



Hutton Close, Crowther Ind Est, Dist 3, Washington, Tyne & Wear NE38 0AH, England
[Email: isocom@dial.pipex.com](mailto:isocom@dial.pipex.com) - Tel: +44 0191 4166546 - Fax: +44 0191 4155055

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MOC3030-3032

Optically Coupled Bilateral Switch Light Activated Zero Voltage Crossing Triac

Circuit



Features

Photo-Triac Output

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7500 V Isolation

250 V_{peak} Blocking Voltage

Low Cost Dual-in-Line Package

Zero Voltage Crossing

U.L. Recognized, File No. E91231

Description

The MOC303X 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. Surface Mount Option Available.

All electrical parameters are 100% tested. Specifications are guaranteed to a cumulative 0.65% AQL.

Absolute Maximum Ratings (T_a=25°C)

Storage Temperature:	-40°C to +150°C
Operating Temperature:	-40°C to +85°C
Lead Soldering:	260°C for 10s, 1.6mm from case
Input-to-Output Isolation Voltage (Peak):	7500Vac (60Hz, for 5s)

Input Diode

Forward DC Current:	50mA
Reverse DC Voltage:	3V
Power Dissipation:	120mW
Derate Linearly:	1.33mW/°C above 25°C

Output Photo Triac

Off-State Output Terminal Voltage:	250V
RMS Forward Current:	100mA
Forward Current (Peak):	1.2A (p.w.=10ms)
Power Dissipation:	300mW
Derate Linearly:	4.0mW/°C above 25°C

Package

Total Power Dissipation: 330mW
 Derate Linearly: 4.4mW/°C above 25°C

Electro-optical Characteristics (Ta=25°C)

INPUT	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
V_F	Forward Voltage	$I_F=30\text{mA}$			1.5	V
I_R	Reverse Current	$V_R=3\text{V}$			100	μA
OUTPUT PHOTO TRIAC						
I_{DRM1}	Peak Off-State Current	$V_{\text{DRM}}=250\text{V}$, note 1			100	nA
V_{DRM}	Peak Blocking Voltage	$I_{\text{DRM1}}=100\text{nA}$	250			V
V_{TM}	On-State Voltage	$I_{\text{TM}}=100\text{mA}$ (Peak)		2.3	3.0	V
dV/dt (C)	Critical Rate of Rise of Commutating Off-State Voltage			100		V/ μs
COUPLED	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
I_{FT}	Input Current to Trigger	Main Terminal Voltage=3V, note 2			30	mA
	MOC3030					
	MOC3031					
	MOC3032					
	Holding Current, either direction			100		μA
	Input-Output Isolation Voltage		7500			Vac
ZERO CROSSING CHARACTERISTICS						
V_{IH}	Inhibit Voltage	$I_F=\text{Rated } I_{\text{FT}}$; MT-1, MT-2 voltage above which device will not trigger		15	25	V
I_{DRM2}	Leakage Inhibited State	$I_F=\text{Rated } I_{\text{FT}}$, $V_{\text{DRM}}=250\text{V}$, off-state		100	200	μA

Notes

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1. Test voltage must be applied with dV/dt rating.
2. Guaranteed to trigger @ I_F value $\leq \max I_{FT}$. Recommended I_F lies between $\max I_{FT}$ and absolute $\max I_F$

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