SIEMENS

SINGLE CHANNEL IL74
DUAL CHANNEL ILD74
QUAD CHANNEL ILQ74
PHOTOTRANSISTOR OPTOCOUPLER

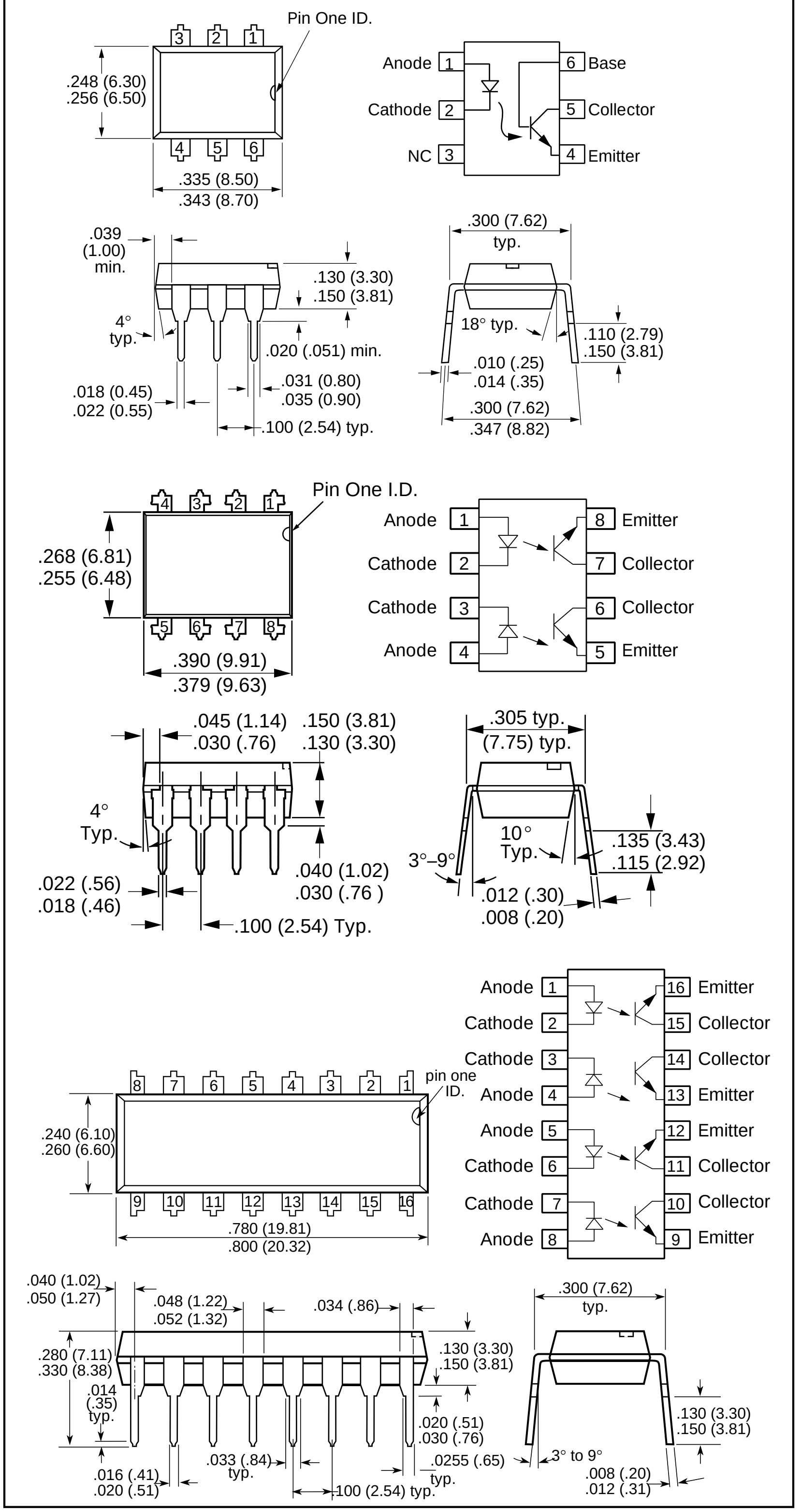
FEATURES
- **7400 Series T2L Compatible**
- **Transfer Ratio, 35% Typical**
- **Coupling Capacitance, 0.5 pF**
- **Single, Dual, & Quad Channel**
- **Industry Standard DIP Package**
- **Underwriters Lab File #E52744**
- **VDE Approvals #0884 (Optional with Option 1, Add -X001 Suffix)**

DESCRIPTION

The IL74 is an optically coupled pair with a Gallium Arsenide infrared LED and a silicon NPN phototransistor. Signal information, including a DC level, can be transmitted by the device while maintaining a high degree of electrical isolation between input and output. The IL74 is especially designed for driving medium-speed logic, where it may be used to eliminate troublesome gound loop and noise problems. Also it can be used to replace relays and transformers in many digital interface applications, as well as analog applications such as CRT modulation.

