

FEATURES

- **Internal RBE for High Stability**
- **High Current Transfer Ratio**
at $I_F=2.0\text{ mA}$, $V_{CE}=5.0\text{ V}$
IL66B-1, 200% min.
IL66B-2, 750% min.
- **Withstand Test Voltage, 5300 V_{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 6.0 V
Continuous Forward Current 60 mA
Power Dissipation at 25°C 100 mW
Derate Linearly from 55°C 1.33 mW/°C

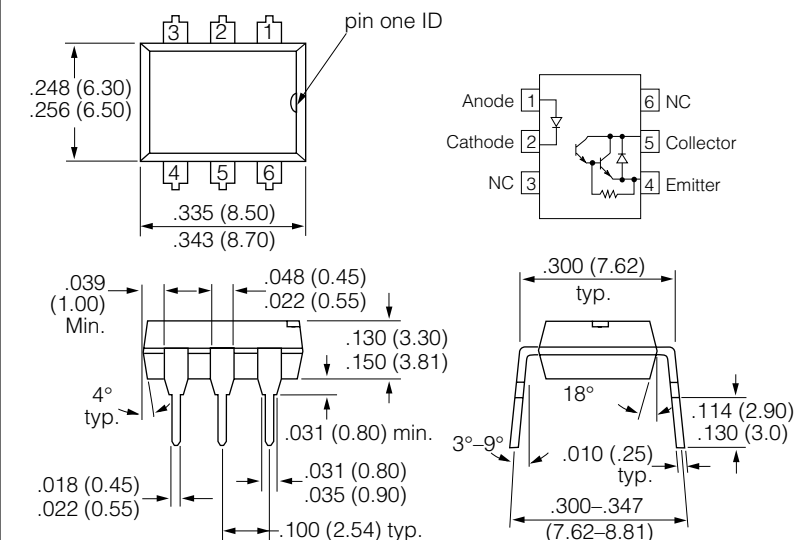
Detector

Collector-Emitter Breakdown Voltage 60 V
Emitter-Collector Breakdown Voltage 5.0 V
Power Dissipation at 25°C Ambient 200 mW
Derate Linearly from 25°C 2.6 mW/°C

Package

Isolation Test Voltage ($t=1.0\text{ sec.}$) 5300 V_{RMS}
Isolation Resistance
 $V_{IO}=500\text{ V}$, $T_A=25^\circ\text{C}$ $\geq 10^{12}\ \Omega$
 $V_{IO}=500\text{ V}$, $T_A=100^\circ\text{C}$ $\geq 10^{11}\ \Omega$
Total Dissipation at 25°C 250 mW
Derate Linearly from 25°C 3.3 mW/°C
Creepage Path 7.0 min mm
Clearance Path 7.0 min mm
Storage Temperature -55°C to +150°C
Operating Temperature -55°C to +100°C
Lead Soldering Time at 260°C 10 sec.

Dimensions in inches (mm)


Electrical Characteristics ($T_A=25^\circ\text{C}$)

	Symbol	Min.	Typ.	Max.	Unit	Condition
Emitter						
Forward Voltage	V_F	—	1.25	1.5	V	$I_F=10\text{ mA}$
Reverse Current	I_R	—	0.01	100	μA	$V_R=3.0\text{ V}$
Capacitance	C_0	—	25	—	pF	$V_R=0\text{ V}$
Detector						
Breakdown Voltage Collector-Emitter	BV_{CEO}	60	—	—	V	$I_C=100\ \mu\text{A}$, $I_F=0$
Leakage Current Collector-Emitter	I_{CEO}	—	1.0	100	nA	$V_{CE}=50\text{ V}$, $I_F=0$
Package						
Current Transfer Ratio IL66B-1 IL66B-2	CTR	200 750	1000	—	%	$I_F=2.0\text{ mA}$, $V_{CE}=5.0\text{ V}$
Saturation Voltage Collector-Emitter	V_{CEsat}	—	—	1.0	V	$I_C=10\text{ mA}$, $I_F=10\text{ mA}$
Turn-On, Turn-Off Time	t_{on} , t_{off}	—	—	200	μs	$V_{CC}=10\text{ V}$ $I_F=2.0\text{ mA}$, $R_L=100\ \Omega$

