DatasheetArchive.com

Request For Quotation

Order the parts you need from our real-time inventory database. Simply complete a request for quotation form with your part information and a sales representative will respond to you with price and availability.

Request For Quotation

Your free datasheet starts on the next page.

More datasheets and data books are available from our homepage: http://www.datasheetarchive.com

This datasheet has been downloaded from http://www.datasheetarchive.com.

SINGLE CHANNEL IL66
DUAL CHANNEL ILD66
QUAD CHANNEL ILQ66
Photodarlington Optocoupler

FEATURES

- **Internal RBE for High Stability**
- **Current Transfer Ratio is Tested at 2.0 mA and 0.7 mA Input**
  IL/ILD/ILQ66 Series:
  –1, 100% min. at I_F=2.0 mA, V_{CE}=10 V
  –2, 300% min. at I_F=2.0 mA, V_{CE}=10 V
  –3, 400% min. at I_F=0.7 mA, V_{CE}=10 V
  –4, 500% min. at I_F=2.0 mA, V_{CE}=5.0 V
- **Four Available CTR Categories per Package Type**
- **BV_{CEO}>60 V**
- **Standard DIP Packages**
- **Underwriters Lab File #E52744**
- **VDE 0884 Available with Option 1**

DESCRIPTION

IL66, ILD66, and ILQ66 are optically coupled isolators employing Gallium Arsenide infrared emitters and silicon photodarlington detectors. Switching can be accomplished while maintaining a high degree of isolation between driving and load circuits, with no crosstalk between channels.

Maximum Ratings

Emitter Each Channel

Peak Reverse Voltage ..... 6.0 V
Continuous Forward Current ..... 60 mA
Power Dissipation at 25°C ..... 100 mW
Derate Linearly from 25°C ..... 1.33 mW/°C

Detector (Each Channel)

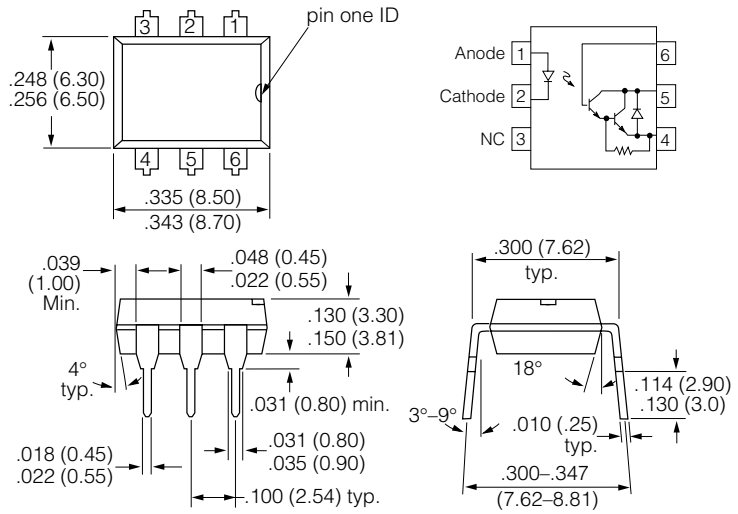
Power Dissipation at 25°C Ambient ..... 150 mW
Derate Linearly from 25°C ..... 2.0 mW/°C

