IL256AT

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)**

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 ..... 0.8 mW/°C

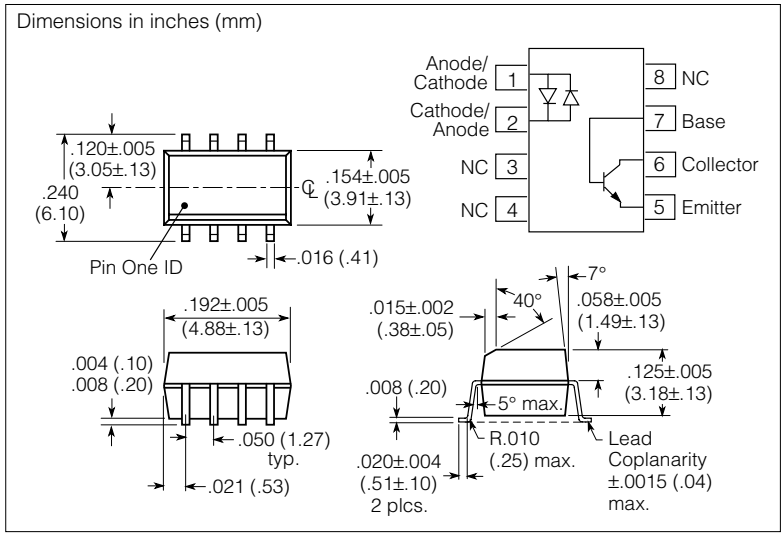
Detector

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 ..... 2.0 mW/°C

Package

Total Package Dissipation at 25°C Ambient (LED + Detector)..... 240 mW
Derate Linearly from 25°C ..... 3.1 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)



Characteristics T_A=25°C

	Symbol	Min.	Typ.	Max.	Unit	Condition
Emitter						
Forward Voltage	V_F	—	1.2	1.5	V	I_F=±10 mA
Detector						
Breakdown Voltage	BV_{CEO}	30	50	—	V	I_C=1.0 mA, I_E=100 µA, I_C=100 µA
	BV_{ECO}	5.0	10	—		
	BV_{CBO}	70	90	—		
Leakage Current, Collector-Emitter	I_{CEO}	—	5.0	50	nA	V_{CE}=10 V
Package						
DC Current Transfer Ratio	CTR	20	—	—	%	I_F=±10 mA, V_{CE}=5.0 V
Symmetry CTR at +10mA / CTR at –10 mA	—	0.5	1.0	2.0	—	—
Saturation Voltage, Collector-Emitter	V_{CEsat}	—	—	0.4	—	I_F=±16 mA, I_C=2.0 mA
Isolation Voltage, Input to Output	V_{IO}	2500	—	—	V_{RMS}	—

