

### Photon Coupled Isolator H11B255

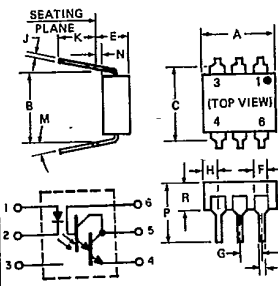
#### Ga As Infrared Emitting Diode & NPN Silicon Photo-Darlington Amplifier

The GE Solid State H11B255 consists of a gallium arsenide infrared emitting diode coupled with a silicon photo-darlington amplifier in a dual in-line package. This device is also available in Surface-Mount packaging.

absolute maximum ratings: (25°C)

| INFRARED EMITTING DIODES                                |     |            |
|---|-----|------------|
| Power Dissipation                                       | *90 | milliwatts |
| Forward Current (Continuous)                            | 60  | milliamps  |
| Forward Current (Peak)<br>(Pulse width 1µsec, 300 P Ps) | 3   | ampere     |
| Reverse Voltage   | 3   | volts      |
| *Derate 1.2mW/°C above 25°C ambient.                    |     |            |

| PHOTO-DARLINGTON                      |       |            |
|---------------------------------------|-------|------------|
| Power Dissipation                     | **210 | milliwatts |
| V <sub>CEO</sub>                      | 55    | volts      |
| V <sub>CBO</sub>                      | 55    | volts      |
| V <sub>EBO</sub>                      | 8     | volts      |
| Collector Current (Continuous)        | 100   | milliamps  |
| **Derate 2.8mW/°C above 25°C ambient. |       |            |



| SYMBOL | MILLIMETERS |      | INCHES    |      | NOTES |
|--------|-------------|------|-----------|------|-------|
|        | MIN.        | MAX. | MIN.      | MAX. |       |
| A      | 8.38        | 8.89 | .330      | .350 | 1     |
| B      | 7.62 REF.   |      | .300 REF. |      |       |
| C      |             | 8.64 |           | .340 | 2     |
| D      | .408        | .508 | .016      | .200 |       |
| E      |             | 5.08 |           | .200 | 3     |
| F      | 1.01        | 1.78 | .040      | .070 |       |
| G      | 2.28        | 2.80 | .090      | .110 | 4     |
| H      |             | 2.16 |           | .085 |       |
| J      | .203        | .305 | .008      | .012 |       |
| K      | 4           | 8    | .100      |      |       |
| M      |             | 16°  |           | 16°  |       |
| N      | .381        |      | .015      |      |       |
| P      |             | 9.53 |           | .375 |       |
| R      | 2.82        | 3.43 | .115      | .135 |       |
| S      | 6.10        | 6.86 | .240      | .270 |       |

- NOTES:  
 1. INSTALLED POSITION LEAD CENTERS.  
 2. OVERALL INSTALLED DIMENSION.  
 3. THESE MEASUREMENTS ARE MADE FROM THE SEATING PLANE.  
 4. FOUR PLACES.

| TOTAL DEVICE                                      |  |
|---|--|
| Storage Temperature                               | -55 to 150°C                                   |
| Operating Temperature                             | -55 to 100°C                                   |
| Lead Soldering Time (at 260°C)                    | 10 seconds.                                    |
| Surge Isolation Voltage (Input to Output).        | 3535V <sub>(peak)</sub> 2500V <sub>(RMS)</sub> |
| Steady-State Isolation Voltage (Input to Output). | 3180V <sub>(peak)</sub> 2250V <sub>(RMS)</sub> |

#### Individual electrical characteristics (25°C)

| INFRARED EMITTING DIODE                    | TYP. | MAX. | UNITS      |
|--|------|------|------------|
| Forward Voltage<br>(I <sub>F</sub> = 20mA) | 1.1  | 1.5  | volts      |
| Reverse Current<br>(V <sub>R</sub> = 3V)   | —    | 10   | microamps  |
| Capacitance<br>(V = 0, f = 1 MHz)          | 50   | —    | picofarads |

| PHOTO-DARLINGTON   | MIN. | TYP. | MAX. | UNITS      |
|--|------|------|------|------------|
| Breakdown Voltage - V <sub>(BR)CEO</sub><br>(I <sub>C</sub> = 100µA, I <sub>F</sub> = 0) | 55   | —    | —    | volts      |
| Breakdown Voltage - V <sub>(BR)CBO</sub><br>(I <sub>C</sub> = 100µA, I <sub>F</sub> = 0) | 55   | —    | —    | volts      |
| Breakdown Voltage - V <sub>(BR)EBO</sub><br>(I <sub>E</sub> = 100µA, I <sub>F</sub> = 0) | 8    | —    | —    | volts      |
| Collector Dark Current - I <sub>CEO</sub><br>(V <sub>CE</sub> = 10V, I <sub>F</sub> = 0) | —    | —    | 100  | nanoamps   |
| Capacitance<br>(V <sub>CE</sub> = 10V, f = 1 MHz)  | —    | 2    | —    | picofarads |

