

H11AV1X, H11AV2X, H11AV3X  
H11AV1, H11AV2, H11AV3



**OPTICALLY COUPLED  
ISOLATOR  
PHOTOTRANSISTOR OUTPUT**

**APPROVALS**

- UL recognised, File No. E91231
- 'X' SPECIFICATION APPROVALS
- VDE 0884 in 3 available lead form :-  
- STD  
- G form  
- SMD approved to CECC 00802
- Certified to EN60950 by the following Test Bodies :-  
Nemko - Certificate No. P01102464  
Fimko - Certificate No. FI18166  
Semko - Reference No. 0202037/01-22  
Demko - Certificate No. 311158-01
- BSI approved - Certificate No. 8001

**DESCRIPTION**

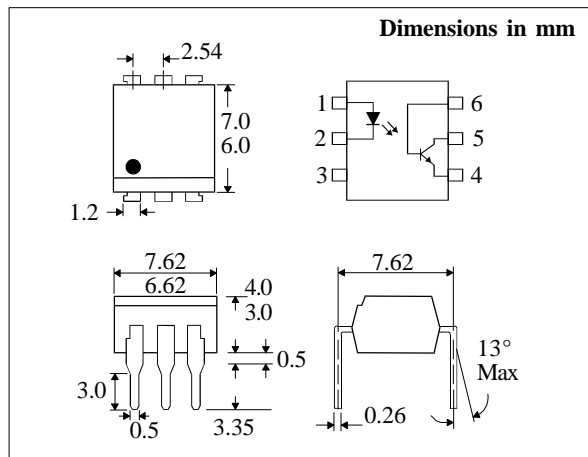
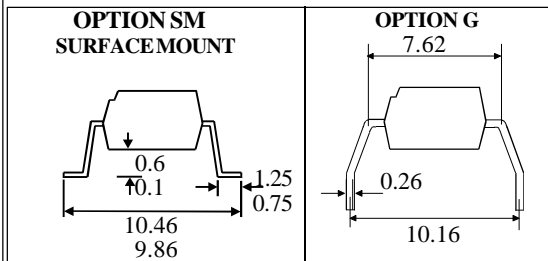
The H11AV series of optically coupled isolators consist of infrared light emitting diode and NPN silicon photo transistor in a standard 6 pin dual in line plastic package.

**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 (5.3kV<sub>RMS</sub>, 7.5kV<sub>PK</sub>)
- High BV<sub>CEO</sub> (70V min)
- 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



**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<br>(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 <sub>CEO</sub> | 70V   |
| Collector-base Voltage BV <sub>CBO</sub>    | 70V   |
| Emitter-collector Voltage BV <sub>ECO</sub> | 6V    |
| Power Dissipation                           | 160mW |

**POWER DISSIPATION**

|  |       |
|--|-------|
| Total Power Dissipation                | 200mW |
| (derate linearly 2.67mW/°C above 25°C) |       |

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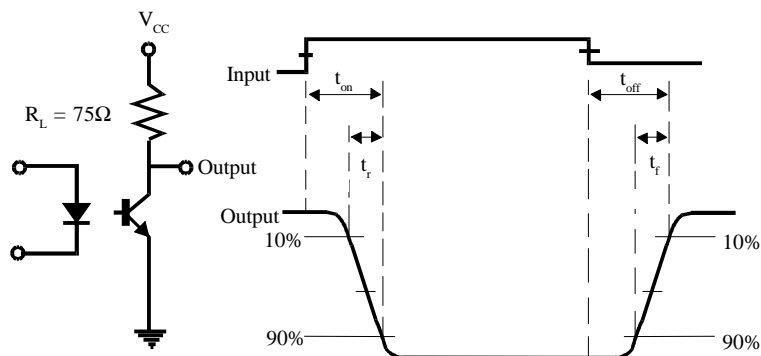
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**ELECTRICAL CHARACTERISTICS (  $T_A = 25^\circ\text{C}$  Unless otherwise noted )**