Figure 1. Forward voltage versus forward current

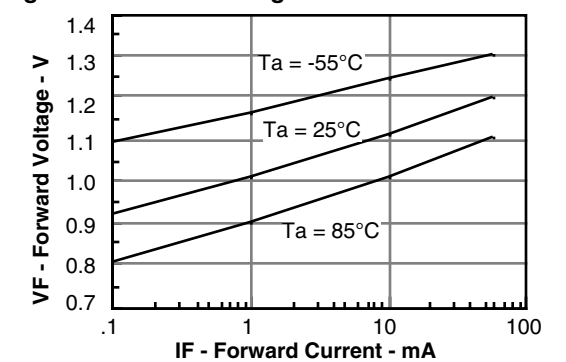


Figure 2. Normalized non-saturated and saturated CTR_{ce} versus LED current

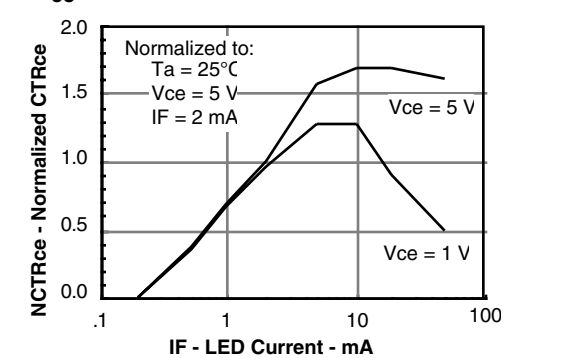


Figure 3. Normalized non-saturated and saturated CTR_{ce} versus LED current

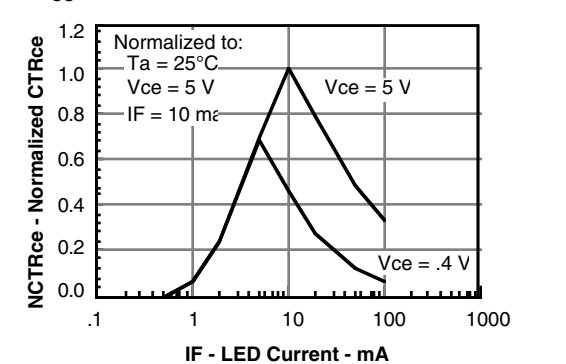


Figure 4. Non-saturated and saturated collector emitter current versus LED current

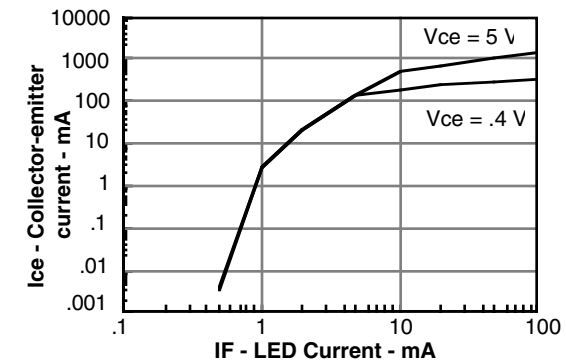


Figure 5. High/low propagation delay versus collector load resistance and LED current

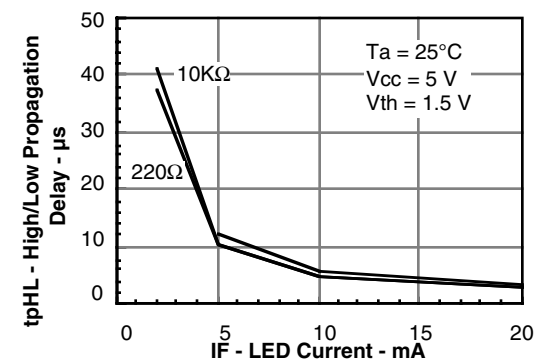


Figure 6. Low/high propagation delay versus collector load resistance and LED current