The ILD74 has two isolated channels in a single DIP package; the ILQ74 has four isolated channels per package.

Dimensions in inches (mm)



Maximum Ratings

Emitter (each channel)

Peak Reverse Voltage ....3.0 V
Continuous Forward Current ....60 mA
Power Dissipationat 25°C..........................100 mW
Derate Linearly from 25°C...................1.33 mW/°C

Detector (each channel)

Collector-Emitter Breakdown Voltage ....20 V
Emitter-Base Breakdown Voltage.......................5 V
Collector-Base Breakdown Voltage ....70 V
Power Dissipation at 25°C.........................150 mW
Derate Linearly from 25°C.....................2.0 mW/°C

Package

Isolation Test Voltage (t=1 sec.) ....5300 VAC_{RMS}
Isolation Resistance
V_{IO}=500 V, T_A=25°C ....≥10^{12} Ω
V_{IO}=500 V, T_A=100°C ....≥10^{11} Ω
Total Package Dissipation
at 25°C Ambient (LED Plus Detector)
IL74...200 mW
ILD74 ....400 mW
IL74Q ....500 mW
Derate Linearly from 25°C
IL74...2.7 mW/°C
ILD74 ....5.33 mW/°C
ILQ74 ....6.67 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.

Electrical Characteristics (T_A=25°C)

	Symbol	Min.	Typ.	Max.	Unit	Condition
Emitter						
Forward Voltage	V_F		1.3	1.5	V	I_F=20 mA
Reverse Current	I_R		0.1	100	µA	V_R=3.0 V
Capacitance	C_O		25		pF	V_R=0
Detector						
Breakdown Voltage, Collector-Emitter	BV_{CEO}	20	50		V	I_C=1 mA
Leakage Current, Collector-Emitter	I_{CEO}		5.0	500	nA	V_{CE}=5 V, I_F=0
Capacitance, Collector-Emitter	C_{CE}		10.0		pF	V_{CE}=0, F=1 MHz
Package						
DC Current Transfer Ratio	CTR_{DC}	12.5	35		%	I_F=16 mA, V_{CE}=5 V
Saturation Voltage, Collector-Emitter	V_{CEsat}		0.3	0.5	V	I_C=2 mA, I_F=16 mA
Resistance, Input to Output	R_{IO}		100		GΩ	
Capacitance, Input to Output	C_{IO}		0.5		pF	
Switching Times	t_{ON},t_{OFF}		3.0		µs	R_E=100 Ω, V_{CE}=10 V, I_C=2 mA

Figure 1. Forward voltage versus forward current

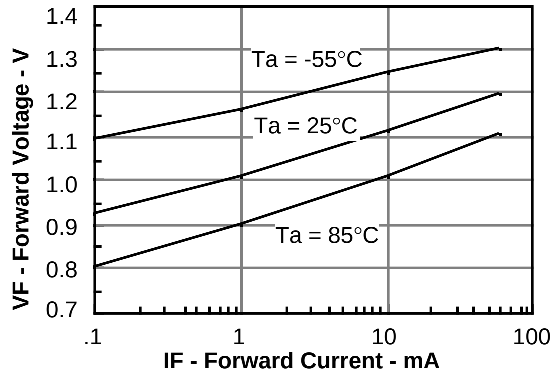


Figure 2. Normalized non-saturated and saturated CTR at T_A=25°C versus LED current

