SIEMENS

DUAL CHANNEL ILD255

Bidirectional Input Optocoupler

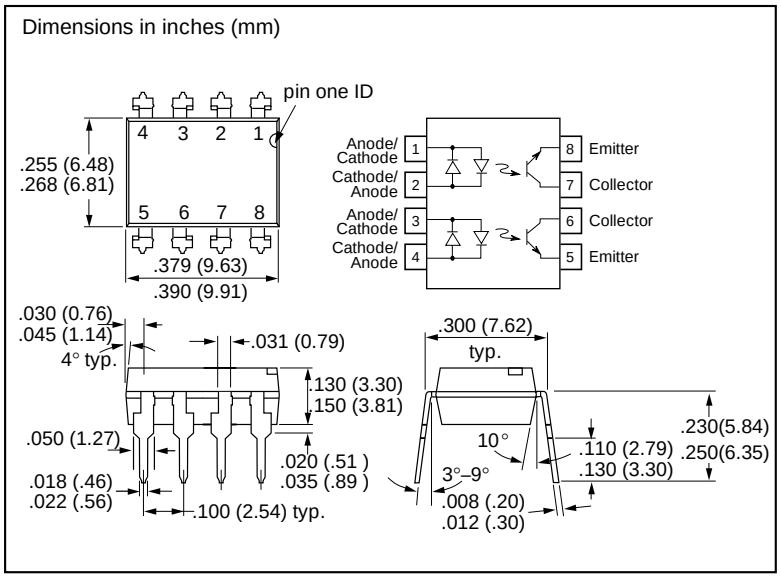
FEATURES

- **AC or Polarity Insensitive Inputs**
- **Continuous Forward Current, 130 mA**
- **Applications—Telecommunications**
  - **Ring Detection**
  - **Loop Current Detector**
- **Built-in Reverse Polarity Input Protection**
- **Improved CTR Symmetry**
- **Industry Standard DIP Package**
- **Underwriters Lab File #E52744**
- **VDE 0884 Available with Option 1**

DESCRIPTION

The ILD255 is a bidirectional input optically coupled isolator consisting of two high current Gallium Arsenide infrared LEDs coupled to a silicon NPN phototransistor per channel. The ILD255 has a minimum CTR of 50%

These optocouplers are ideal for applications requiring AC signal detection and monitoring.



Maximum Ratings (Each Channel)

Emitter

Peak Pulsed Current (1 µs, 300 pps) ..... 3 A
Continuous Forward Current .....130 mA RMS
Power Dissipation at 25°C ..... 175 mW
Derate Linearly from 25°C..... 2.3mW/°C

Detector

Collector-Emitter Breakdown Voltage..... 30 V
Emitter-Base Breakdown Voltage..... 5 V
Power Dissipation at 25°C ..... 200 mW
Derate Linearly from 25°C..... 2.6 mW/°C

Package

Isolation Test Voltage (between emitter and detector referred to standard climate 23°C/50%RH, DIN 50014) .....5300 VAC_{RMS}
Creepage .....min. 7 mm
Clearance.....min. 7 mm
Isolation Resistance
V_{IO}=500 V, T_A=25°C ..... $R_{IO} \geq 10^{12}\ \Omega$
V_{IO}=500 V, T_A=100°C ..... $R_{IO} \geq 10^{11}\ \Omega$
Total Dissipation at 25°C ..... 400 mW
Derate Linearly from 25°C..... 5.3 mW/°C
Storage Temperature ..... –55°C to +150°C
Operating Temperature ..... –55°C to +100°C
Lead Soldering Time at 260°C.....10 sec.