Package

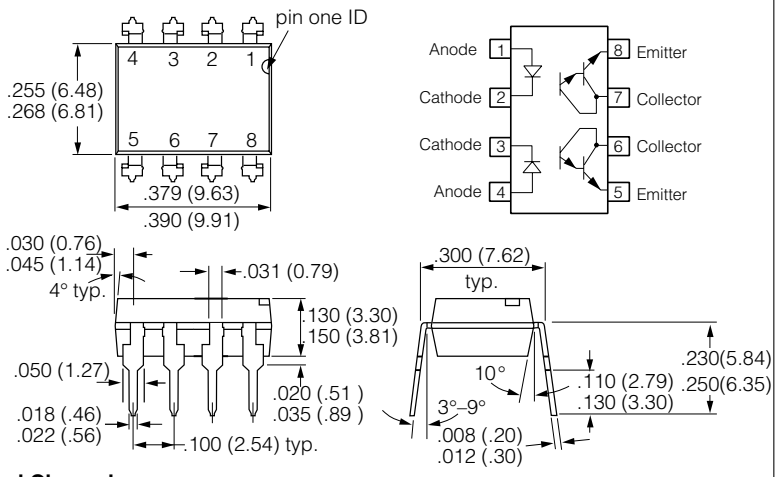
Isolation Test Voltage (t=1.0 sec.) ..... 5300 V_{RMS}
Total Package Power Dissipation at 25°C
IL66 ..... 250 mW
ILD66 ..... 400 mW
ILQ66 ..... 500 mW
Derate Linearly from 25°C
IL66 ..... 3.3 mW/°C
ILD66 ..... 5.33 mW/°C
ILQ66 ..... 6.67 mW/°C
Creepage ..... ≥7 min
Clearance ..... ≥7 min
Comparative Tracking Index 175
Isolation Resistance
V_{IO}=500 V, T_A=25°C ..... $\geq 10^{12}\ \Omega$
V_{IO}=500 V, T_A=100°C ..... $\geq 10^{11}\ \Omega$
Storage Temperature ..... –55°C to +125°C
Operating Temperature ..... –55°C to +100°C
Lead Soldering Time at 260°C ..... 10 sec.

Dimensions in inches (mm)

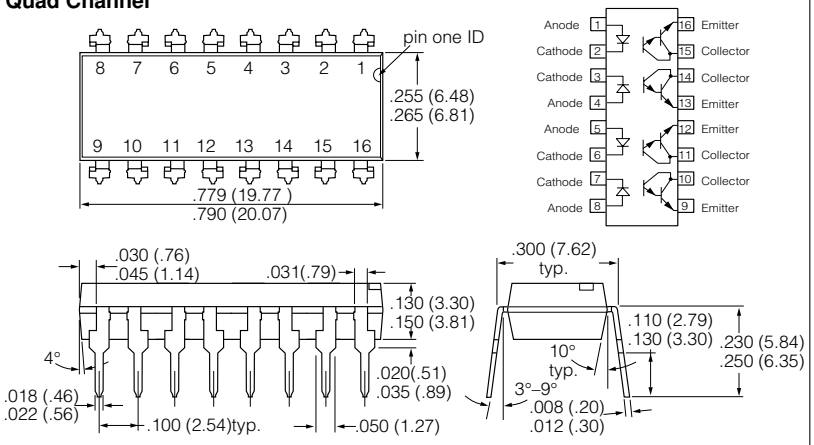
Single Channel



Dual Channel



Quad Channel



© 2001 Infineon Technologies Corp. • Optoelectronics Division • San Jose, CA

Electrical Characteristics, T_A=25°C

Parameter		Symbol	Min.	Typ.	Max.	Unit	Condition
GaAs Emitter							
Forward Voltage		V_F	—	1.25	1.5	V	I_F=20 mA
Reverse Current		I_R	—	0.1	10	µA	V_R=6.0 V
Capacitance		C_0	—	25	—	pF	V_R=0 V
Photodarlington							
Breakdown Voltage	Collector-Emitter	BV_{CEO}	60	—	—	V	I_C=1.0 mA, I_F=0
	Collector-Base (IL66)	BV_{CBO}	60	—	—	—	I_C=10 µA
Leakage Current, Collector-Emitter		I_{CEO}	—	1.0	100	nA	V_{CE}=50 V, I_F=0
Capacitance, Collector-Emitter		—	—	3.4	—	pF	V_{CE}=10 V
Coupled Characteristics							
Current Transfer Ratio	IL/ILD/ILQ66-1	CTR	100	400	—	%	I_F=2.0 mA, V_{CE}=10 V
	IL/ILD/ILQ66-2		300	500	—		I_F=2.0 mA, V_{CE}=10 V
	IL/ILD/ILQ66-3		400	500	—		I_F=0.7 mA, V_{CE}=10 V
	IL/ILD/ILQ66-4		500	750	—		I_F=2.0 mA, V_{CE}=5.0 V
Saturation Voltage, Collector-Emitter		V_{CEsat}	—	0.9	1.0	V	I_C=10 mA, I_F=10 mA
Rise Time -1, -2, -4		t_r	—	—	200	µs	V_{CC}=10 V
Fall Time -1, -2, -4		t_f	—	—	200		I_F=2.0 mA, R_L=100 Ω
Rise Time -3		t_r	—	—	200		I_F=0.7 mA
Fall Time -3		t_f	—	—	200		V_{CC}=10 V, R_L=100 Ω

