

ILD256T

Dual AC Input Phototransistor

Small Outline

Surface Mount Optocoupler

FEATURES

- **Each Channel: Guaranteed CTR Symmetry, 2:1 Maximum**
- **Bidirectional AC Input**
- **Industry Standard SOIC-8 Surface Mountable Package**
- **Standard Lead Spacing, .05"**
- **Available only on Tape and Reel Option (Conforms to EIA Standard 481-2)**

DESCRIPTION

The ILD256T is a dual channel optocoupler. Each channel consists of two infrared emitters connected in anti-parallel and coupled to a silicon NPN phototransistor detector.

These circuit elements are constructed with a standard SOIC-8A footprint.

The product is well suited for telecom applications such as ring detection or off/on hook status, given its bidirectional LED input and guaranteed current transfer ratio (CTR) of 20% at $I_F = 10$ mA.

Maximum Ratings

Emitter (Each Channel)

Continuous Forward Current 30 mA
Power Dissipation at 25°C 50 mW
Derate Linearly from 25°C 0.66 mW/°C

Detector (Each Channel)

Collector-Emitter Breakdown Voltage 70 V
Emitter-Collector Breakdown Voltage 7.0 V
Power Dissipation 125 mW
Derate Linearly from 25°C 1.67 mW/°C

Package

Total Package Dissipation at 25°C Ambient (LED + Detector) 300 mW
Derate Linearly from 25°C 4.0 mW/°C
Storage Temperature -55°C to +150°C
Operating Temperature -55°C to +100°C
Soldering Time at 260°C 10 sec.

Dimensions in inches (mm)

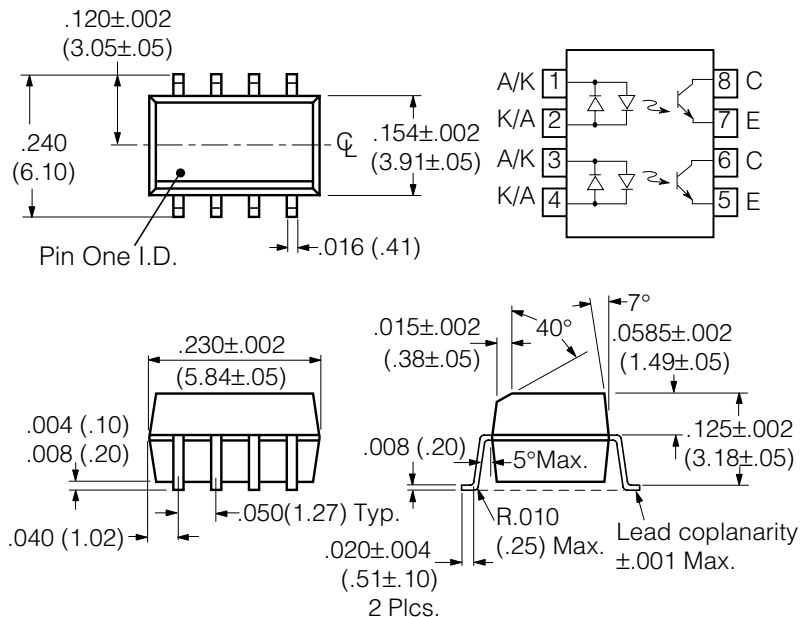


Table 1. Characteristics $T_A = 25^\circ\text{C}$

	Sym.	Min.	Typ.	Max.	Unit	Condition
Emitter (Each Channel)						
Forward Voltage	V_F	—	1.2	1.55	V	$I_F = \pm 10$ mA
Reverse Current	I_R	—	0.1	100	mA	$V_R = 6.0$ V
Detector (Each Channel)						
Breakdown Voltage	BV_{CEO}	70	—	—	V	$I_C = 10$ μ A
	BV_{ECO}	7.0	—	—	V	$I_E = 10$ μ A
Leakage Current, Collector-Emitter	I_{CEO}	—	5.0	50	nA	$V_{CE} = 10$ V
Package						
DC Current Transfer	CTR	20	—	—	%	$I_F = \pm 10$ mA $V_{CE} = 5.0$ V
Symmetry CTR at + 10 mA CTR at -10 mA	—	0.5	1.0	2.0	—	—
Saturation Voltage, Collector-Emitter	V_{CEsat}	—	—	0.4	—	$I_F = \pm 16$ mA $I_C = 2.0$ mA
Isolation Voltage, Input to Output	V_{IO}	3000	—	—	V_{RMS}	t=1.0 sec.

