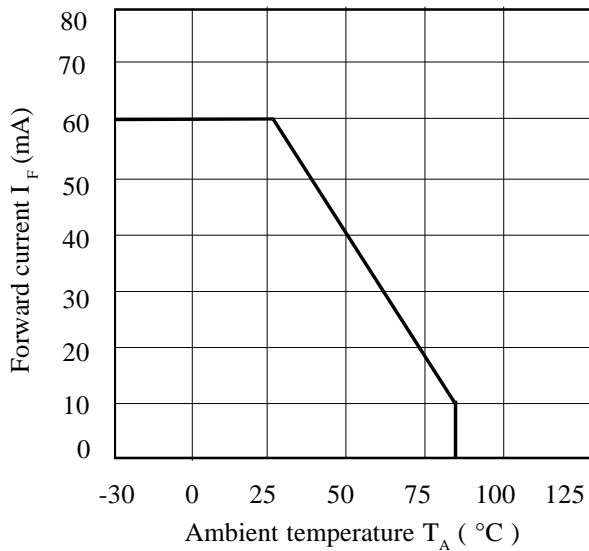
RMS On-state Current vs. Ambient Temperature



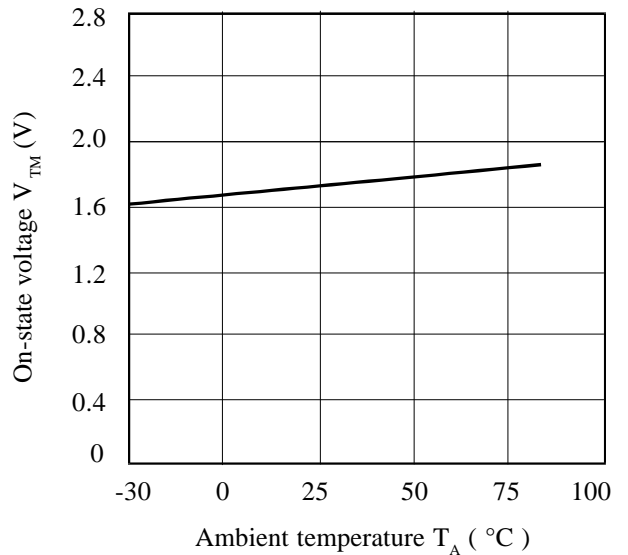
Normalised Repetitive Peak Off-state Voltage vs. Ambient Temperature



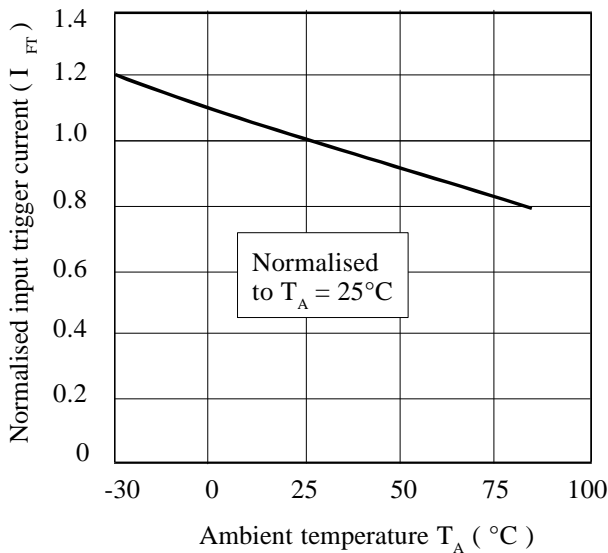
Forward Current vs. Ambient Temperature



On-state Voltage vs. Ambient Temperature



Normalised Input Trigger Current vs. Ambient Temperature



On-state Current vs. On-state Voltage

