



SINGLE CHANNEL IL766

DUAL CHANNEL ILD766

Bidirectional Input

Darlington Optocoupler

FEATURES

- Internal R_{BE} for Better Stability
- High Current Transfer Ratios, $V_{CE}=5.0\text{ V}$
IL/ILD766-1: 500% at $I_F=2.0\text{ mA}$
IL/ILD766-2: 500% at $I_F=1.0\text{ mA}$
- $BV_{CEO} > 60\text{ V}$
- AC or Polarity Insensitive Inputs
- Built-In Reverse Polarity Input Protection
- Industry Standard DIP Package
- Underwriters Lab File #E52744

DESCRIPTION

The IL/ILD766 are bidirectional input optically coupled isolators. They consist of two Gallium Arsenide infrared emitting diodes coupled to a silicon NPN photodarlington per channel.

The IL766 are single channel optocouplers. The ILD766 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

Single Channel 200 mW

Dual Channel 90 mW

Derate Linearly from 25°C

Single Channel 2.6 mW/°C

Dual Channel 1.2 mW/°C

Detector (Each Channel)

Collector-Emitter Breakdown Voltage 60 V

Collector-Base Breakdown Voltage 70 V

Power Dissipation at 25°C 100 mW

Derate Linearly from 25°C 1.33 mW/°C

Package

Isolation Test Voltage

($t=1.0\text{ sec.}$) 7500 VAC_{PK}/5300 V_{RMS}

Isolation Resistance

$T_A=25^\circ\text{C}$ $\geq 10^{12}\ \Omega$

$T_A=100^\circ\text{C}$ $\geq 10^{11}\ \Omega$

Total Power Dissipation at $T_A=25^\circ\text{C}$

(LED Plus Detector)

Single Channel 250 mW

Dual Channel 400 mW

Derate Linearly from 25°C

Single Channel 3.3 mW/°C

Dual Channel 5.3 mW/°C

Creepage 7.0 mm min.

Clearance 7.0 mm min.

Comparative Tracking Index per

DIN IEC 112/VDE303, part 1 175

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)

