**MCT2X, MCT2EX**
MCT2, MCT2E

**OPTICALLY COUPLED ISOLATOR**
**PHOTOTRANSISTOR OUTPUT**

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**APPROVALS**
- UL recognised, File No. E91231
- VDE0884 in 3 available lead form: -STD
  - Gform
  - SMD approved to CECC 00802
- Certified to EN60950 by the following Test Bodies:
  - Nemko - Certificate No. P01102465
  - Fimko - Certificate No. FI18162
  - Semko - Reference No. 0202041/01-25
  - Demko - Certificate No. 3111681-01
- BSI approved - Certificiate No. 8001

**DESCRIPTION**
The MCT2 series of optically coupled isolators consist of infrared light emitting diode and NPN silicon photo transistor in a standard 6 pin dual in line plastic 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 (5.3kVRMS, 7.5kVPK)
- All electrical parameters 100% tested
- Custom electrical selections available

**APPLICATIONS**
- DC motor controllers
- Industrial systems controllers
- Measuring instruments
- Signal transmission between systems of different potentials and impedances

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**ABSOLUTE MAXIMUM RATINGS**
(25°C unless otherwise specified)

- Storage Temperature: ________-55°C to + 150°C
- Operating Temperature: ________-55°C to + 100°C
- Lead Soldering Temperature: (1/16 inch (1.6mm) from case for 10 secs) 260°C

**INPUT DIODE**
- Forward Current: ________ 60mA
- Reverse Voltage: ________ 6V
- Power Dissipation: ________ 105mW

**OUTPUT TRANSISTOR**
- Collector-emitter Voltage $B_{CEO}$: ________ 30V
- Collector-base Voltage $B_{CBO}$: ________ 70V
- Emitter-collector Voltage $B_{EEO}$: ________ 6V
- Power Dissipation: ________ 160mW

**POWER DISSIPATION**
- Total Power Dissipation: ________ 200mW
  (derate linearly 2.67mW/°C above 25°C)

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**ISOCOM COMPONENTS LTD**
Unit 25B, Park View Road West, Park View Industrial Estate, Brenda Road, Hartlepool, Cleveland, TS25 1YD
Tel: (01429) 863609  Fax: (01429) 863581
### ELECTRICAL CHARACTERISTICS ( \( T_A = 25^\circ C \) Unless otherwise noted )

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>MIN</th>
<th>TYP</th>
<th>MAX</th>
<th>UNITS</th>
<th>TEST CONDITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forward Voltage (( V_F ))</td>
<td>1.2</td>
<td>1.5</td>
<td>V</td>
<td>( I_F = 10mA )</td>
<td></td>
</tr>
<tr>
<td>Reverse Current (( I_R ))</td>
<td>10 µA</td>
<td></td>
<td></td>
<td>( V_R = 6V )</td>
<td></td>
</tr>
<tr>
<td>Output</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collector-emitter Breakdown (( BV_{CEO} ))</td>
<td>30</td>
<td>V</td>
<td></td>
<td>( I_C = 1mA )</td>
<td></td>
</tr>
<tr>
<td>(note 2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Collector-base Breakdown (( BV_{CBO} ))</td>
<td>70</td>
<td>V</td>
<td></td>
<td>( I_B = 100\mu A )</td>
<td></td>
</tr>
<tr>
<td>Emitter-collector Breakdown (( BV_{ECD} ))</td>
<td>6</td>
<td>V</td>
<td></td>
<td>( I_E = 100\mu A )</td>
<td></td>
</tr>
<tr>
<td>Collector-emitter Dark Current (( I_{CEO} ))</td>
<td>50 nA</td>
<td></td>
<td></td>
<td>( V_CE = 10V )</td>
<td></td>
</tr>
<tr>
<td>Collector-base Dark Current (( I_{CBO} ))</td>
<td>20 nA</td>
<td></td>
<td></td>
<td>( V_CE = 10V )</td>
<td></td>
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<tr>
<td>Coupled</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Current Transfer Ratio (CTR)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>MCT2</td>
<td>20</td>
<td>%</td>
<td></td>
<td>( 10mA ) ( I_F ), 10V ( V_{CE} )</td>
<td></td>
</tr>
<tr>
<td>MCT2E</td>
<td>50</td>
<td>%</td>
<td></td>
<td>( 10mA ) ( I_F ), 10V ( V_{CE} )</td>
<td></td>
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<tr>
<td>Collector-emitter Saturation Voltage (( V_{CESAT} ))</td>
<td>0.4</td>
<td>V</td>
<td></td>
<td>( 16mA ) ( I_F ), 2mA ( I_C )</td>
<td></td>
</tr>
<tr>
<td>Input to Output Isolation Voltage (( V_{ISO} ))</td>
<td>5300</td>
<td>( V_{RMS} )</td>
<td></td>
<td>See note 1</td>
<td></td>
</tr>
<tr>
<td>( V_{PK} )</td>
<td>7500</td>
<td></td>
<td></td>
<td>See note 1</td>
<td></td>
</tr>
<tr>
<td>Input-output Isolation Resistance (( R_{ISO} ))</td>
<td>( 5 \times 10^{10} )</td>
<td>Ω</td>
<td></td>
<td>( V_{ISO} = 500V ) (note 1)</td>
<td></td>
</tr>
<tr>
<td>Turn-on Time ( t_{on} )</td>
<td>3</td>
<td>µs</td>
<td></td>
<td>( V_{CC} = 10V ), fig 1</td>
<td></td>
</tr>
<tr>
<td>Turn-off Time ( t_{off} )</td>
<td>3</td>
<td>µs</td>
<td></td>
<td>( I_C = 2mA, R_L = 100\Omega )</td>
<td></td>
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</tbody>
</table>

**Note 1**  Measured with input leads shorted together and output leads shorted together.

**Note 2**  Special Selections are available on request. Please consult the factory.

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**FIG 1**

![FIG 1](image-url)