SIEMENS

NEW

IL256A

AC INPUT PHOTOTRANSISTOR SMALL OUTLINE SURFACE MOUNT OPTOCOUPLER

FEATURES

- **Guranteed 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 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

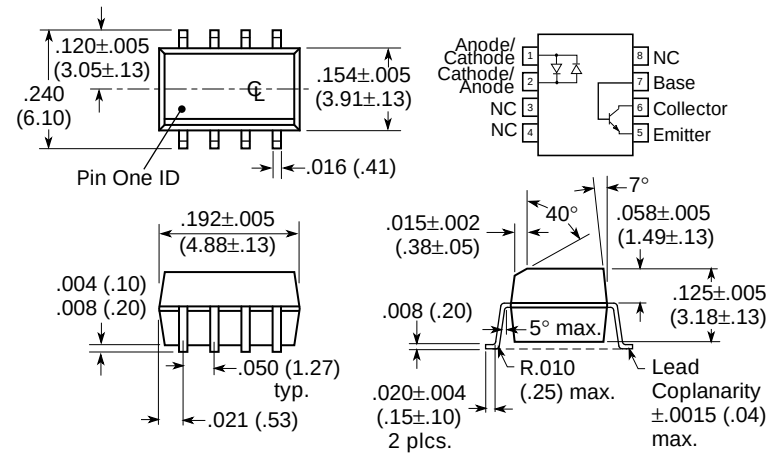
Detector

Collector-Emitter Breakdown Voltage ..... 30 V
Emitter-Collector Breakdown Voltage ..... 5 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 Collector-Emitter Emitter-Collector Collector Base	 BV_{CEO} BV_{ECO} BV_{CBO}	 30 5 70	 50 10 90		 V V V	 I_C=1 mA I_E=100 µA I_C=100 µA
Leakage Current, Collector-Emitter	I_{CEO}		5	50	nA	V_{CE}=10 V
Package						
DC Current Transfer Ratio	CTR	20			%	I_F=±10 mA, V_{CE}=5 V
Symmetry $\frac{\text{CTR at +10mA}}{\text{CTR at –10 mA}}$		0.5	1.0	2.0		
Saturation Voltage, Collector-Emitter	V_{CEsat}			0.4		I_F=±16 mA, I_C=2 mA
Isolation Voltage, Input to Output	V_{IO}	2500			VAC_{RMS}	

