



AC Input Phototransistor Small Outline Surface Mount Optocoupler

FEATURES

- **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 RS481A)
- **Underwriters Lab File #E52744**
(Code Letter Y)
-  **VDE 0884 Available with Option 1**

DESCRIPTION

The IL256A is an AC input phototransistor optocoupler. The device 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 foot print.

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) minimum of 20% at $I_F=10$ mA.

Maximum Ratings**Emitter**

Continuous Forward Current 60 mA
Power Dissipation at 25°C 90 mW
Derate Linearly from 25°C 0.8mW/°C

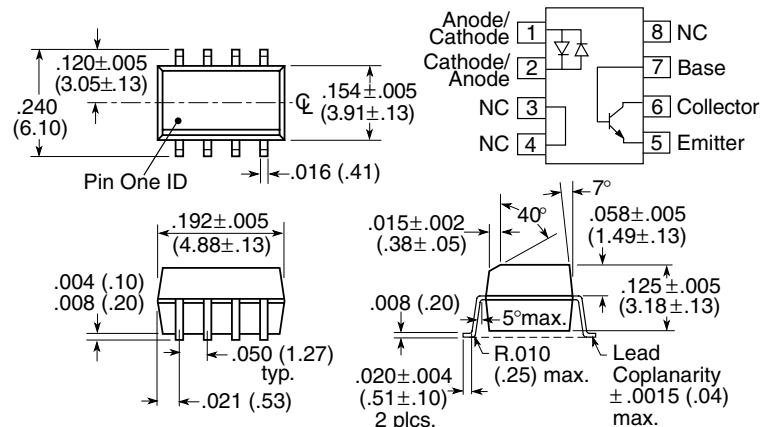
Detector

Collector-Emitter Breakdown Voltage 30 V
Emitter-Collector Breakdown Voltage 5.0 V
Collector-Base Breakdown Voltage 70 V
Power Dissipation 150 mW
Derate Linearly from 25°C 2.0mW/°C

Package

Total Package Dissipation at 25°C Ambient
(LED + Detector) 240 mW
Derate Linearly from 25°C 3.2mW/°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)

**Characteristics $T_A=25^\circ\text{C}$**

	Symbol	Min.	Typ.	Max.	Unit	Condition
Emitter						
Forward Voltage	V_F	—	1.2	1.5	V	$I_F=\pm 10$ mA
Detector						
Breakdown Voltage	BV_{CEO}	30	50	—	V	$I_C=1.0$ mA
	BV_{ECO}	5.0	10	—	V	$I_E=100$ μ A
	BV_{CBO}	70	90	—	V	$I_C=100$ μ A
Leakage Current, Collector-Emitter	I_{CEO}	—	5.0	50	nA	$V_{CE}=10$ V
Package						
DC Current Transfer Ratio	CTR	20	—	—	%	$I_F=\pm 10$ mA, $V_{CE}=5.0$ V
Symmetry CTR at +10mA CTR at -10mA	—	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}	—