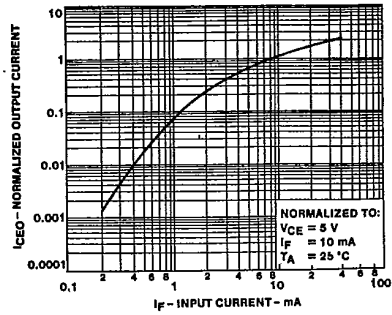
#### coupled electrical characteristics (25°C)

|   | MIN. | TYP. | MAX. | UNITS        |
|---|------|------|------|--------------|
| DC Current Transfer Ratio (I <sub>F</sub> = 10mA, V <sub>CE</sub> = 5V)                           | 100  | —    | —    | %            |
| Saturation Voltage - Collector to Emitter (I <sub>F</sub> = 50mA, I <sub>C</sub> = 50mA)          | —    | —    | 1.0  | volts        |
| Isolation Resistance (Input to Output Voltage = 500V <sub>DC</sub> )                              | 100  | —    | —    | gigaohms     |
| Input to Output Capacitance (Input to Output Voltage = 0, f = 1 MHz)                              | —    | —    | 2    | picofarads   |
| Switching Speeds: On-Time - (V <sub>CE</sub> = 10V, I <sub>C</sub> = 10mA, R <sub>L</sub> = 100Ω) | —    | 125  | —    | microseconds |
| Off-Time - (V <sub>CE</sub> = 10V, I <sub>C</sub> = 10mA, R <sub>L</sub> = 100Ω)                  | —    | 100  | —    | microseconds |

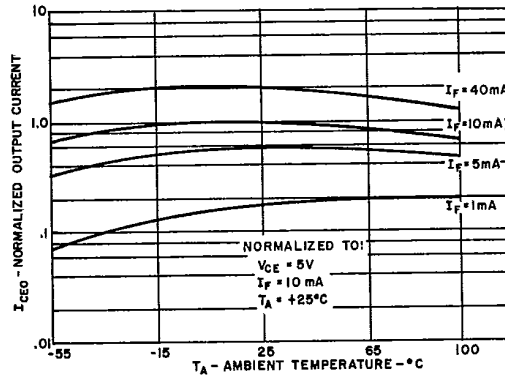
VDE Approved to 0883/6.80 0110b Certificate # 35025

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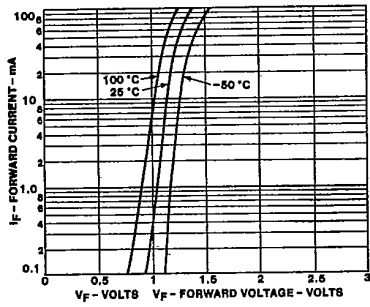
TYPICAL CHARACTERISTICS



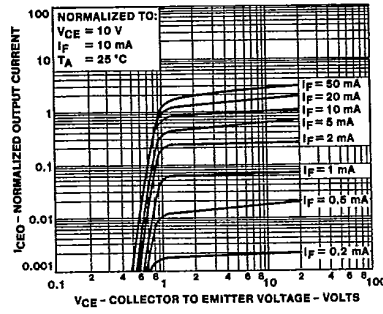
1. OUTPUT CURRENT VS. INPUT CURRENT



2. OUTPUT CURRENT VS. TEMPERATURE

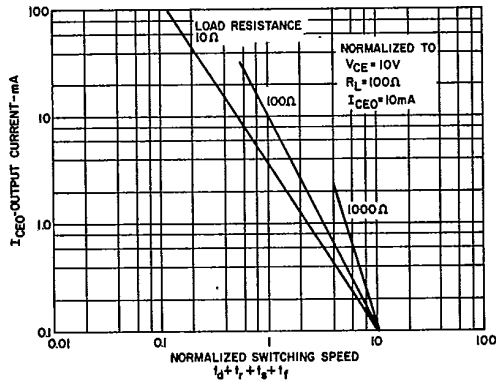


3. INPUT CHARACTERISTICS

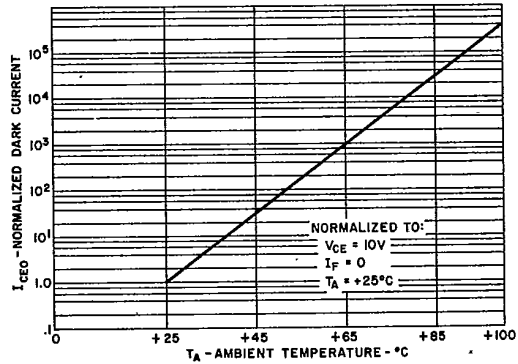


4. OUTPUT CHARACTERISTICS

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5. SWITCHING SPEED VS. OUTPUT CURRENT



6. NORMALIZED DARK CURRENT VS. TEMPERATURE