



**OPTICALLY COUPLED BILATERAL SWITCH LIGHT ACTIVATED ZERO VOLTAGE CROSSING TRIAC**

**DESCRIPTION**

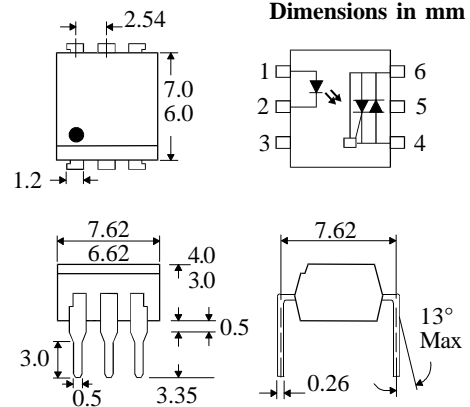
The MOC303\_ Series are optically coupled isolators consisting of a Gallium Arsenide infrared emitting diode coupled with a monolithic silicon detector performing the functions of a zero crossing bilateral triac mounted in a standard 6 pin dual-in-line package.

**FEATURES**

- 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<sub>RMS</sub>, 7.5kV<sub>PK</sub>)
- Zero Voltage Crossing
- 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 \_\_\_\_\_ -40°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**

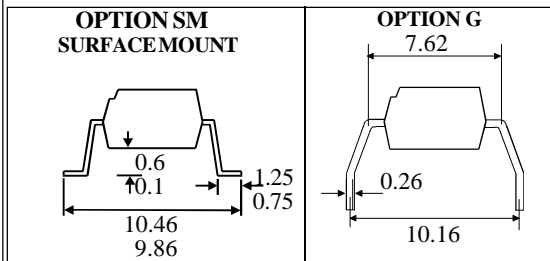
Forward Current \_\_\_\_\_ 50mA  
 Reverse Voltage \_\_\_\_\_ 6V  
 Power Dissipation \_\_\_\_\_ 120mW  
 (derate linearly 1.41mW/°C above 25°C)

**OUTPUT PHOTO TRIAC**

Off-State Output Terminal Voltage \_\_\_\_\_ 250V  
 RMS Forward Current \_\_\_\_\_ 100mA  
 Forward Current (Peak) \_\_\_\_\_ 1.2A  
 Power Dissipation \_\_\_\_\_ 150mW  
 (derate linearly 1.76mW/°C above 25°C)

**POWER DISSIPATION**

Total Power Dissipation \_\_\_\_\_ 250mW  
 (derate linearly 2.94mW/°C above 25°C)



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

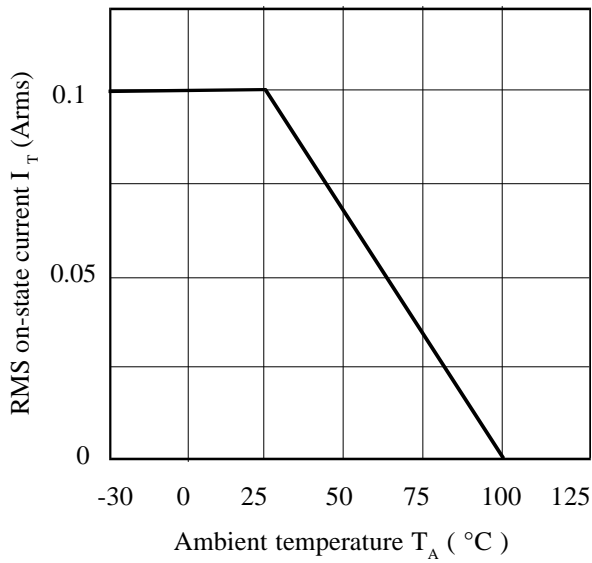
PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage ( $V_F$ ) Reverse Current ( $I_R$ )		1.2	1.5 100	V $\mu\text{A}$	$I_F = 30\text{mA}$ $V_R = 6\text{V}$
Output	Peak Off-state Current ( $I_{\text{DRM}}$ ) Peak Blocking Voltage ( $V_{\text{DRM}}$ ) On-state Voltage ( $V_{\text{TM}}$ )  Critical rate of rise of off-state Voltage ( $dv/dt$ )	250	1.8	300 3.0	nA V V	$V_{\text{DRM}} = 250\text{V}$ (note 1) $I_{\text{DRM}} = 300\text{nA}$ $I_{\text{TM}} = 100\text{mA}$ ( peak )
Coupled	Input Current to Trigger ( $I_{\text{FT}}$ ) (note 2) MOC3030 MOC3031 MOC3032 MOC3033  Holding Current, either direction ( $I_H$ ) Input to Output Isolation Voltage $V_{\text{ISO}}$	5300 7500	100	30 15 10 5	mA mA mA mA  $\mu\text{A}$ $V_{\text{RMS}}$ $V_{\text{PK}}$	$V_{\text{TM}} = 3\text{V}$ ( note 2 )     See note 3 See note 3
Zero Crossing Charact- -eristic	Inhibit Voltage ( $V_{\text{IH}}$ )  Leakage in Inhibited State ( $I_S$ )			35 500	V $\mu\text{A}$	$I_F = \text{Rated } I_{\text{FT}}$ MT1-MT2 Voltage above which device will not trigger $I_F = \text{Rated } I_{\text{FT}}$ $V_{\text{DRM}} = 250\text{V}$ off-state

