

ILD256 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 in Tape and Reel Option (Conforms to EIA Standard 481-2)**

DESCRIPTION

The ILD256 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-8 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 $I_F = 10 \text{ mA}$.

Maximum Ratings

Emitter (Each Channel)

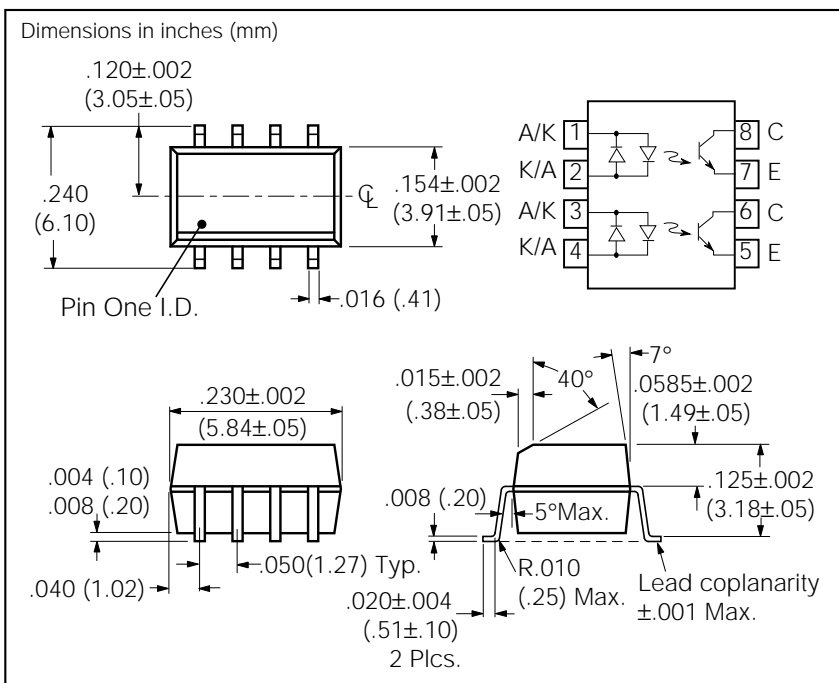
Continuous Forward Current 30 mA
Power Dissipation at 25°C 45 mW
Derate Linearly from 25°C 0.5 mW/°C

Detector (Each Channel)

Collector-Emitter Breakdown Voltage 70 V
Emitter-Collector Breakdown Voltage 7 V
Power Dissipation 55 mW
Derate Linearly from 25°C 0.55 mW/°C

Package

Total Package Dissipation at 25°C Ambient
(LED + Detector) 200 mW
Derate Linearly from 25°C 2.0 mW/°C
Storage Temperature -55°C to +150°C
Operating Temperature -55°C to +100°C
Soldering Time at 260°C 10 sec.



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	$I_F = \pm 10 \text{ mA}$
Reverse Current	I_R		0.1	100	mA	$V_R = 6.0 \text{ V}$
Detector (Each Channel)						
Breakdown Voltage Collector-Emitter Emitter-Collector	BV_{CEO} BV_{ECO}	70 7			V V	$I_C = 10 \mu\text{A}$ $I_E = 10 \mu\text{A}$
Leakage Current, Collector-Emitter	I_{CEO}		5	50	nA	$V_{CE} = 10 \text{ V}$
Package						
DC Current Transfer	CTR	20			%	$I_F = \pm 10 \text{ mA}$, $V_{CE} = 5 \text{ V}$
Symmetry CTR at + 10 mA CTR at -10 mA		0.5	1.0	2.0		
Saturation Voltage, Collector-Emitter	V_{CEsat}			0.4		$I_F = \pm 16 \text{ mA}$, $I_C = 2 \text{ mA}$
Isolation Voltage, Input to Output	V_{IO}	2500			VAC _{RMS}	$t = 1 \text{ min.}$

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Figure 1. LED forward current versus forward voltage