Electrical Characteristics T_A=25°C

Parameter	Mln.	Typ.	Max.	Unit	Condition
Emitter					
Forward Voltage V_F		1.2	1.5	V	I_F=±10 mA
Detector					
BV_{CEO}	30	50		V	I_C=10 mA
BV_{ECO}	7	10		V	I_E=10 µA
I_{CEO}		5	50	nA	V_{CE}=10 V
Package					
V_{CEsat}			0.4	V	I_F=±16 mA, I_C=2 mA
DC Current Transfer Ratio	50			%	I_F=±10mA, V_{CE}=10 V
Symmetry $\frac{\text{CTR at +10 mA}}{\text{CTR at –10 mA}}$	0.50	1.0	2.0		

Figure 1. LED forward current versus forward voltage

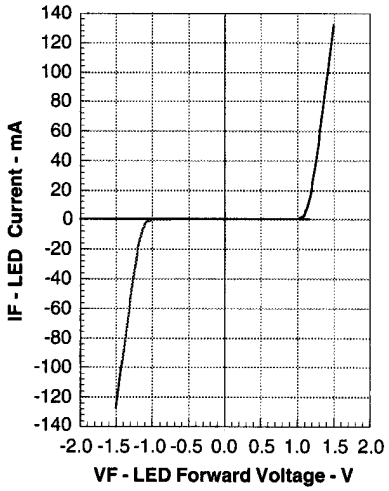


Figure 2. Maximum LED current versus ambient temperature

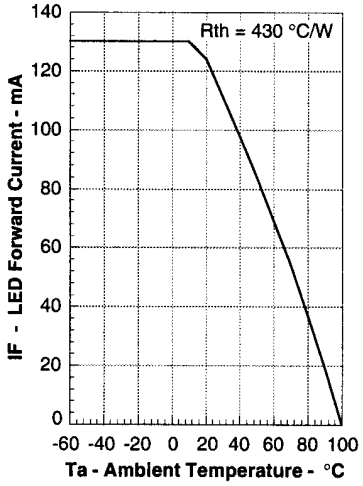


Figure 3. Maximum LED power dissipation

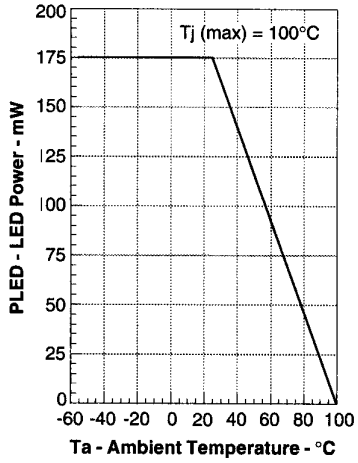


Figure 4. Current transfer ratio versus LED current and collector-emitter voltage

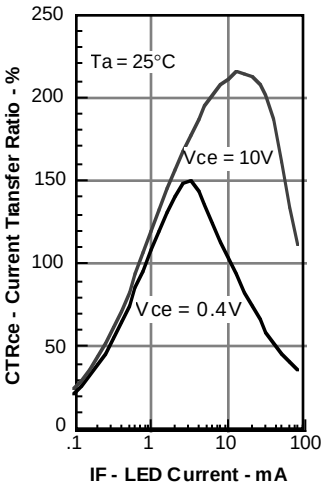


Figure 5. Saturated and nonsaturated collector-emitter current versus LED current

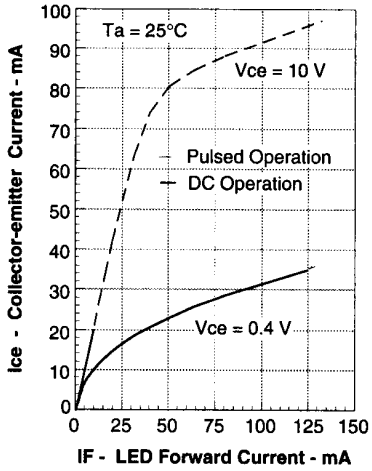


Figure 6. Saturated and nonsaturated collector-emitter current versus LED current

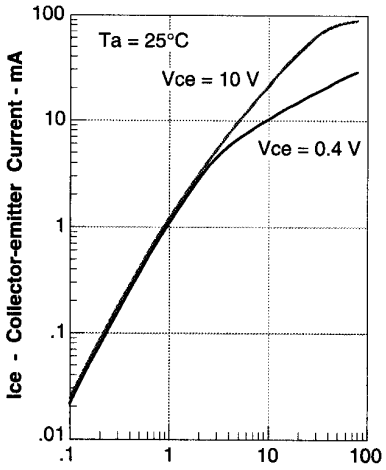


Figure 7. Collector emitter current versus collector emitter voltage