

FEATURES

- **Very High Current Transfer Ratio (500% min.)**
IL755B-1: 750% at $I_F=2\text{ mA}$, $V_{CE}=5\text{ V}$
IL755B-2: 1000% at $I_F=1\text{ mA}$, $V_{CE}=5\text{ V}$
- **$BV_{CEO} > 60\text{ V}$**
- **Isolation Test Voltage, 5300 VAC_{RMS}**
- **AC or Polarity Insensitive Inputs**
- **No Base Connection**
- **High Isolation Resistance, $10^{12}\Omega$**
- **Low Coupling Capacitance**
- **Standard Plastic DIP Package**
- **Underwriters Lab Approval #E52744**
- **VDE #0884 Available with Option 1**

DESCRIPTION

The IL755B is a bidirectional input, optically coupled isolator consisting of two Gallium Arsenide infrared emitters and a silicon photodarlington sensor.

Maximum Ratings (at 25°C)

Emitter (Drive Circuit)

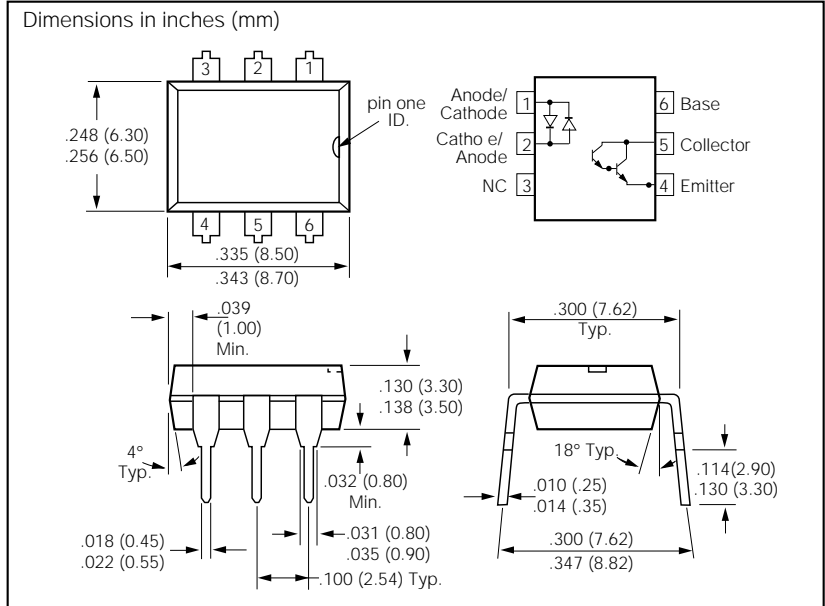
Continuous Forward Current 60 mA
Power Dissipation at 25°C 100 mW
Derate Linearly from 55°C 1.33 mW/°C

Detector

Collector-Emitter Breakdown Voltage 60 V
Emitter-Collector Breakdown Voltage 12 V
Power Dissipation at 25°C Ambient 200 mW
Derate Linearly from 25°C 2.6 mW/°C

Package

Isolation Test Voltage
(PK), $t=1\text{ sec.}$ 5300 VAC_{RMS}
Dissipation at 25°C 250 mW
Derate Linearly from 25°C⁽²⁾ 3.3 mW/°C
Creepage 7 min mm
Clearance 7 min mm
Isolation Resistance
 $T_A=25^\circ\text{C.}$ $\geq 10^{12}\Omega$
 $T_A=100^\circ\text{C.}$ $\geq 10^{11}\Omega$
Storage Temperature⁽²⁾ -55°C to +150°C
Operating Temperature -55°C to +100°C
Lead Soldering Time at 260°C 10 sec.



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

	Symbol	Min.	Typ.	Max.	Unit	Condition
Emitter						
Forward Voltage ⁽¹⁾	V_F		1.25	1.5	V	$I_F=10\text{ mA}$
Detector⁽²⁾						
Breakdown Voltage, Collector-Emitter	BV_{CEO}	60	75		V	$I_C=1\text{ mA}$, $I_F=0$
Leakage Current, Collector-Emitter	I_{CEO}		1.0	100	nA	$V_{CE}=10\text{ V}$, $I_F=0$
Package						
Current Transfer Ratio ⁽²⁾	CTR					
IL755B-1		750			%	$I_F=\pm 2\text{ mA}$, $V_{CE}=5\text{ V}$
IL755B-2		1000			%	$I_F=\pm 1\text{ mA}$, $V_{CE}=5\text{ V}$
Saturation Voltage, Collector-Emitter	V_{CEsat}			1.0	V	$I_C=10\text{ mA}$, $I_F=\pm 10\text{ mA}$
Turn-On Time	t_{on}			200	μs	$V_{CC}=10\text{ V}$
Turn-Off Time	t_{off}			200	μs	$I_F=\pm 2\text{ mA}$, $R_L=100\Omega$

Notes:

1. Indicates JEDEC registered data.

Figure 1. LED forward current versus forward voltage

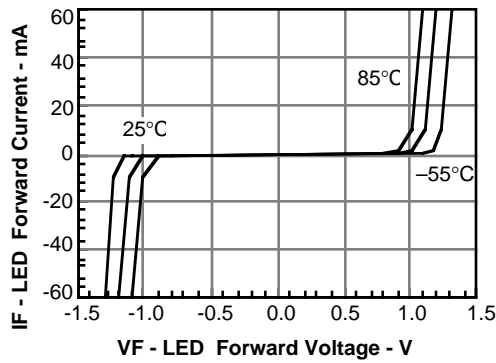


Figure 5. Normalized non-saturated and saturated collector-emitter current versus LED current

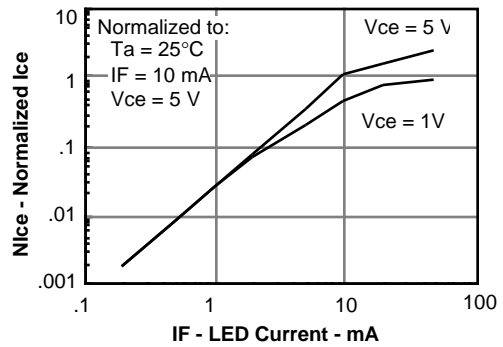


Figure 2. Normalized non-saturated and saturated CTRce versus LED current

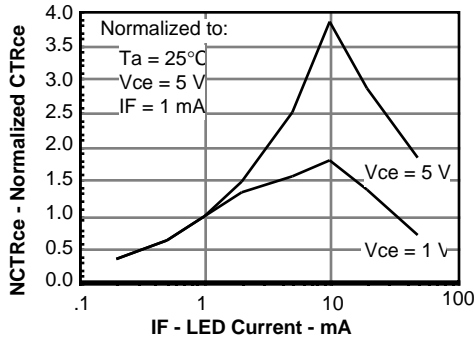


Figure 6. Low to high propagation delay versus collector load resistance and LED current

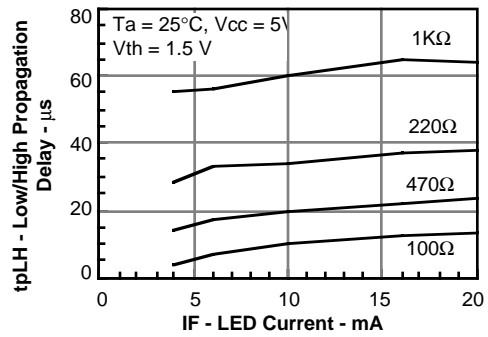


Figure 3. Normalized non-saturated and saturated CTRce versus LED current

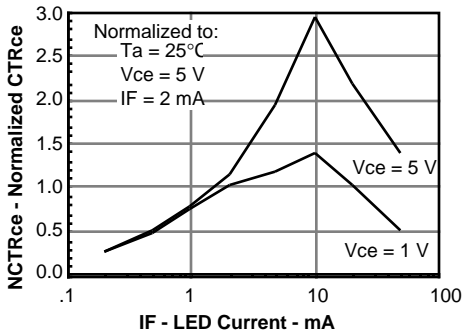


Figure 7. High to low propagation delay versus collector load resistance and LED current

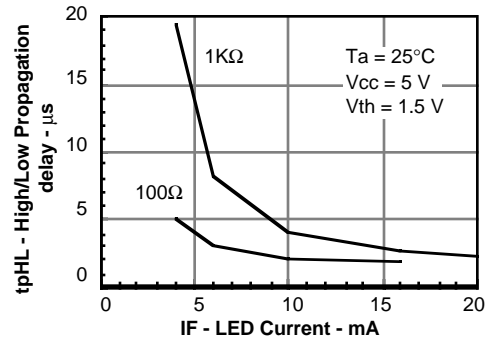


Figure 4. Normalized non-saturated and saturated Ice versus LED current

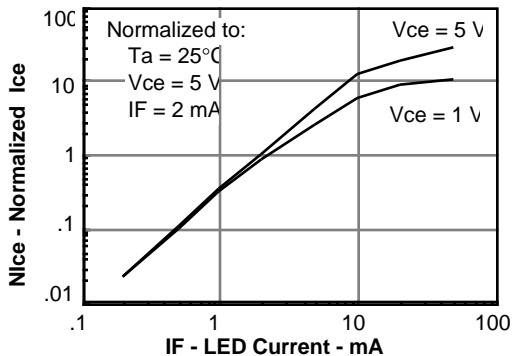


Figure 8. Switching waveform

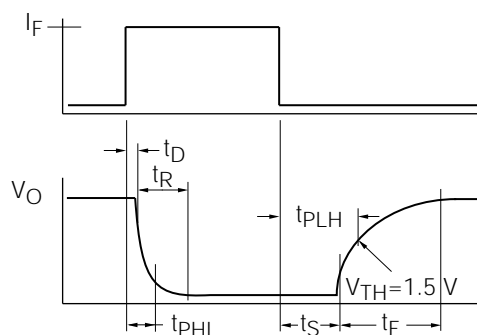


Figure 9. Normalized non-saturated and saturated CTRce versus LED current

