SIEMENS

SINGLE CHANNEL IL755
DUAL CHANNEL ILD755

BIDIRECTIONAL INPUT DARLINGTON OPTOCOUPLERS

FEATURES

- **High Current Transfer Ratios, V_{CE}=5 V**
  IL/ILD755-1: 750% at I_F=2 mA
  IL/ILD755-2: 1000% at I_F=1 mA
- **BV_{CEO} >60 V**
- **AC or Polarity Insensitive Inputs**
- **Built-In Reverse Polarity Input Protection**
- **Industry Standard DIP Package**
- **Underwriters Lab File #E52744**
- **VDE #0884 Available with Option 1**

DESCRIPTION

The IL/ILD755 are bidirectional input optically coupled isolators. They consist of two Gallium Arsenide infrared emitting diodes coupled to a silicon NPN photodarlington per channel.

The IL755 are single channel Darlington optocouplers. The ILD755 has two isolated channels in a single DIP package.

They are designed for applications requiring detection or monitoring of AC signals.

Maximum Ratings

Emitter (Each Channel)

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

Detector (Each Channel)

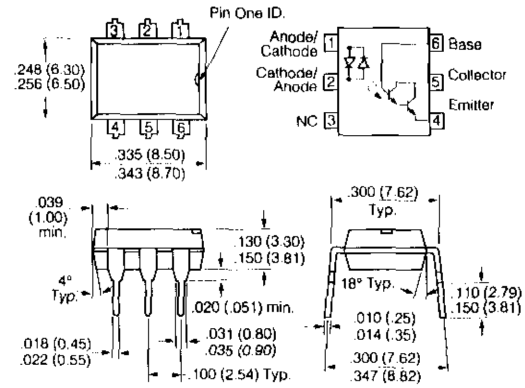
Collector-Emitter Breakdown Voltage .... 60 V
Collector-Base Breakdown Voltage .... 60 V
Power Dissipation at 25°C
IL755 .... 200 mW
ILD755 .... 150 mW
Derate Linearly from 25°C
IL755 .... 2.6 mW/°C
ILD755 .... 2.0 mW/°C

Package

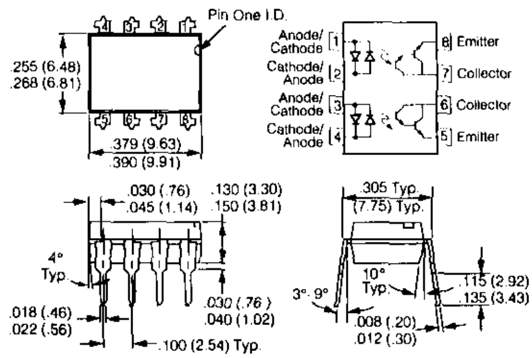
Isolation Test Voltage (PK)
(t= 1 sec.) .... 7500 VAC_{PK}/5300 VAC_{RMS}
Total Power Dissipation at 25°C Ambient
(LED Plus Detector)
IL755 .... 250 mW
ILD755 .... 400 mW
Derate Linearly from 25°C
IL755 .... 3.3 mW/°C
ILD755 .... 5.3 mW/°C
Creepage .... 7 mm min.
Clearance .... 7 mm min.
Storage Temperature .... -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)

Single Channel



Dual Channel



Electrical Characteristics (T_A=25°C)

	Symbol	Min.	Typ.	Max.	Unit	Condition
Emitter						
Forward Voltage	V_F		1.2	1.5	V	I_F=±10 mA
Detector						
	BV_{CEO}	60	75		V	I_C=1 mA
	BV_{CBO}	60	90		V	I_C=10 µA
	I_{CEO}		10	100	nA	V_{CE}=10 V
Package						
	V_{CEsat}			1.0	V	I_F=±10 mA, I_C=10 mA
DC Current Transfer Ratio	CTR					
IL755/ILD755-1		750			%	I_F=±2 mA, V_{CE}=5 V
IL755/ILD755-2		1000			%	I_F=±1 mA, V_{CE}=5 V
Rise Time/Fall Time IL/ILD755-1			50		µs	V_{CC}=10 V, I_F=2 mA, R_L=100 Ω
Rise Time/Fall Time IL/ILD755-2			70		µs	V_{CC}=10 V, I_F=1 mA, R_L=100 Ω