| PARAMETER |  | MIN                | TYP    | MAX | UNITS                          | TEST CONDITION  |
|-----------|--|--------------------|--------|-----|--------------------------------|---|
| Input     | Forward Voltage ( $V_F$ )                                |                    | 1.2    | 1.5 | V                              | $I_F = 10\text{mA}$   |
|           | Reverse Current ( $I_R$ )                                |                    |        | 10  | $\mu\text{A}$                  | $V_R = 6\text{V}$   |
| Output    | Collector-emitter Breakdown ( $BV_{CEO}$ )<br>( note 2 ) | 70                 |        |     | V                              | $I_C = 1\text{mA}$  |
|           | Collector-base Breakdown ( $BV_{CBO}$ )                  | 70                 |        |     | V                              | $I_C = 100\mu\text{A}$  |
|           | Emitter-collector Breakdown ( $BV_{ECO}$ )               | 6                  |        |     | V                              | $I_E = 100\mu\text{A}$  |
|           | Collector-emitter Dark Current ( $I_{CEO}$ )             |                    |        | 50  | nA                             | $V_{CE} = 10\text{V}$   |
| Coupled   | Current Transfer Ratio (CTR)<br>H11AV1                   | 100                |        | 300 | %                              | $10\text{mA } I_F, 10\text{V } V_{CE}$                              |
|           | H11AV2   | 50                 |        |     | %                              | $10\text{mA } I_F, 10\text{V } V_{CE}$                              |
|           | H11AV3   | 20                 |        |     | %                              | $10\text{mA } I_F, 10\text{V } V_{CE}$                              |
|           | Collector-emitter Saturation Voltage $V_{CE(SAT)}$       |                    |        | 0.4 | V                              | $20\text{mA } I_F, 2\text{mA } I_C$                                 |
|           | Input to Output Isolation Voltage $V_{ISO}$              | 5300<br>7500       |        |     | $V_{RMS}$<br>$V_{PK}$          | See note 1<br>See note 1  |
|           | Input-output Isolation Resistance $R_{ISO}$              | $5 \times 10^{10}$ |        |     | $\Omega$                       | $V_{IO} = 500\text{V}$ (note 1)                                     |
|           | Rise Time, tr<br>Fall Time, tf                           |                    | 2<br>2 |     | $\mu\text{s}$<br>$\mu\text{s}$ | $V_{CC} = 5\text{V}$ , fig 1<br>$I_F = 10\text{mA}, R_L = 75\Omega$ |

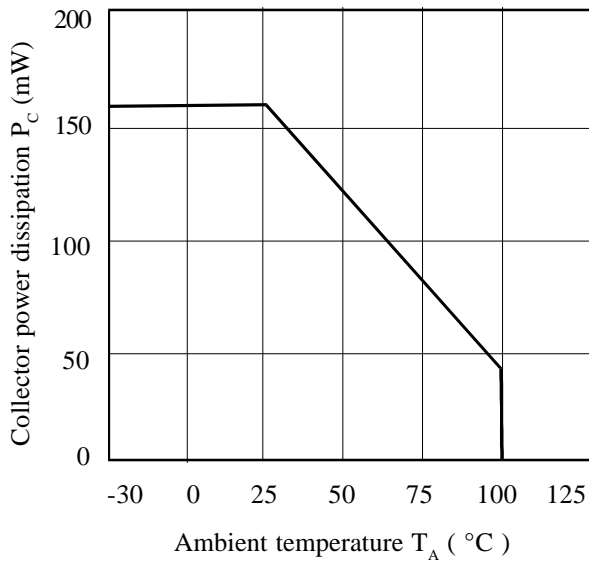
Note 1 Measured with input leads shorted together and output leads shorted together.