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

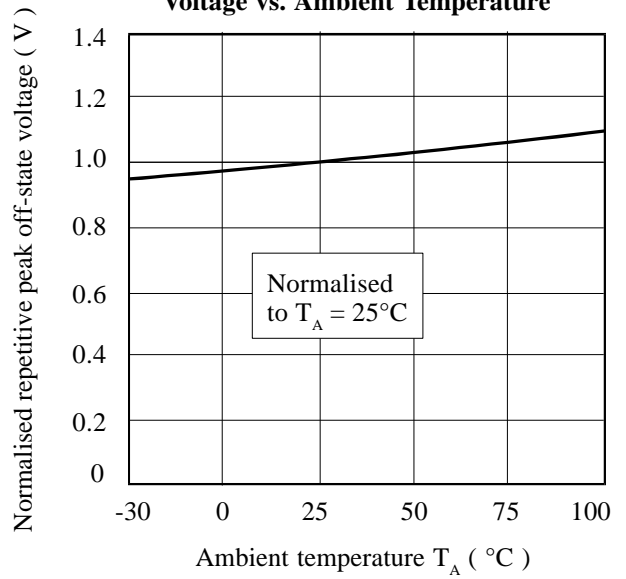
Note 2. Guaranteed to trigger at an  $I_F$  value less than or equal to max.  $I_{\text{FT}}$ , recommended  $I_F$  lies between Rated  $I_{\text{FT}}$  and absolute max.  $I_F$ .

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

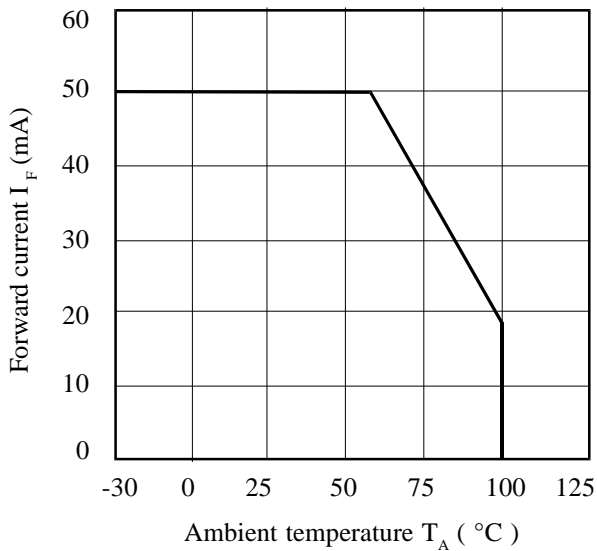
**RMS On-state Current vs. Ambient Temperature**



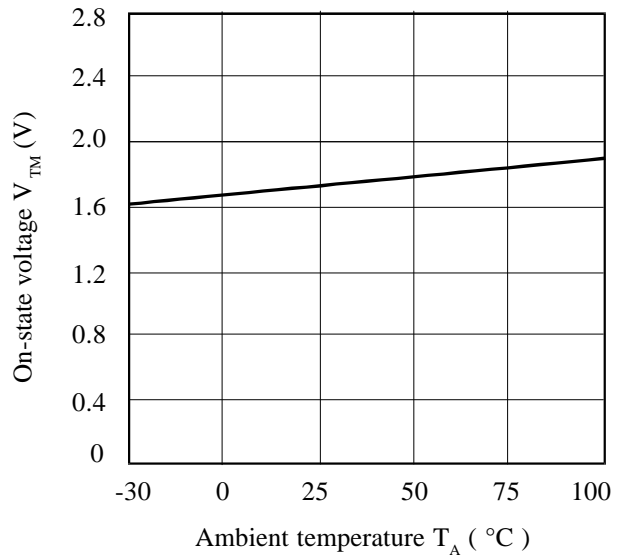
**Normalised Repetitive Peak Off-state Voltage vs. Ambient Temperature**



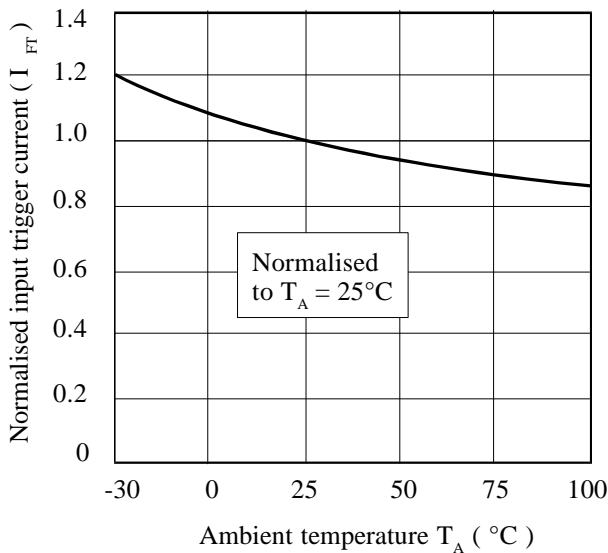
**Forward Current vs. Ambient Temperature**



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



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



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

