



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

- [Circuit](#)
- [Features](#)
- [Description](#)
- [Absolute Maximum Ratings](#)
- [Electrical Characteristics](#)

- [Similar Optocouplers](#)
- [Home Page](#)

---

# MOC3030-3032

## Optically Coupled Bilateral Switch Light Activated Zero Voltage Crossing Triac

### Circuit



### Features

Photo-Triac Output

2 of 4

7500 V Isolation

250 V<sub>peak</sub> 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<sub>a</sub>=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 | $\mu\text{A}$    |    |    |
| <b>OUTPUT PHOTO TRIAC</b>            |  |  |      |     |     |                  |    |    |
| $I_{\text{DRM1}}$                    | Peak Off-State Current                                 | $V_{\text{DRM}}=250\text{V}$ , note 1  |      |     | 100 | nA               |    |    |
| $V_{\text{DRM}}$                     | Peak Blocking Voltage                                  | $I_{\text{DRM1}}=100\text{nA}$   | 250  |     |     | V                |    |    |
| $V_{\text{TM}}$                      | 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/ $\mu\text{s}$ |    |    |
| COUPLED                              | PARAMETER  | CONDITIONS   | MIN  | TYP | MAX | UNIT             |    |    |
| $I_{\text{FT}}$                      | Input Current to Trigger                               | Main Terminal Voltage=3V, note 2   |      |     |     |                  |    |    |
|                                      | MOC3030  |  |      |     |     |                  | 30 | mA |
|                                      | MOC3031  |  |      |     |     |                  | 15 | mA |
|                                      | MOC3032  |  |      |     |     |                  | 10 | mA |
|                                      | Holding Current, either direction                      |  |      | 100 |     | $\mu\text{A}$    |    |    |
|                                      | Input-Output Isolation Voltage                         |  | 7500 |     |     | Vac              |    |    |
| <b>ZERO CROSSING CHARACTERISTICS</b> |  |  |      |     |     |                  |    |    |
| $V_{\text{IH}}$                      | Inhibit Voltage  | $I_F=\text{Rated } I_{\text{FT}}$ ; MT-1, MT-2 voltage above which device will not trigger |      | 15  | 25  | V                |    |    |
| $I_{\text{DRM2}}$                    | Leakage Inhibited State                                | $I_F=\text{Rated } I_{\text{FT}}$ , $V_{\text{DRM}}=250\text{V}$ , off-state               |      | 100 | 200 | $\mu\text{A}$    |    |    |

## Notes

4 of 4

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  $\max I_F$

Isocom takes great effort to ensure accurate data, but regrettably cannot be held liable for any error on its website. Visit [File Lists](#) to confirm old printouts are up-to-date.

[Contents](#)