


# 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

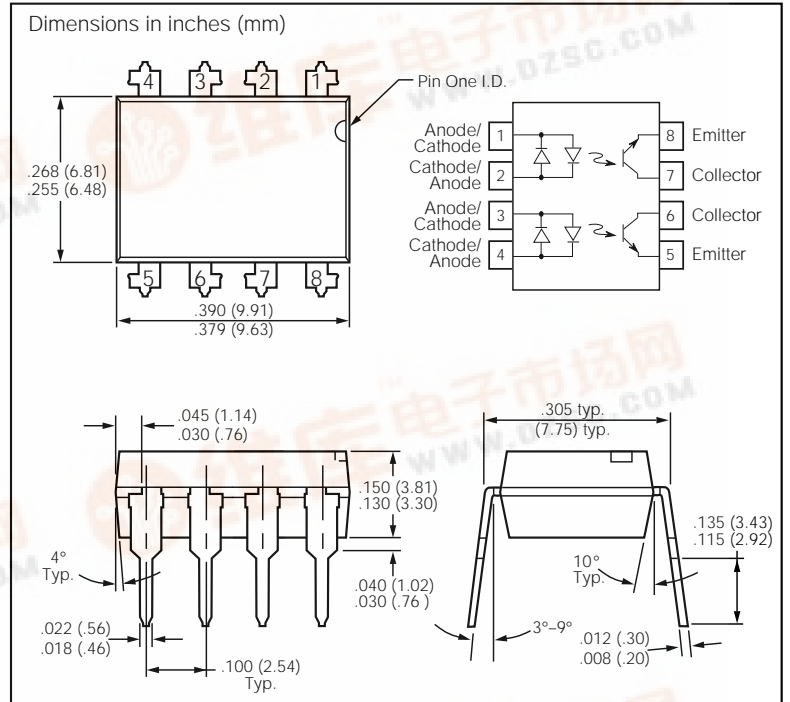
Peak Pulsed Current (1  $\mu$ s, 300 pps)..... 3 A  
 Continuous Forward Current.....130 mA RMS  
 Power Dissipation at 25°C ..... 175 mW  
 Derate Linearly from 25°C ..... 2.3mW/°C

#### 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<sub>RMS</sub>  
 Creepage.....min. 7 mm  
 Clearance .....min. 7 mm  
 Isolation Resistance  
 $V_{IO}=500$  V,  $T_A=25^\circ\text{C}$ .....  $R_{IO}\geq 10^{12}$   $\Omega$   
 $V_{IO}=500$  V,  $T_A=100^\circ\text{C}$ .....  $R_{IO}\geq 10^{11}$   $\Omega$   
 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 ( $T_A=25^\circ\text{C}$ )

Parameter	Min.	Typ.	Max.	Unit	Condition
<b>Emitter</b>					
Forward Voltage $V_F$		1.2	1.5	V	$I_F=\pm 10$ mA
<b>Detector</b>					
$BV_{CEO}$	30	50		V	$I_C=10$ mA
$BV_{ECO}$	7	10		V	$I_E=10$ $\mu$ A
$I_{CEO}$		5	50	nA	$V_{CE}=10$ V
<b>Package</b>					
$V_{CESat}$			0.4	V	$I_F=\pm 16$ mA, $I_C=2$ mA
DC Current Transfer Ratio	50			%	$I_F=\pm 10$ mA, $V_{CE}=10$ V
Symmetry	$\frac{CTR \text{ at } +10 \text{ mA}}{CTR \text{ at } -10 \text{ mA}}$		0.50	1.0	2.0



Figure 1. LED forward current versus forward voltage

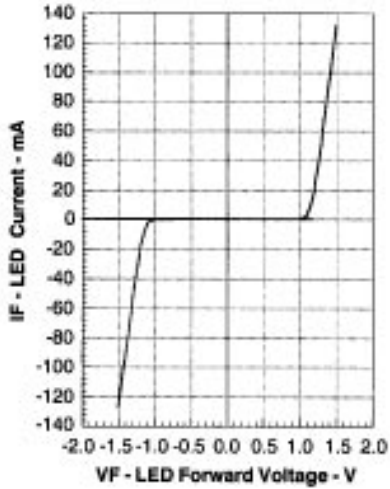


Figure 4. Current transfer ratio versus LED current and collector-emitter voltage

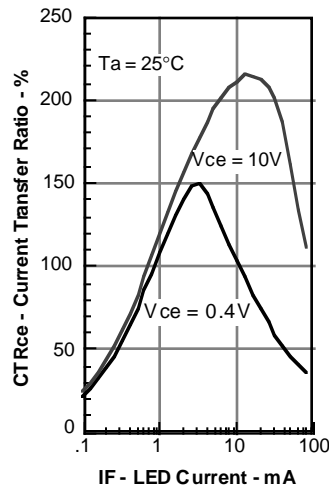


Figure 6. Saturated and nonsaturated collector-emitter current versus LED current

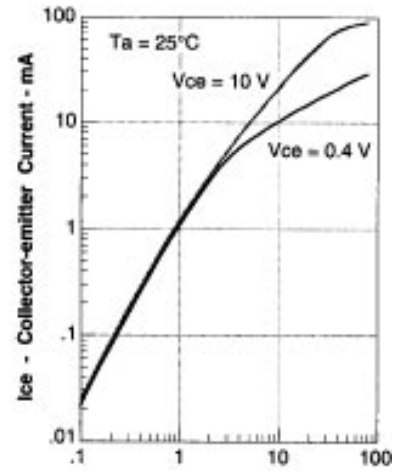


Figure 2. Maximum LED current versus ambient temperature

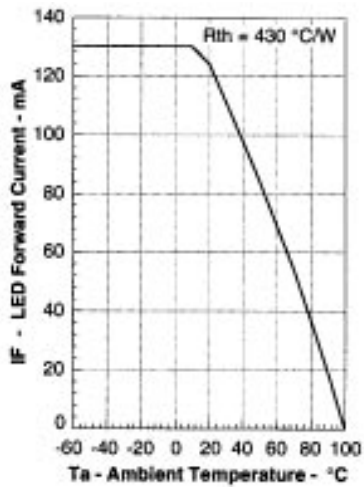


Figure 5. Saturated and nonsaturated collector-emitter current versus LED current

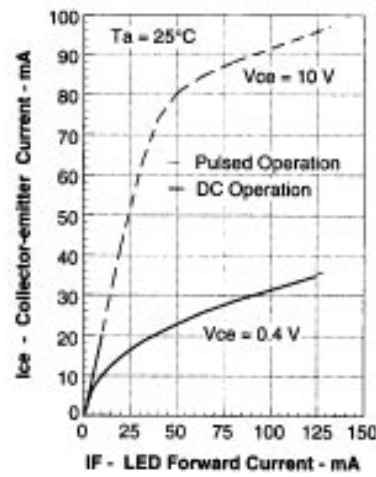


Figure 3. Maximum LED power dissipation

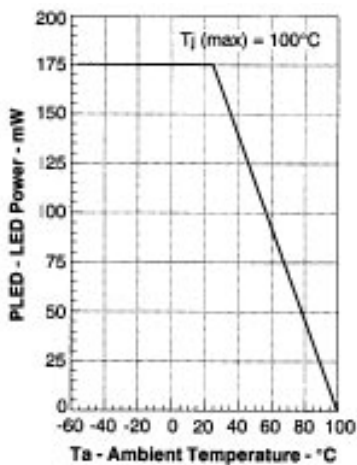


Figure 7. Collector emitter current versus collector emitter voltage