Figure 1. LED forward current versus forward voltage

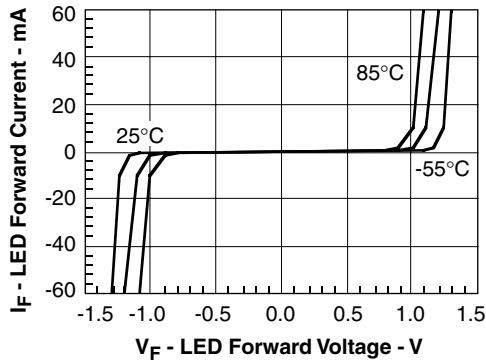


Figure 2. Forward voltage versus forward current

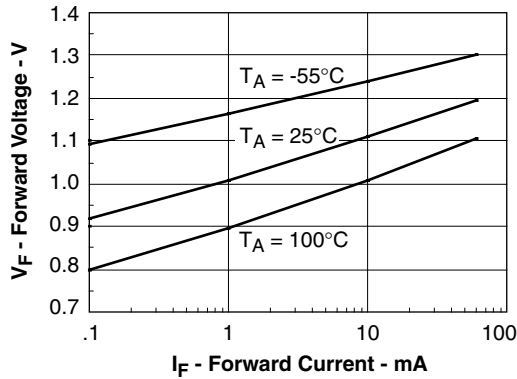


Figure 3. Peak LED current versus duty factor, Tau

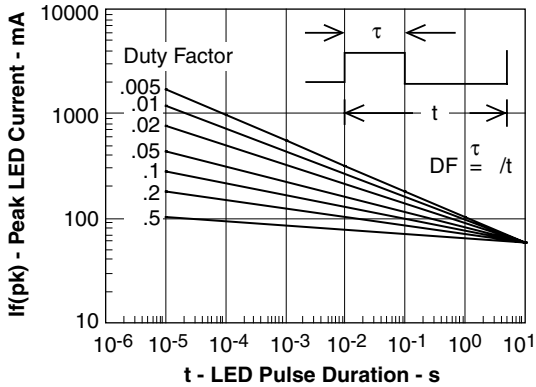


Figure 4. Normalized CTR versus I_F and T_A

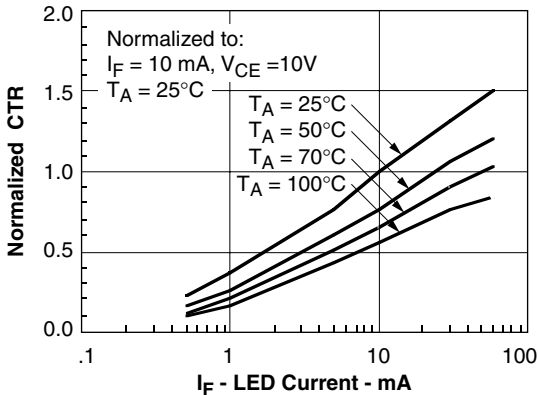


Figure 5. Normalized saturated CTR

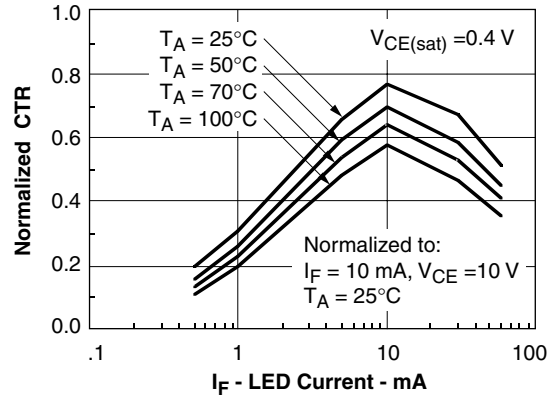


Figure 6. Normalized CTR_{cb}

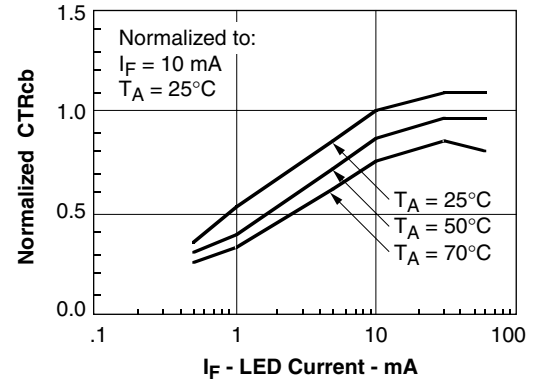


Figure 7. Photocurrent versus LED current

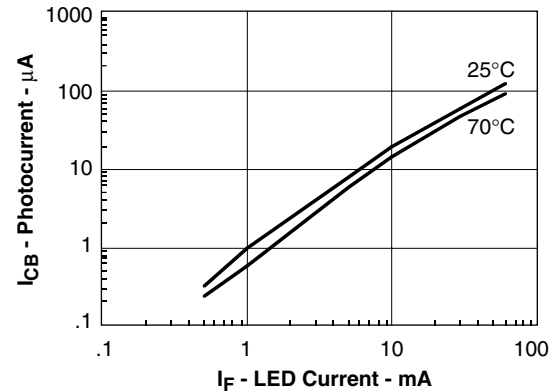


Figure 8. Base current versus I_F and HFE

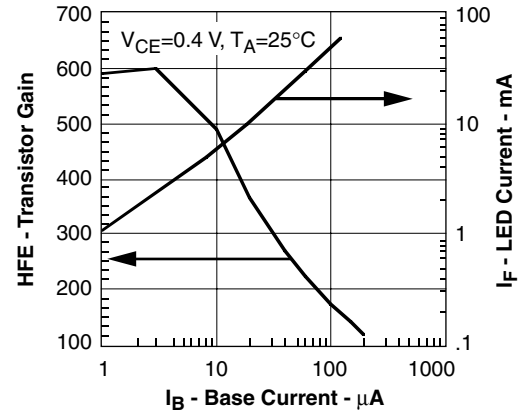


Figure 9. Normalized HFE versus I_B , T_A

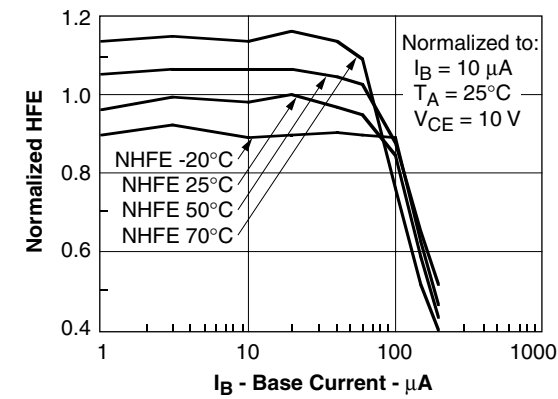


Figure 10. Normalized saturated HFE versus I_B

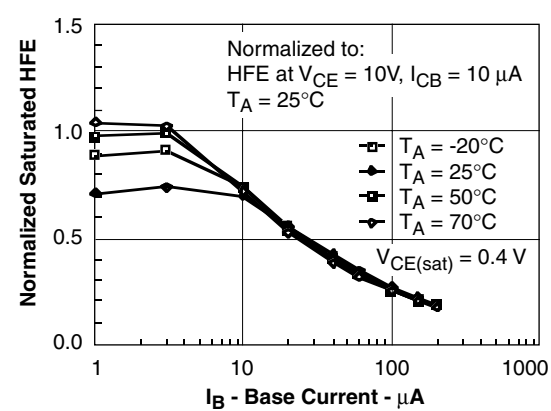


Figure 11. Base emitter voltage versus base current

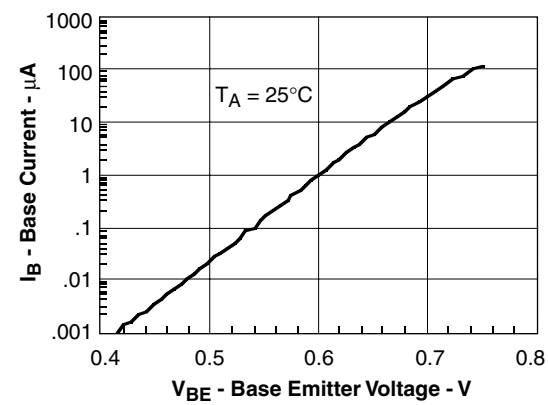


Figure 12. Collector-emitter leakage current versus temperature