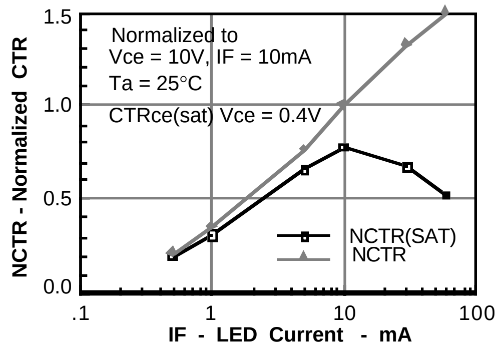


Figure 3. Normalized non-saturated and saturated CTR at T_A=50°C versus LED current

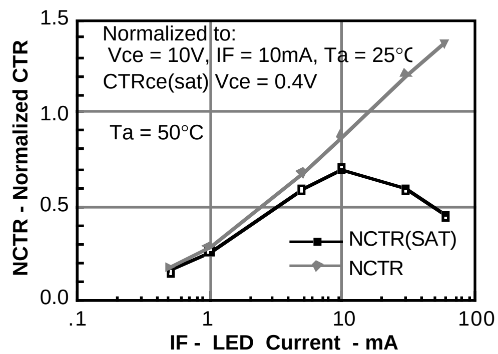


Figure 4. Normalized non-saturated and saturated CTR at T_A=70°C versus LED current

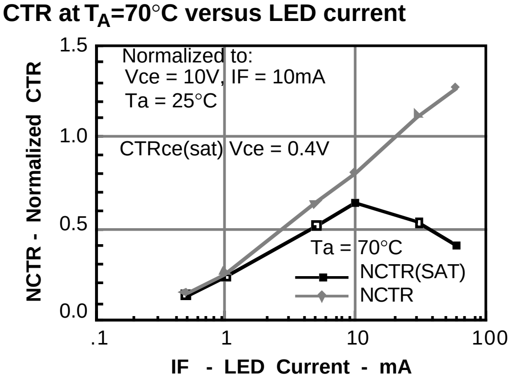


Figure 5. Normalized non-saturated and saturated CTR at T_A=85°C versus LED current