Figure 1. LED forward current versus forward voltage

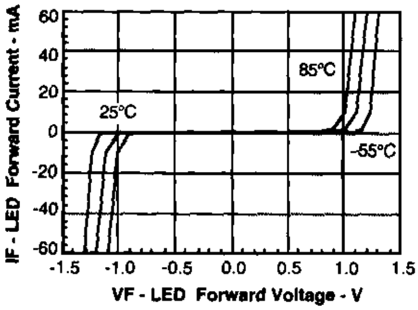


Figure 2. Normalized non-saturated and saturated CTRce versus LED current

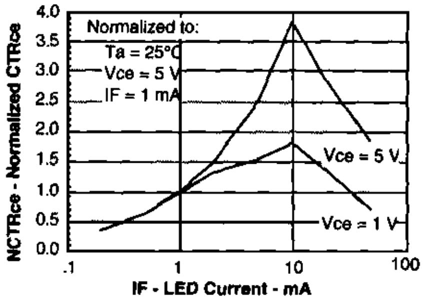


Figure 3. Normalized non-saturated and saturated CTRce versus LED current

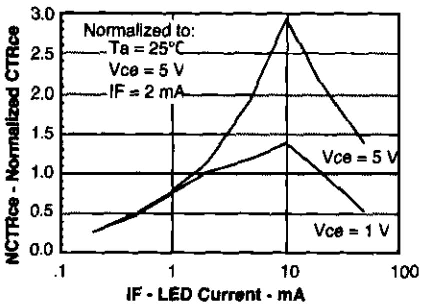


Figure 4. Normalized non-saturated and saturated Ice versus LED current

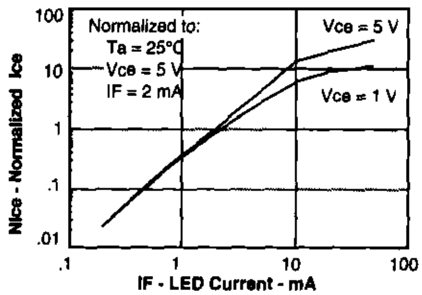


Figure 5. Normalized non-saturated and saturated collector-emitter current versus LED current

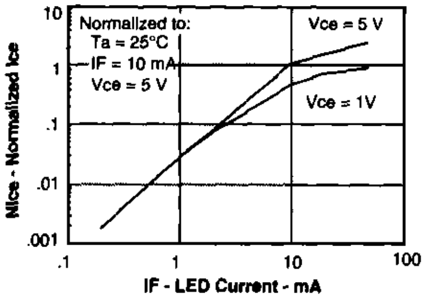


Figure 6. Non-saturated and saturated HFE versus base current

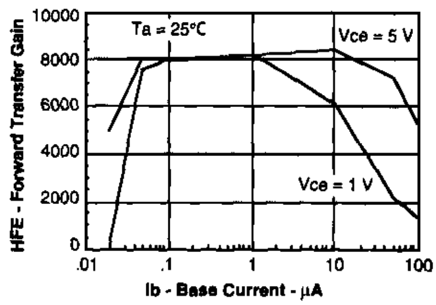


Figure 7. Low to high propagation delay versus collector load resistance and LED current

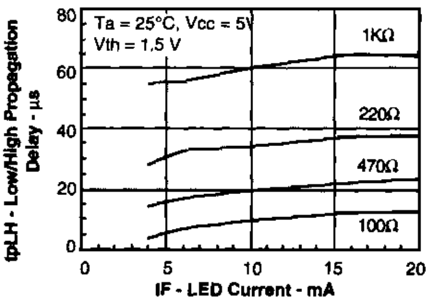
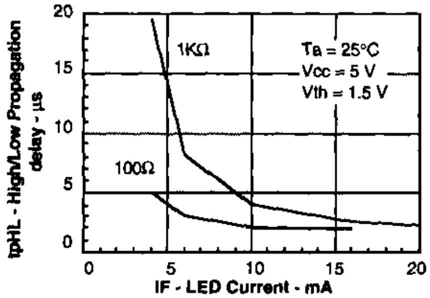


Figure 8. High to low propagation delay versus collector load resistance and LED current



Optocouplers (Optoisolators)

5

Figure 9. Switching waveform

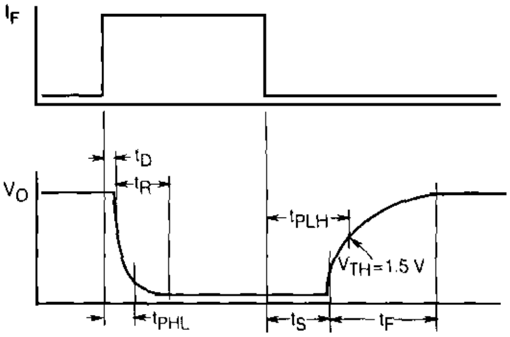


Figure 10. Normalized non-saturated and saturated CTRce versus LED current