Figure 1. Forward voltage versus forward current

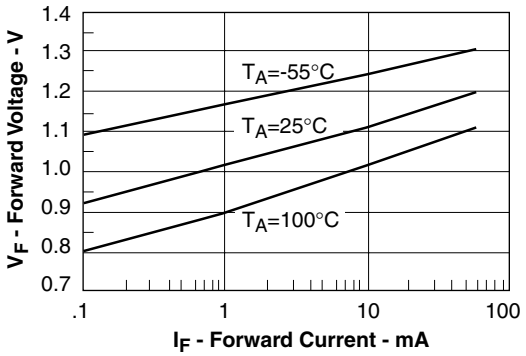


Figure 2. Normalized non-saturated and saturated CTR_{ce} versus LED current

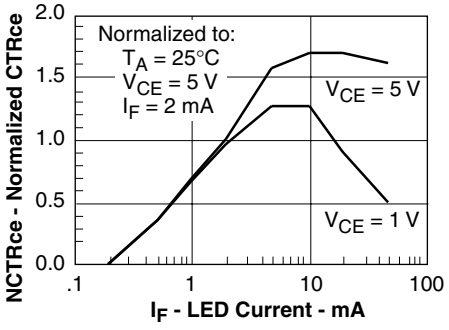


Figure 3. Normalized non-saturated and saturated CTR_{ce} versus LED current

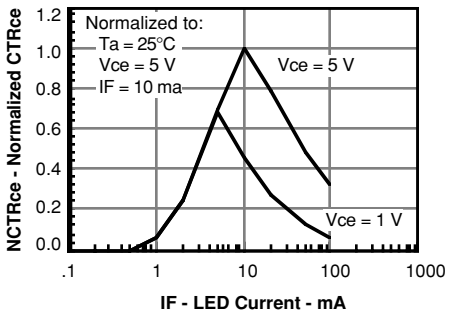
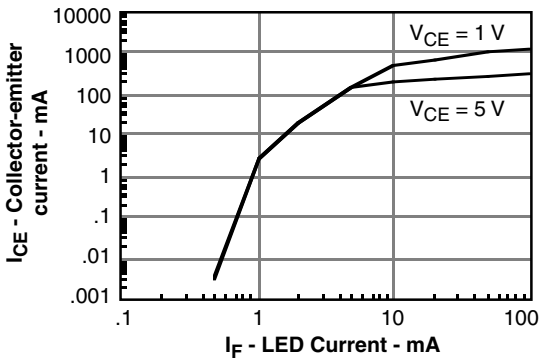


Figure 4. Non-saturated and saturated collector emitter current versus LED current



© 2001 Infineon Technologies Corp. • Optoelectronics Division • San Jose, CA
www.infineon.com/opto • 1-888-Infineon (1-888-463-4636)