Figure 1. LED forward current versus forward voltage

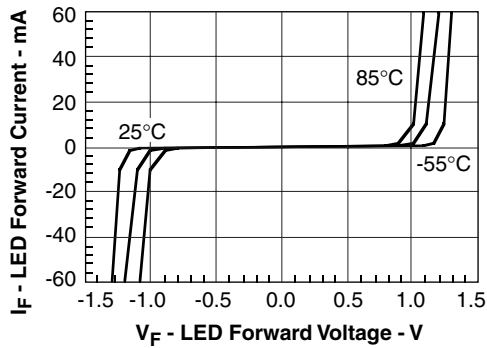


Figure 2. Forward voltage versus forward current

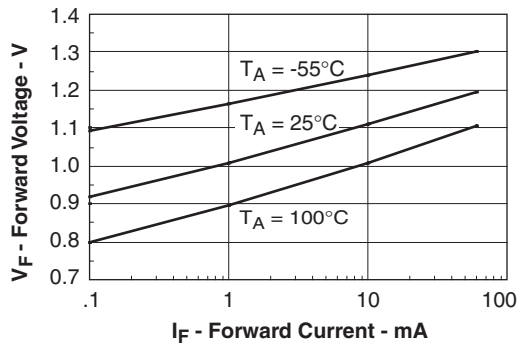


Figure 3. Peak LED current versus duty factor, Tau

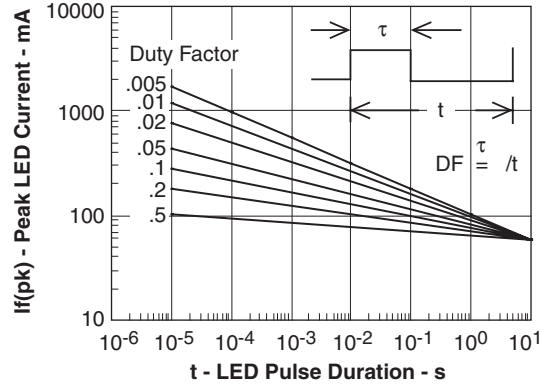


Figure 4. Normalized CTR versus I_F and T_A

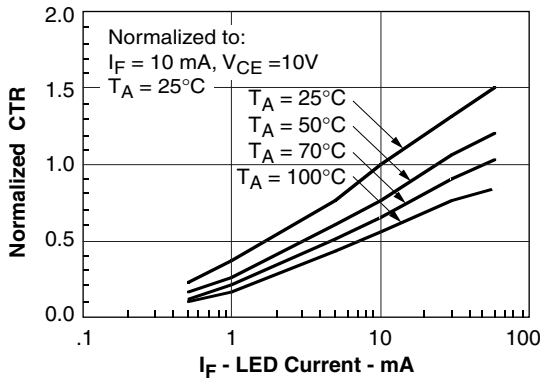


Figure 5. Normalized saturated CTR

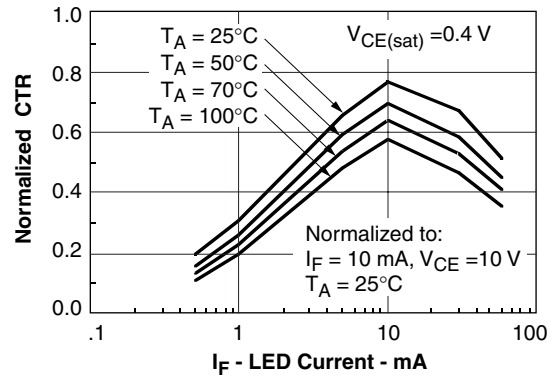


Figure 6. Normalized CTR_{cb}

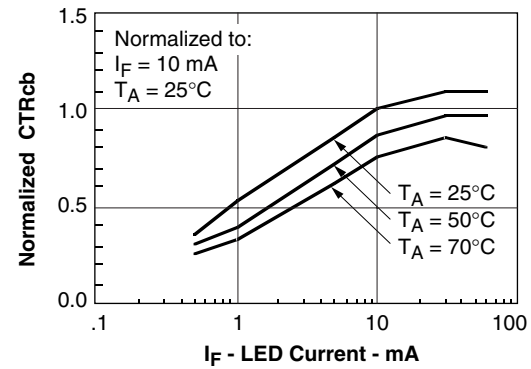