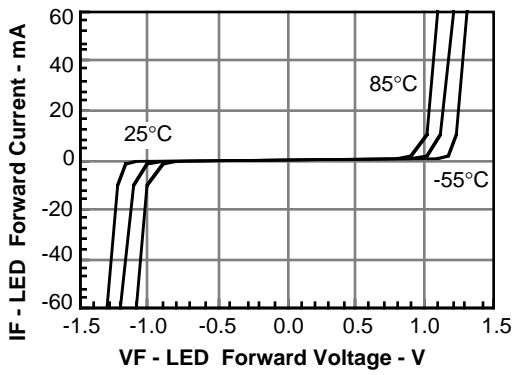


Figure 2. Forward voltage versus forward current

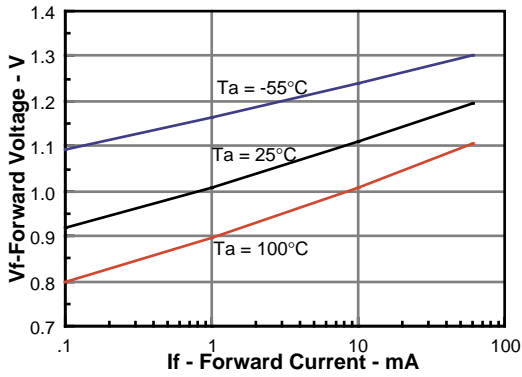


Figure 3. Peak LED current versus duty factor, Tau

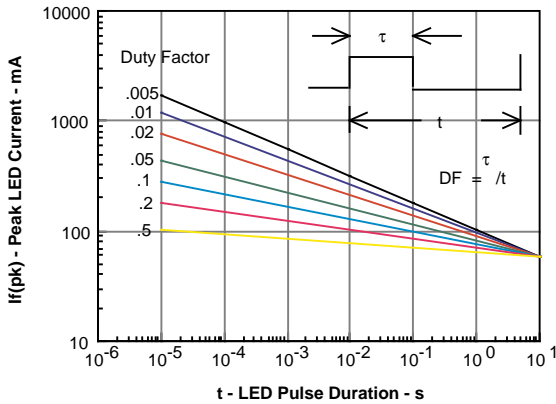


Figure 4. Normalized CTR versus If and Ta

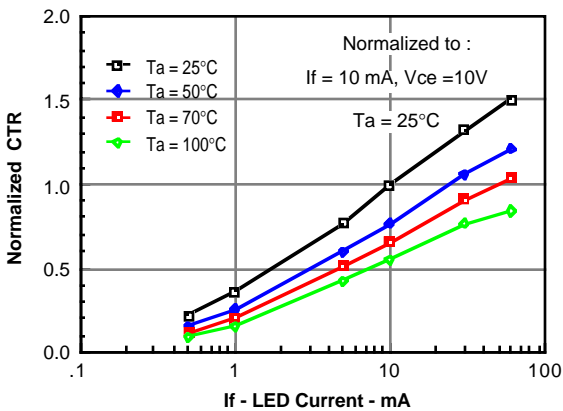


Figure 5. Normalized saturated CTR

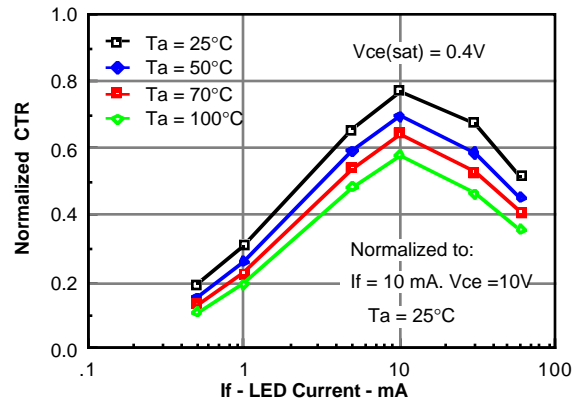


Figure 6. Normalized CTRcb

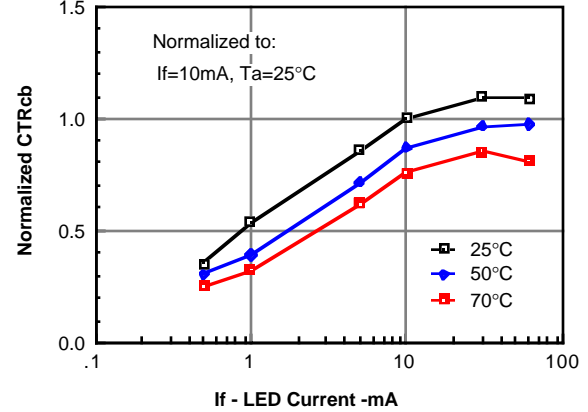