Figure 5. Collector-base photocurrent versus LED current

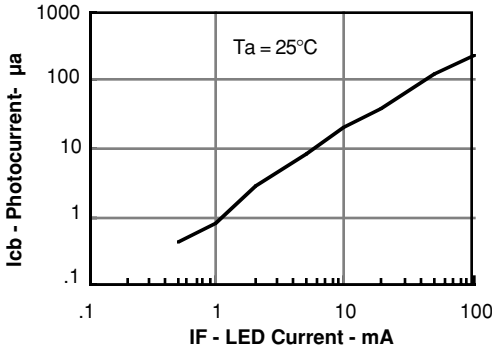


Figure 6. Collector-emitter current versus LED current

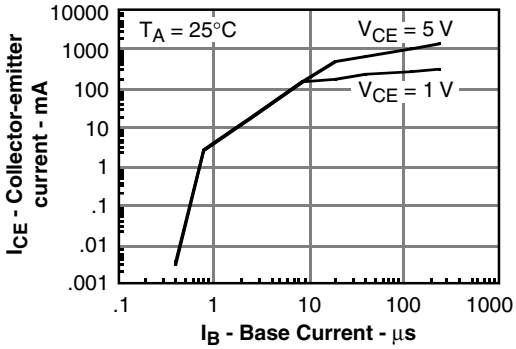


Figure 7. Non-saturated and saturated HFE versus LED current

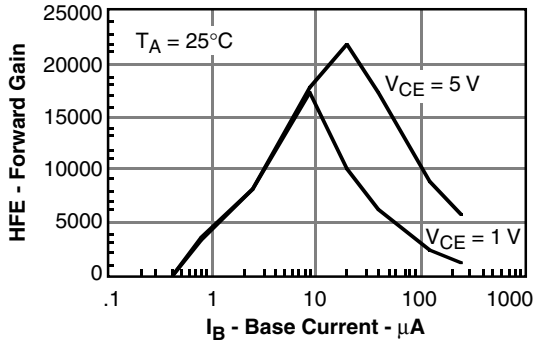


Figure 8. High/low propagation delay versus collector load resistance and LED current

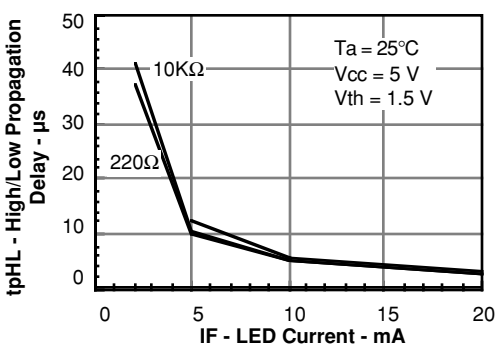


Figure 9. Low/high propagation delay versus collector load resistance and LED current

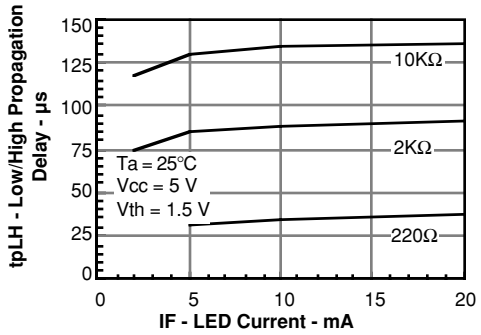


Figure 10. Switching waveform

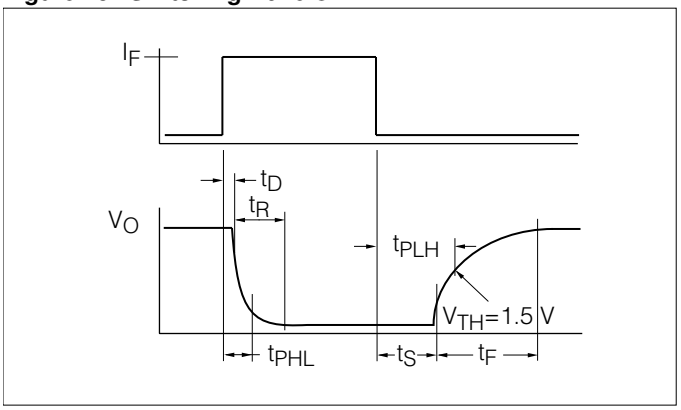
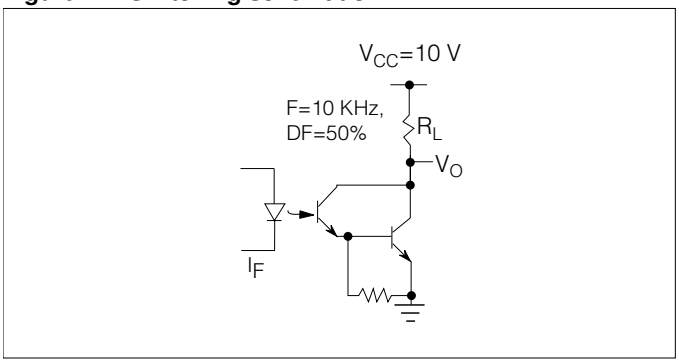


Figure 11. Switching schematic



© 2001 Infineon Technologies Corp. • Optoelectronics Division • San Jose, CA
www.infineon.com/opto • 1-888-Infineon (1-888-463-4636)