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

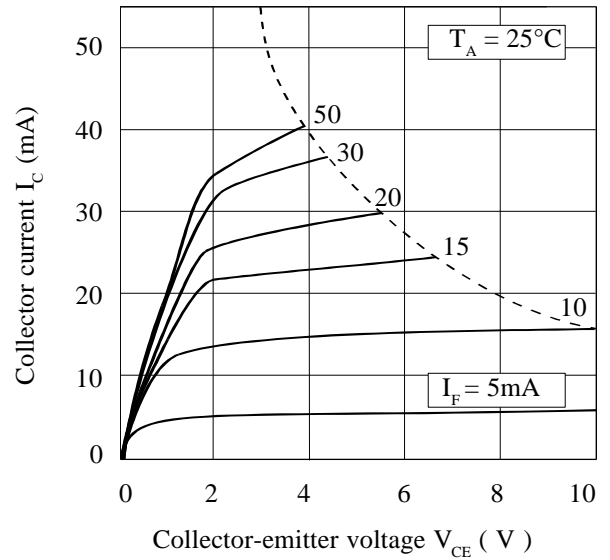


**FIG 1**

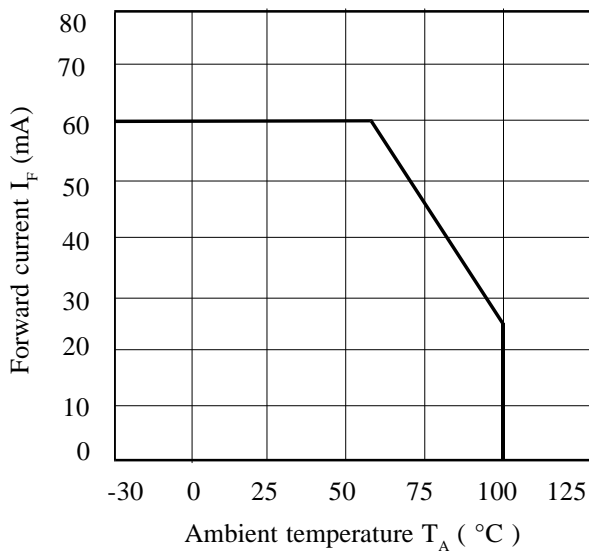
**Collector Power Dissipation vs. Ambient Temperature**



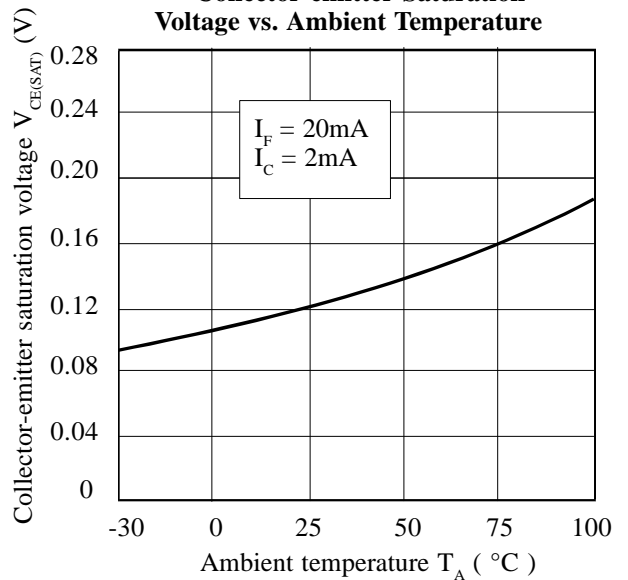
**Collector Current vs. Collector-emitter Voltage**



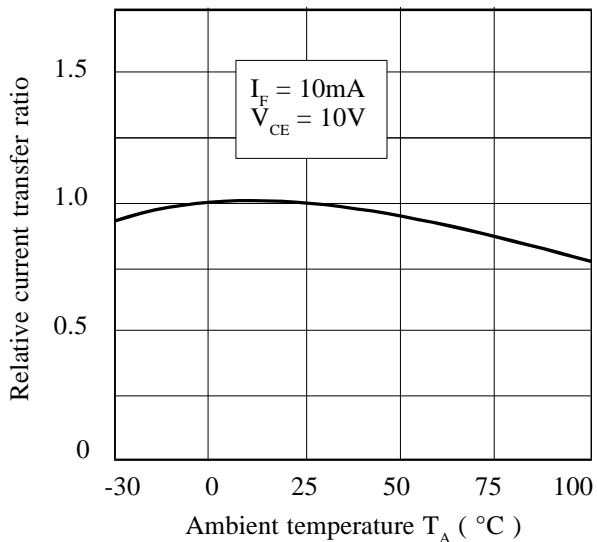
**Forward Current vs. Ambient Temperature**



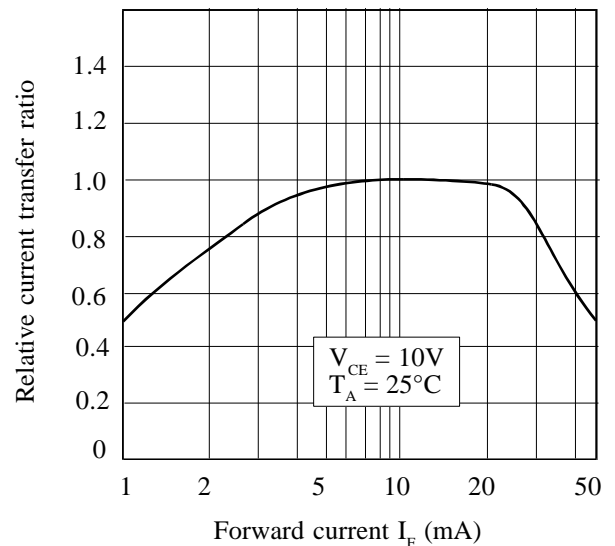
**Collector-emitter Saturation Voltage vs. Ambient Temperature**



**Relative Current Transfer Ratio vs. Ambient Temperature**



**Relative Current Transfer Ratio vs. Forward Current**



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