Single Channel

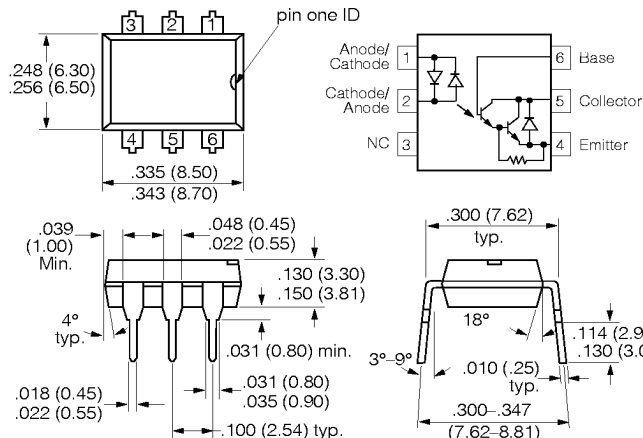


Figure 1. Input characteristics

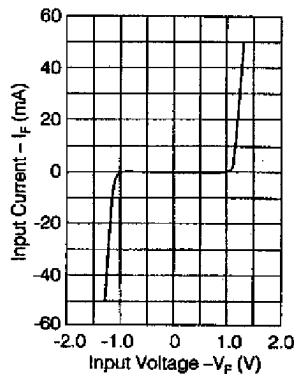


Figure 2. Transistor current versus voltage

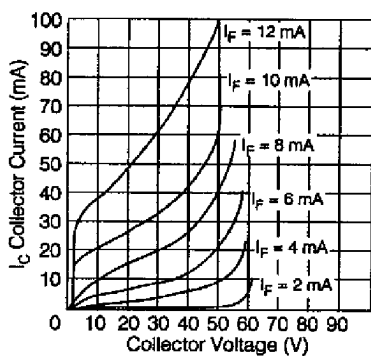


Figure 3. Transistor output current versus voltage

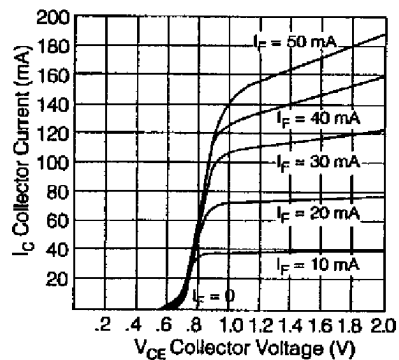


Figure 4. I_{CEO} at $V_{CE}=10$ V versus temperature

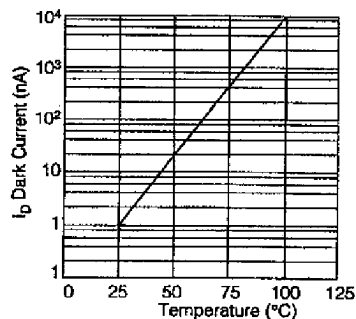


Figure 5. Normalized CTR versus forward current

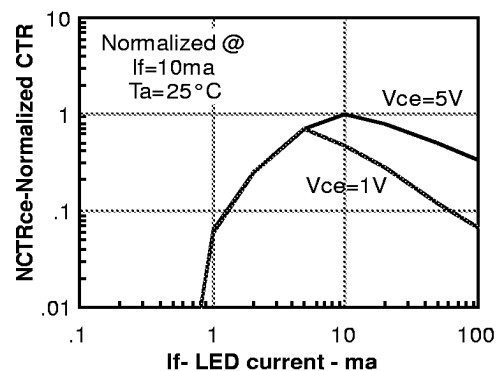


Figure 6. t_r versus forward current

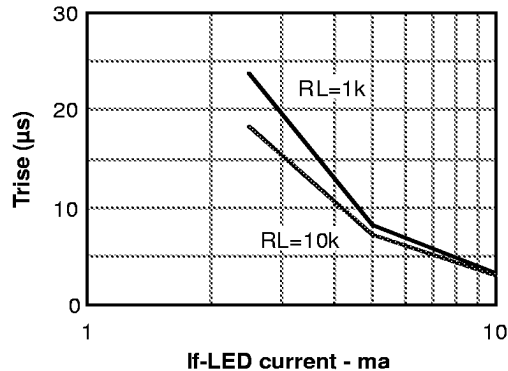


Figure 7. Saturated switching characteristics measurements—schematic and waveform

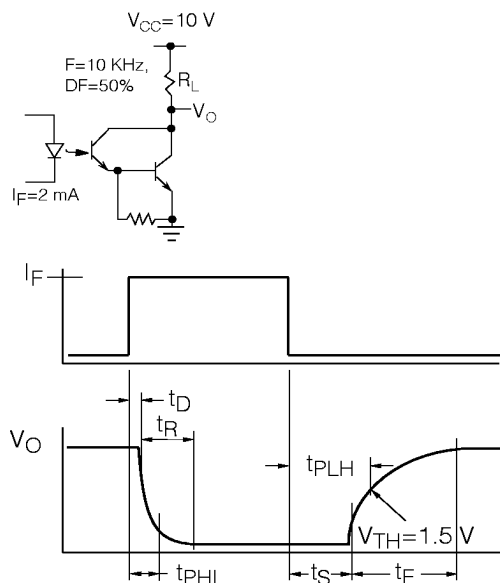


Figure 8. t_{fall} versus forward current

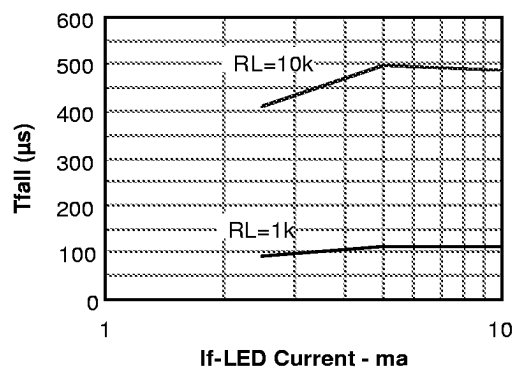


Figure 9. t_{on} versus forward current

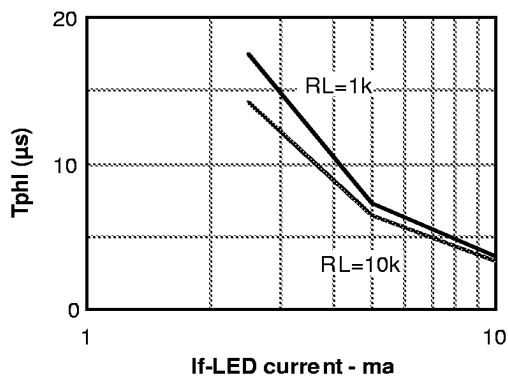


Figure 10. t_{off} versus forward current

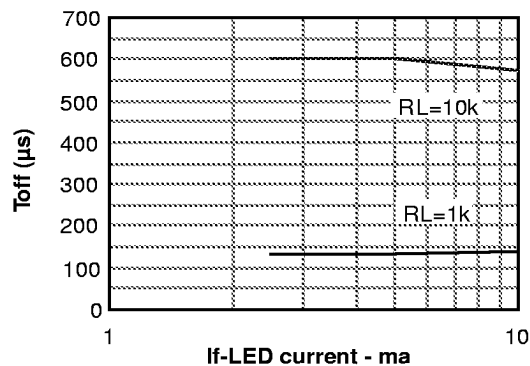


Figure 11. t_{phl} versus forward current

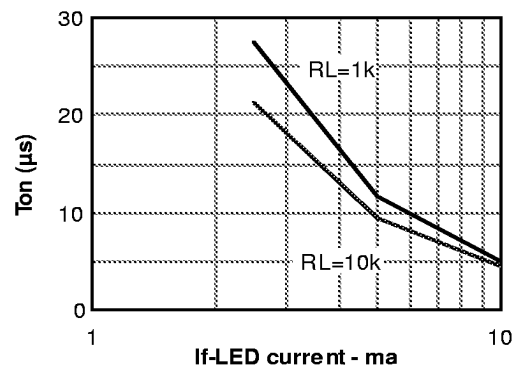


Figure 12. t_{plh} versus forward current