Figure 1. LED forward current versus forward voltage

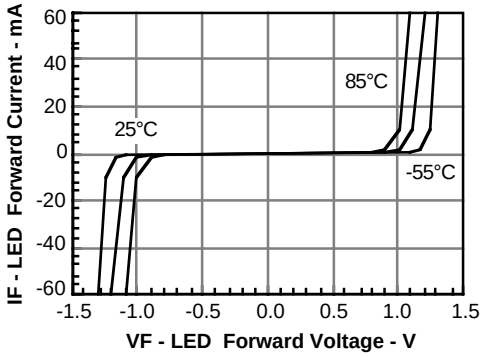


Figure 2. Forward voltage versus forward current

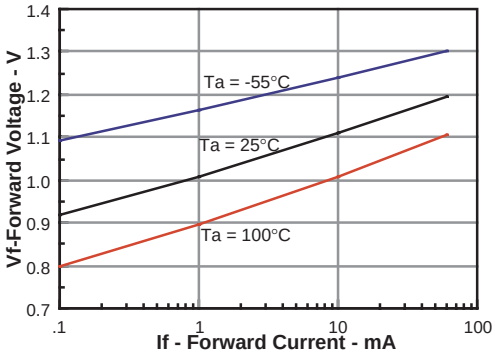


Figure 3. Peak LED current versus duty factor, Tau

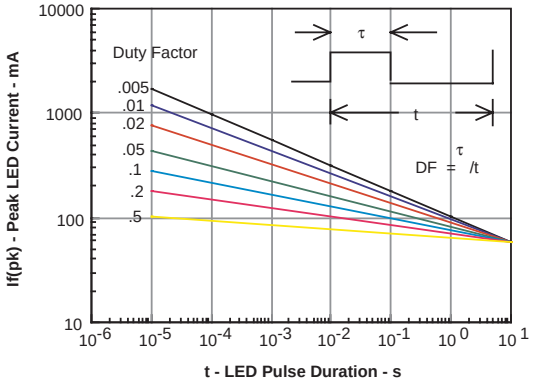


Figure 4. Normalized CTR versus I_F and Ta

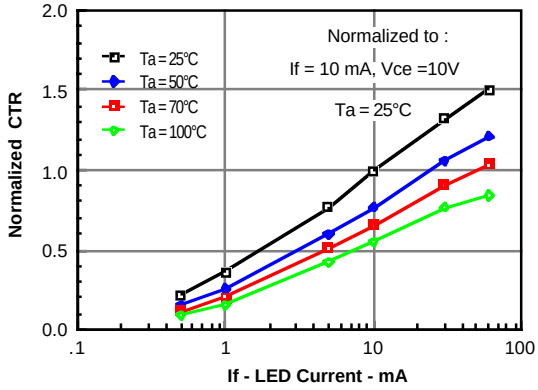


Figure 5. Normalized saturated CTR

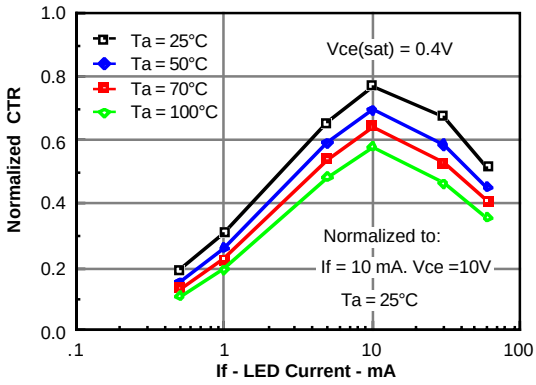


Figure 6. Normalized CTR_{cb}

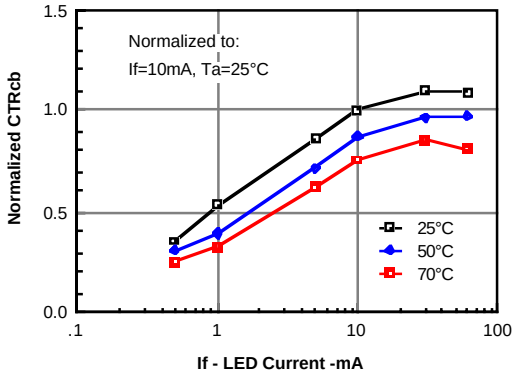


Figure 7. Photocurrent versus LED current

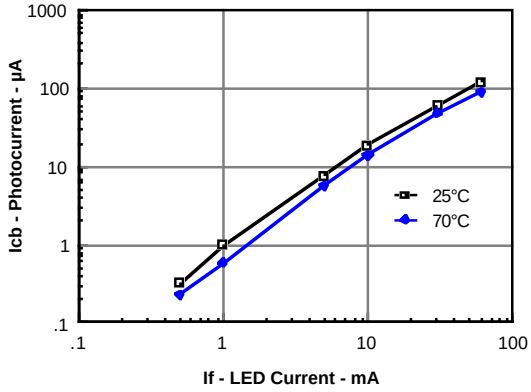


Figure 8. Base current versus I_F and HFE

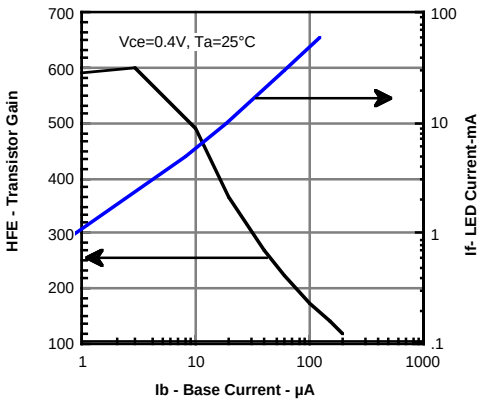


Figure 9. Normalized HFE versus Ib, Ta

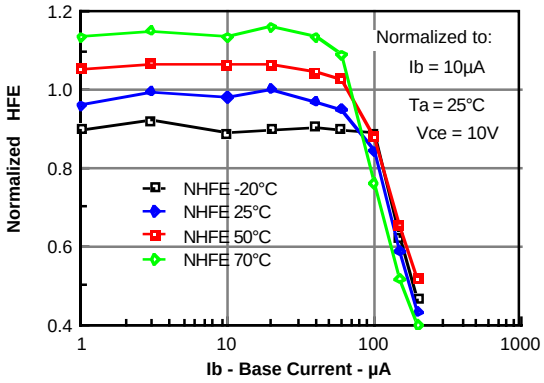


Figure 10. Normalized saturated HFE versus Ib

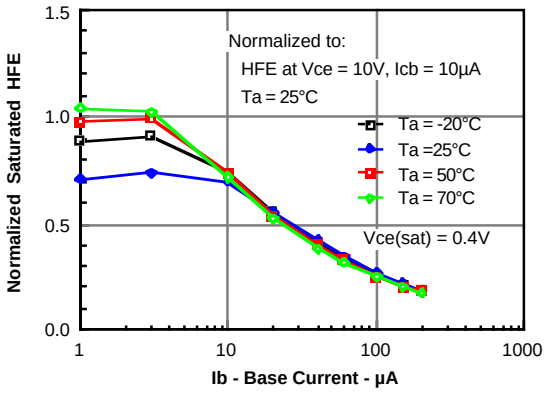


Figure 11. Base emitter voltage versus base current

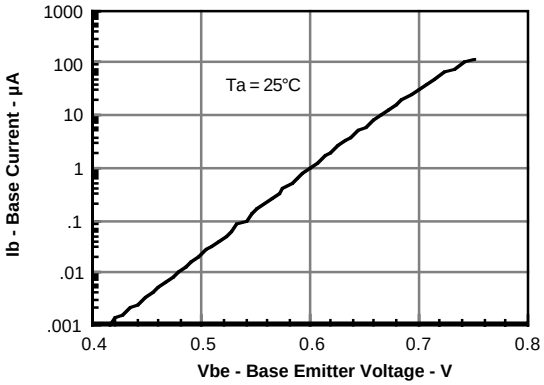


Figure 12. Collector-emitter leakage current versus temperature