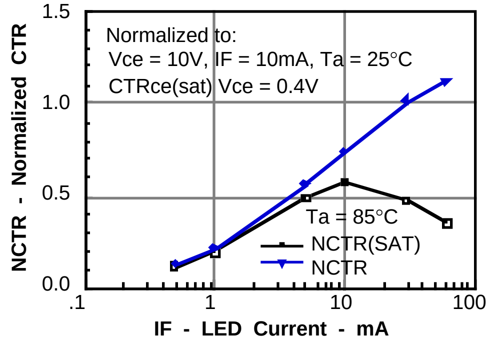


Figure 9. Collector base photocurrent versus LED current

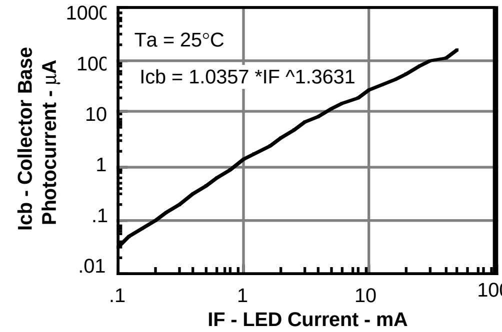


Figure 6. Collector-emitter current versus temperature and LED current

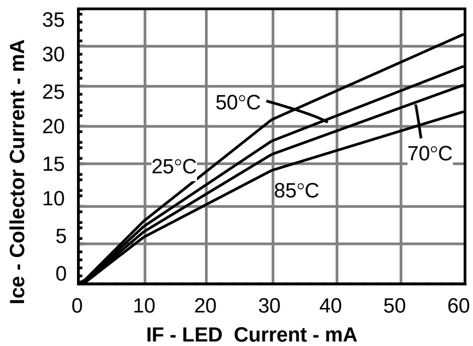


Figure 10. Normalized photocurrent versus If and temperature

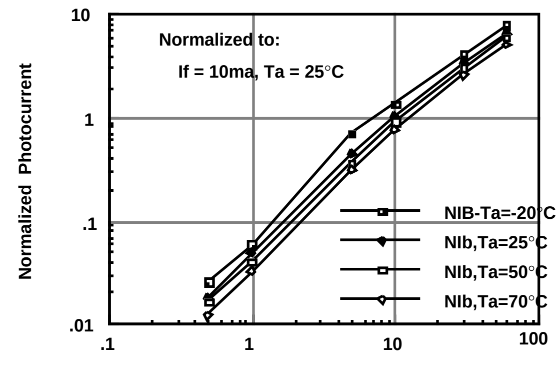


Figure 7. Collector-emitter leakage current versus temperature

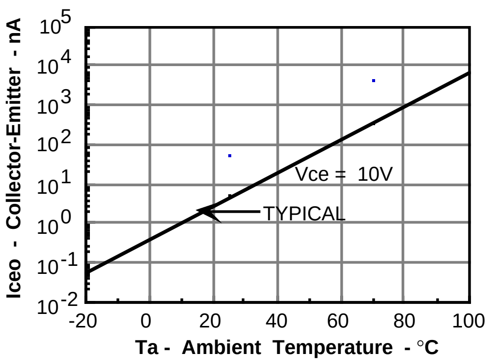


Figure 11. Normalized non-saturated HFE versus base current and temperature

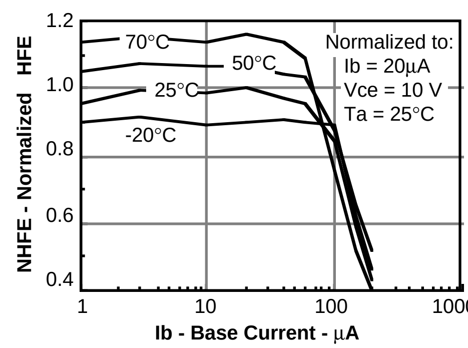


Figure 8. Normalized CTRcb versus LED current and temperature

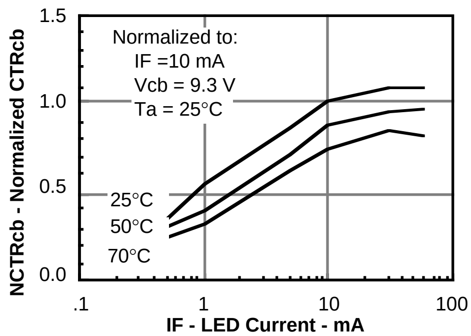


Figure 12. Normalized saturated HFE versus base current and temperature

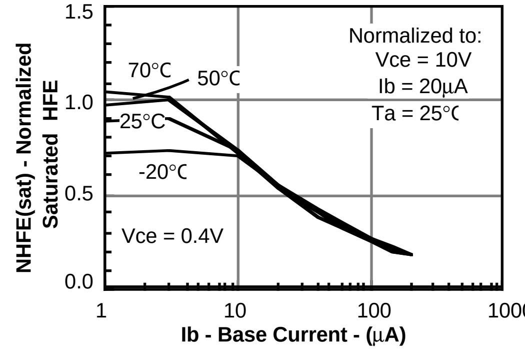


Figure 13. Propagation delay versus collector load resistor

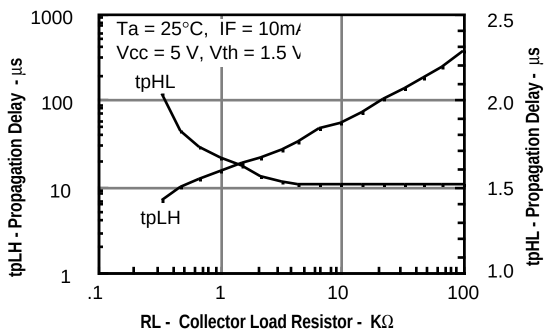
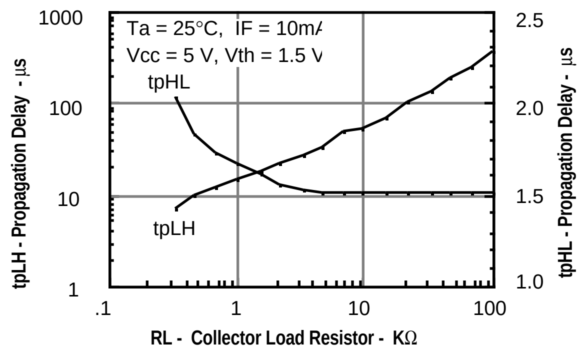


Figure 14. Propagation delay versus collector load resistor



Littlediode supplies new, hard to find or obsolete electronic components and semiconductors all over the world.

With over two million different components listed you are sure to find the part you need.

Feel free to visit us today at our online store:

LittleDiode.com

Looking forward to providing you with the best possible service.

email: info@littlediode.com • LittleDiode.com