Figure 1. LED forward current versus forward voltage

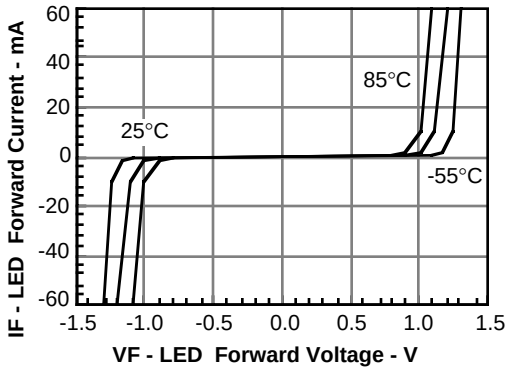


Figure 2. Forward voltage versus forward current

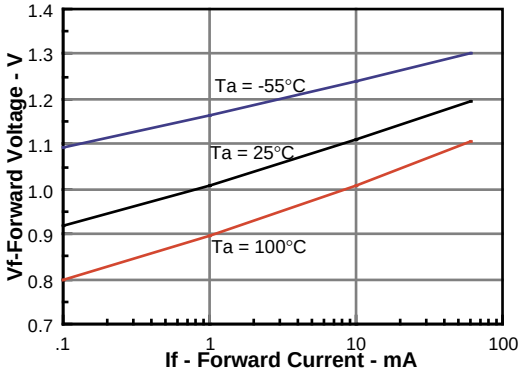


Figure 3. Peak LED current versus duty factor, Tau

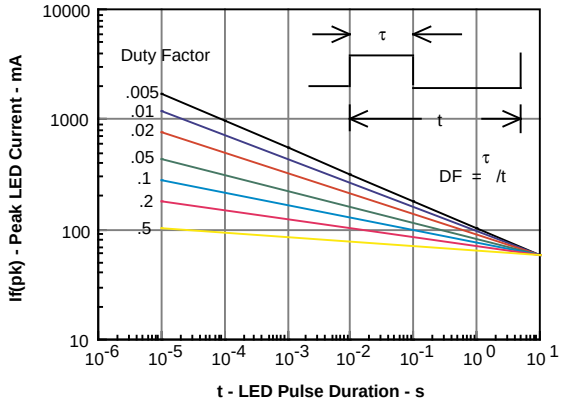


Figure 4. Normalized CTR versus If and Ta

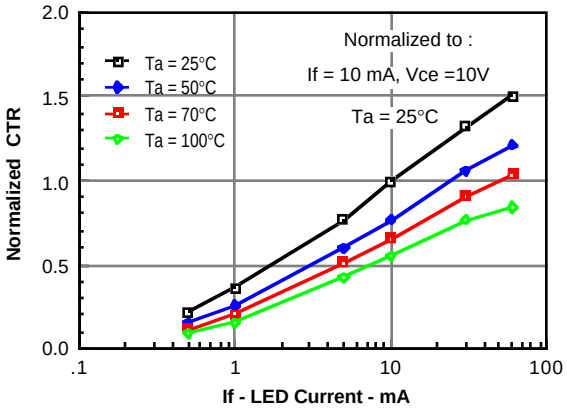


Figure 5. Normalized saturated CTR

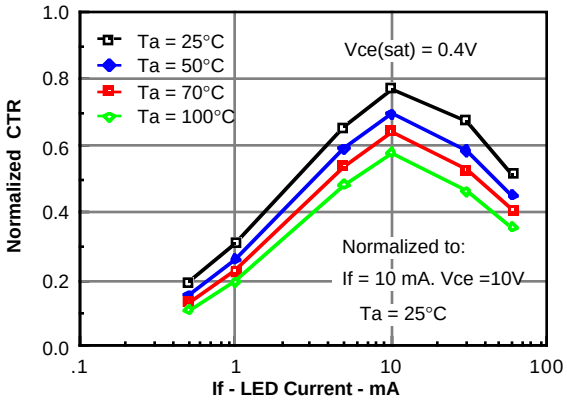


Figure 6. Normalized CTRcb

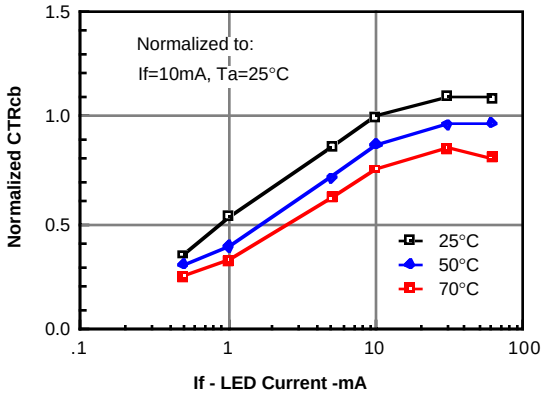


Figure 7. Photocurrent versus LED current

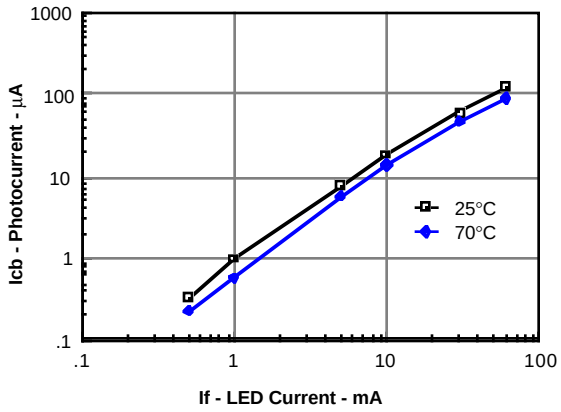


Figure 8. Base current versus If and HFE

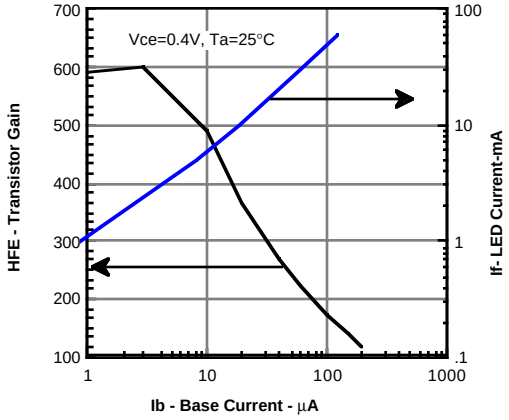


Figure 9. Normalized HFE versus Ib, Ta

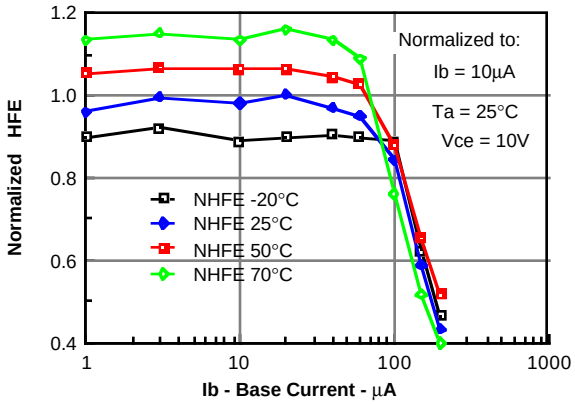


Figure 10. Normalized saturated HFE versus Ib

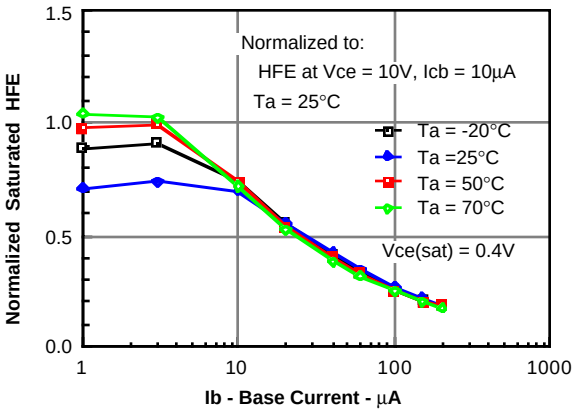


Figure 11. Base emitter voltage versus base current

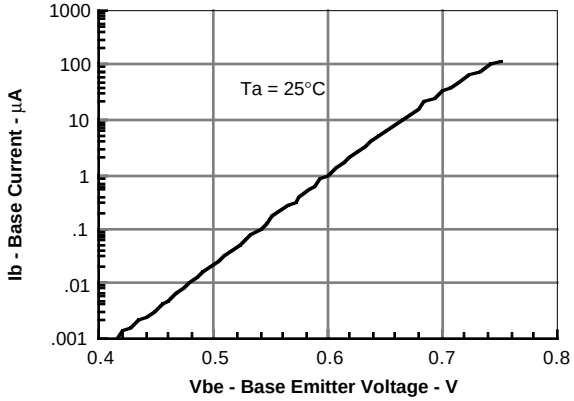


Figure 12. Collector-emitter leakage current versus temperature