Figure 7. Photocurrent versus LED current

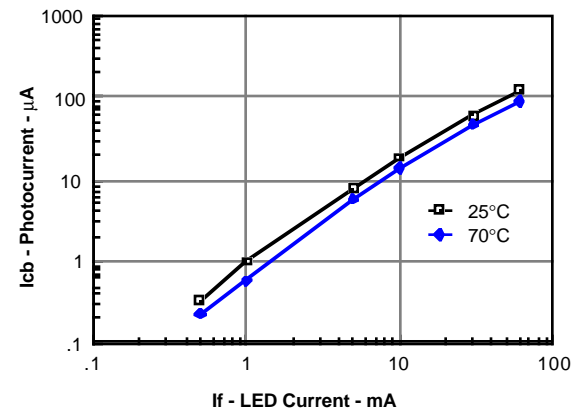


Figure 8. Base current versus If and HFE

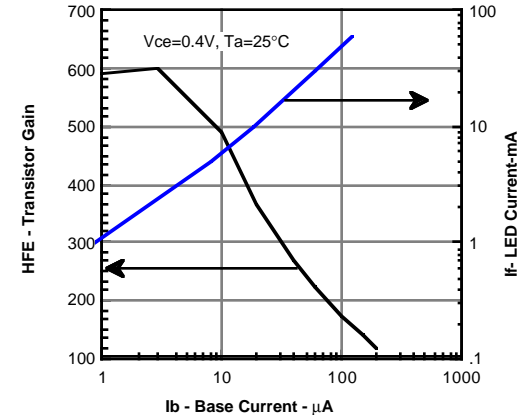


Figure 9. Normalized HFE versus I_b , T_a

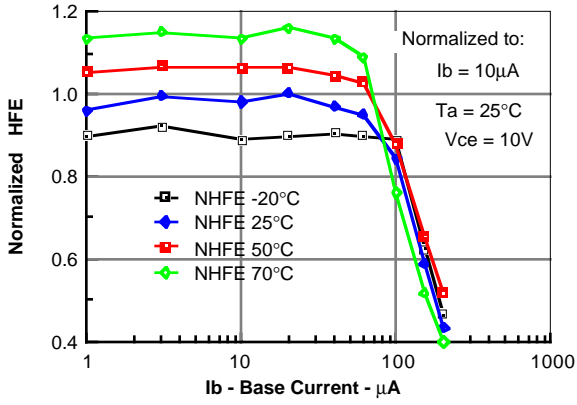


Figure 11. Base emitter voltage versus base

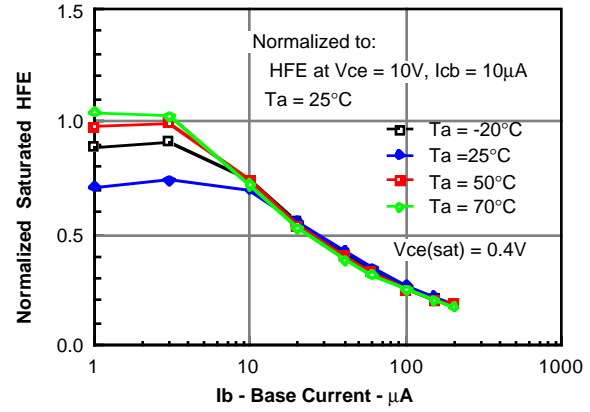


Figure 10. Normalized saturated HFE versus I_b

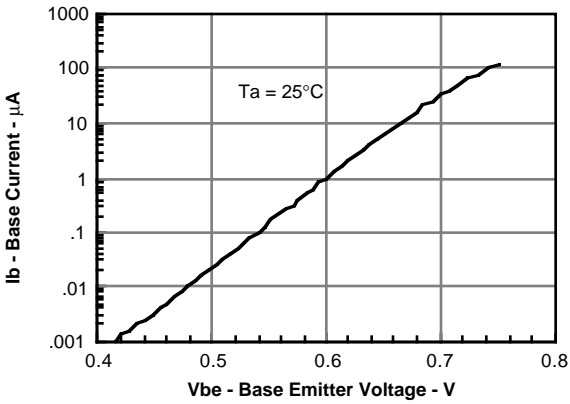


Figure 12. Collector-emitter leakage current versus temperature