Figure 7. Photocurrent versus LED current

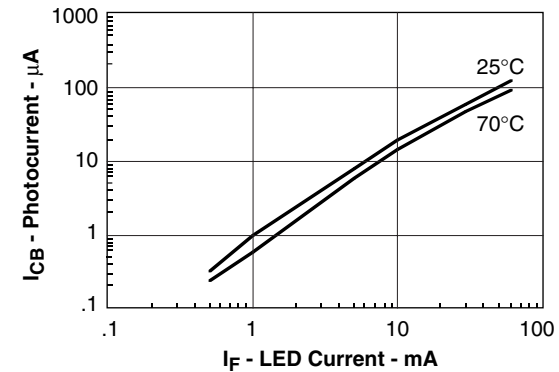


Figure 8. Base current versus I_F and HFE

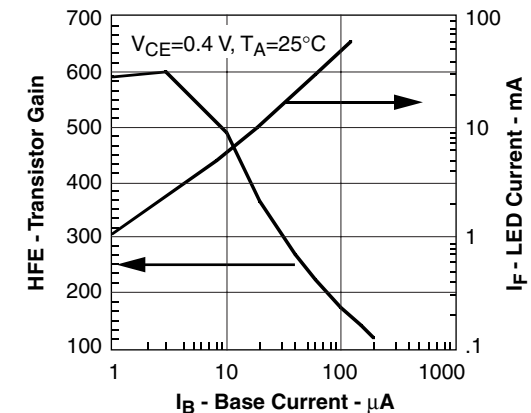


Figure 9. Normalized HFE versus I_B , T_A

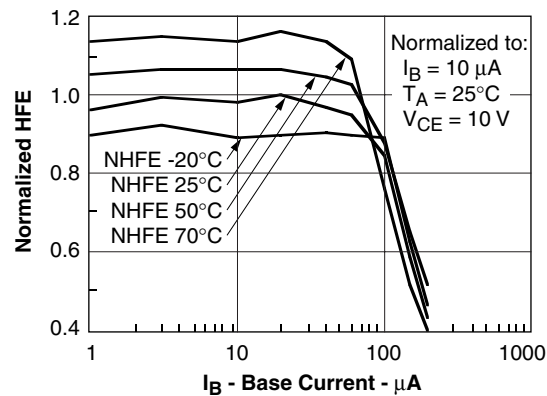


Figure 10. Normalized saturated HFE versus I_B

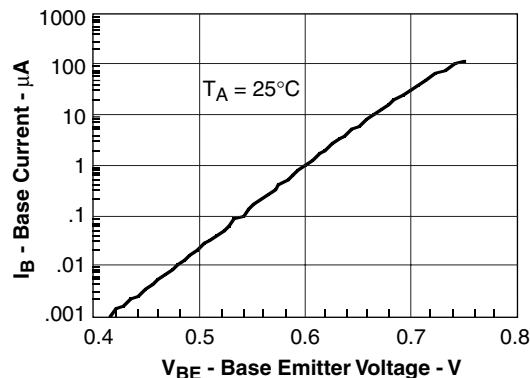


Figure 11. Base emitter voltage versus base

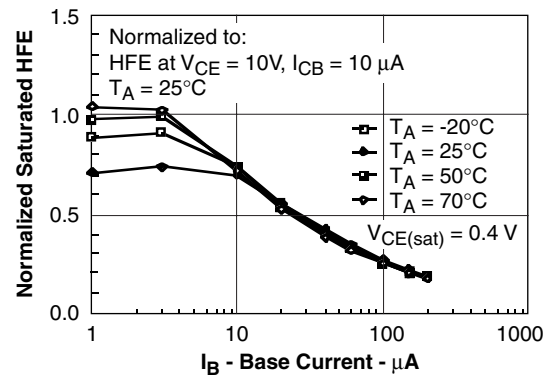


Figure 12. Collector-emitter leakage current versus temperature

