**H11A1X, H11A2X, H11A3X, H11A4X, H11A5X**  
**H11A1, H11A2, H11A3, H11A4, H11A5**

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

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**APPROVALS**
- UL recognised, File No. E91231  
  Package Code " GG "

**‘X’ SPECIFICATION APPROVALS**
- VDE 0884 in 3 available lead form :-  
  - STD  
  - G form  
  - SMD approved to CECC 00802
- H11A1-4 Certified to EN60950 by :-  
  Nemko - Certificate No. P01102464

**DESCRIPTION**
The H11A 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 $BV_{CEO}$ ________ 30V  
- Collector-base Voltage $BV_{CBO}$ ________ 70V  
- Emitter-collector Voltage $BV_{EEO}$ ________ 6V
- Collector Current ____________ 50mA
- Power Dissipation ____________ 160mW

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

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**DIMENSIONS IN MM**

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17/7/08 DB91041
### ELECTRICAL CHARACTERISTICS (TA = 25°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 (VF)</td>
<td>1.2</td>
<td>1.5</td>
<td>V</td>
<td></td>
<td>I_F = 10mA</td>
</tr>
<tr>
<td>Reverse Current (I_R)</td>
<td>10</td>
<td>μA</td>
<td></td>
<td></td>
<td>V_R = 6V</td>
</tr>
</tbody>
</table>

| Output    |     |     |     |       |                |
| Collector-emitter Breakdown (BV_{CEO}) (note 2) | 30 | V   |     | I_C = 1mA     |
| Collector-base Breakdown (BV_{CBO}) | 70 | V   |     | I_C = 100μA  |
| Emitter-collector Breakdown (BV_{ECO}) | 6  | V   |     | I_E = 100μA  |
| Collector-emitter Dark Current (I_{CEO}) | 50 | nA  |     | V_CE = 10V    |

| Coupled   |     |     |     |       |                |
| Current Transfer Ratio (CTR) |     |     |     |       |                |
| H11A1     | 50  | %   |     | 10mA I_F, 10V V_CE |
| H11A2     | 20  | %   |     | 10mA I_F, 10V V_CE |
| H11A3     | 20  | %   |     | 10mA I_F, 10V V_CE |
| H11A4     | 10  | %   |     | 10mA I_F, 10V V_CE |
| H11A5     | 30  | %   |     | 10mA I_F, 10V V_CE |

| Collector-emitter Saturation Voltage \( V_{\text{CE(SAT)}} \) | 0.4 | V   | 10mA I_F, 0.5mA I_C |
| Input to Output Isolation Voltage \( V_{\text{ISO}} \) | 5300 | V_{RMS} | See note 1 |
| Input-output Isolation Resistance \( R_{\text{ISO}} \) | 5x10^{10} | Ω | \( V_{\text{ISO}} = 500V \) (note 1) |
| Output Rise Time \( t_r \) | 2  | μs  | \( V_{\text{CC}} = 5V, I_F = 10mA \) |
| Output Fall Time \( t_f \) | 2  | μs  | \( R_L = 75Ω \) fig 1 |

**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.