# SIEMENS

# IL66B

## PHOTODARLINGTON OPTOCOUPLER

### FEATURES

- **Internal $R_{BE}$ for High Stability**
- **High Current Transfer Ratio at $I_F$=2 mA, $V_{CE}$=5 V**
  **IL66B-1, 200% min.**
  **IL66B-2, 750% min.**
- **Withstand Test Voltage, 5300 $VAC_{RMS}$**
- **No Base Connection**
- **High Isolation Resistance**
- **Standard Plastic DIP Package**
- **Underwriters Lab Approval #E52744**
- **VDE 0884 Available with Option 1**

### DESCRIPTION

The IL66B is an optically coupled isolator employing a Gallium Arsenide infrared emitter and a silicon photodarlington detector. Switching can be accomplished while maintaining a high degree of isolation between driving and load circuits. They can be used to replace reed and mercury relays with advantages of long life, high speed switching and elimination of magnetic fields.

**Maximum Ratings** (at 25°C)

**Emitter**

Peak Reverse Voltage ..... 6 V
Continuous Forward Current ..... 60 mA
Power Dissipation at 25°C ..... 100 mW
Derate Linearly from 55°C ..... 1.33 mW/°C

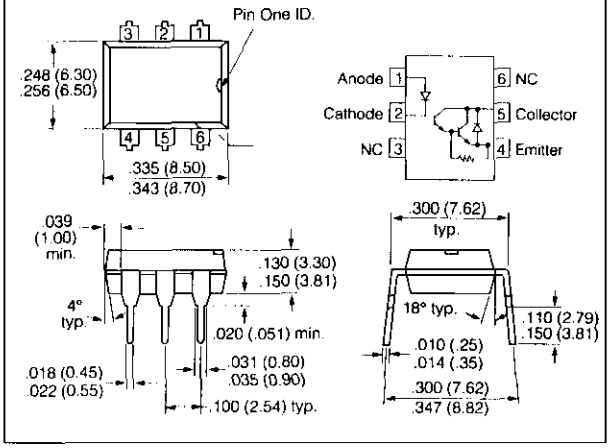
**Detector**

Collector-Emitter Breakdown Voltage ..... 60 V
Emitter-Collector Breakdown Voltage ..... 5 V
Power Dissipation at 25°C Ambient ..... 200 mW
Derate Linearly from 25°C ..... 2.6 mW/°C

**Package**

Isolation Test Voltage (t=1 sec.) ..... 5300 $VAC_{RMS}$
Isolation Resistance
$V_{IO}$=500 V, $T_A$=25°C ..... $\geq 10^{12}\,\Omega$
$V_{IO}$=500 V, $T_A$=100°C ..... $\geq 10^{11}\,\Omega$
Total Dissipation at 25°C ..... 250 mW
Derate Linearly from 25°C ..... 3.3 mW/°C
Creepage Path ..... 7 min mm
Clearance Path ..... 7 min mm
Storage Temperature ..... -55°C to +150°C
Operating Temperature ..... -55°C to +100°C
Lead Soldering Time at 260°C ..... 10 sec.

Package Dimensions in Inches (mm)




**Electrical Characteristics** ($T_A$=25°C)

| | Symbol | Min. | Typ. | Max. | Unit | Condition |
|---|---|---|---|---|---|---|
| **Emitter** | | | | | | |
| Forward Voltage | $V_F$ | | 1.25 | 1.5 | V | $I_F$=10 mA |
| Reverse Current | $I_R$ | | 0.01 | 100 | µA | $V_R$=3.0 V |
| Capacitance | $C_O$ | | 25 | | pF | $V_R$=0 V |
| **Detector** | | | | | | |
| Breakdown Voltage Collector-Emitter | $BV_{CEO}$ | 60 | | | V | $I_C$=100 µA, $I_F$=0 |
| Leakage Current Collector-Emitter | $I_{CEO}$ | | 1.0 | 100 | nA | $V_{CE}$=50 V, $I_F$=0 |
| **Package** | | | | | | |
| Current Transfer Ratio | CTR | | | | | $I_F$=2 mA, $V_{CE}$=5 V |
| IL66B-1 | | 200 | | | % | |
| IL66B-2 | | 750 | 1000 | | % | |
| Saturation Voltage Collector-Emitter | $V_{CEsat}$ | | | 1.0 | V | $I_C$=10 mA, $I_F$=10 mA |
| Turn-On,Turn-Off Time | $t_{on}$, $t_{off}$ | | | 200 | µs | $V_{CC}$=10 V, $I_F$=2 mA, $R_L$=100 Ω |

Optocouplers (Optoisolators) 5

**Figure 1. Forward voltage versus forward current**

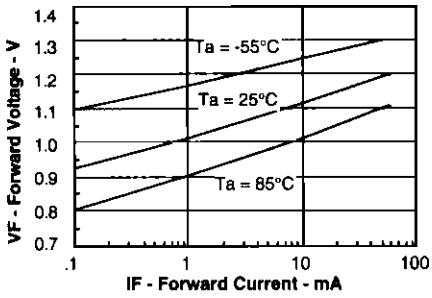



**Figure 2. Normalized non-saturated and saturated CTRce versus LED current**

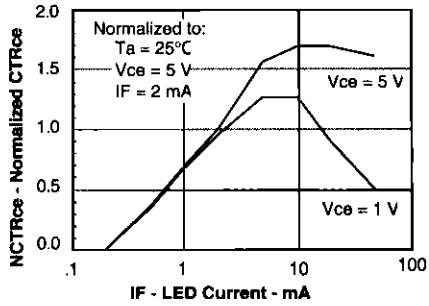



**Figure 3. Normalized non-saturated and saturated CTRce versus LED current**

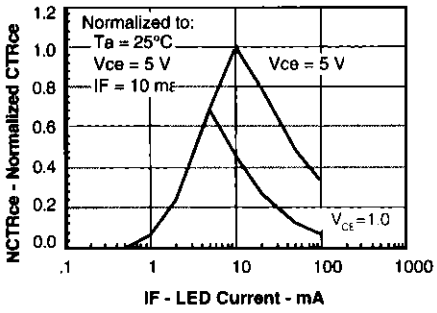



**Figure 4. Non-saturated and saturated collector emitter current versus LED current**

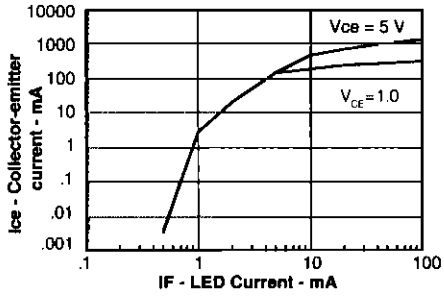



**Figure 5. High/low propagation delay versus collector load resistance and LED current**

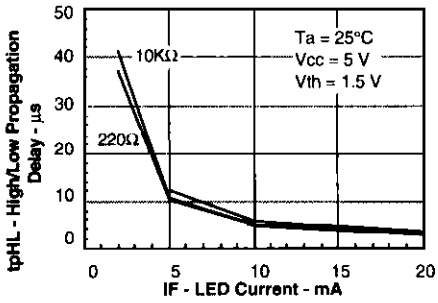



**Figure 6. Low/high propagation delay versus collector load resistance and LED current**