SIEMENS

ILD205/206/207/211/213/217

DUAL PHOTOTRANSISTOR SMALL OUTLINE SURFACE MOUNT OPTOCOUPLER

FEATURES

- **Two Channel Coupler**
- **Industry Standard SOIC-8 Surface Mountable Package**
- **Standard Lead Spacing of .05"**
- **Available in Tape and Reel Option (Conforms to EIA Standard 481-2)**
- **Isolation Test Voltage, 2500 VRMS**
- **High Current Transfer Ratios**
  ILD205, 40 – 80%
  ILD206, 63 –125%
  ILD207, 100 – 200%
  ILD211, 20% Minimum
  ILD213, 100% Minimum
  ILD217, 100% Minimum at 1 mA
- **High BVCEO, 70 V**
- **Compatible with Dual Wave, Vapor Phase and IR Reflow Soldering**

DESCRIPTION

The ILD205/206/207/211/213/217 are optically coupled pairs with a gallium arsenide infrared LED and a silicon NPN phototransistor. Signal information, including a DC level, can be transmitted by the device while maintaining a high degree of electrical isolation between input and output. The ILD205/6/7/11/13/17 come in a standard SOIC-8 small outline package for surface mounting which makes it ideally suited for high density applications with limited space. In addition to eliminating through-holes requirements, this package conforms to standards for surface mounted devices.

A specified minimum and maximum CTR allows a narrow tolerance in the electrical design of the adjacent circuits. The high BV_{CEO} of 70 volts gives a higher safety margin compared to the industry standard of 30 volts.

Maximum Ratings (Each Channel)

Emitter

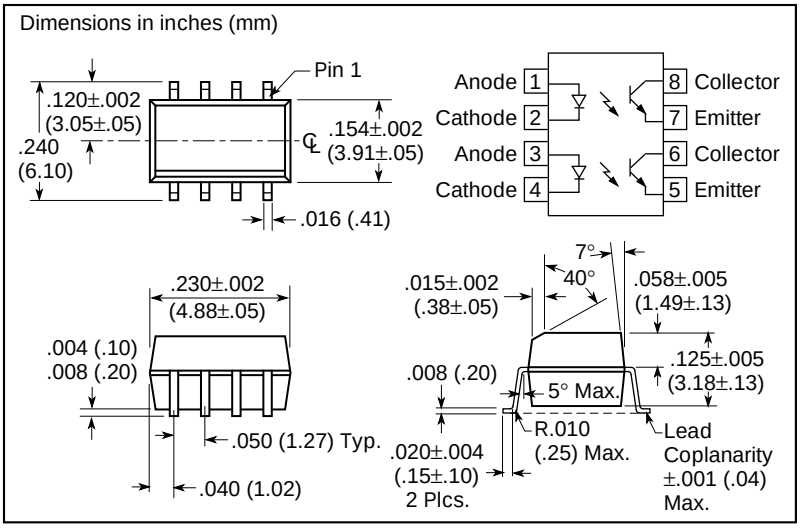
Peak Reverse Voltage .....6.0 V
Peak Pulsed Current (1 µs, 300 pps) .....1 A
Continuous Forward Current per Channel ....30 mA
Power Dissipation at 25°C.....45 mW
Derate Linearly from 25°C.....0.5 mW/°C

Detector

Collector-Emitter Breakdown Voltage.....70 V
Emitter-Collector Breakdown Voltage.....7 V
Power Dissipation per Channel.....55 mW
Derate Linearly from 25°C.....0.55 mW/°C

Package

Total Package Dissipation at 25°C Ambient
(2 LEDs + 2 Detectors, 2 Channels).....200 mW
Derate Linearly from 25°C.....2.0 mW/°C
Storage Temperature –55°C..... to +150°C
Operating Temperature –55°C ..... to +100°C
Soldering Time at 260°C ..... 10 sec.



Characteristics (T_A=25°C)

Parameter	Min.	Typ	Max.	Unit	Test Condition
Emitter					
Forward Voltage		1.2	1.55	V	I_F=10 mA
Reverse Current		0.1	100	mA	V_R=6.0 V
Capacitance		25		pF	V_R=0
Detector					
BV_{CEO}	70			V	I_C=10 mA
BV_{ECO}	7			V	I_E=10 mA
I_{CEO}		5	50	nA	V_{CE}=10 V I_F=0
Collector-Emitter Capacitance		10		pF	V_{CE}=0
Package					
DC Current Transfer					V_{CE}=5 V
ILD205	40		80	%	I_F=10 mA
ILD206	63		125	%	I_F=10 mA
ILD207	100		200	%	I_F=10 mA
ILD211	20				I_F=10 mA
ILD213	100			%	I_F=10 mA
ILD205	13	30		%	I_F=1 mA
ILD206	22	45		%	I_F=1 mA
ILD207	34	70		%	I_F=1 mA
ILD217	100	130		%	I_F=1 mA
Collector-Emitter Saturation Voltage $V_{CE\ (sat)}$			0.4	V	I_F=10 mA I_F=2.5 mA
Capacitance, Input to Output		0.5		pF	
Isolation Test Voltage	2500			VAC_{RMS}	t=1 min.
Resistance, Input to Output		100		GΩ	
Turn-on Time		5.0		µs	I_C=2 mA, R_E= 100 Ω V_{CE}=5 V
Turn-off Time		4.0		µs	

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Figure 1. Forward current versus forward voltage

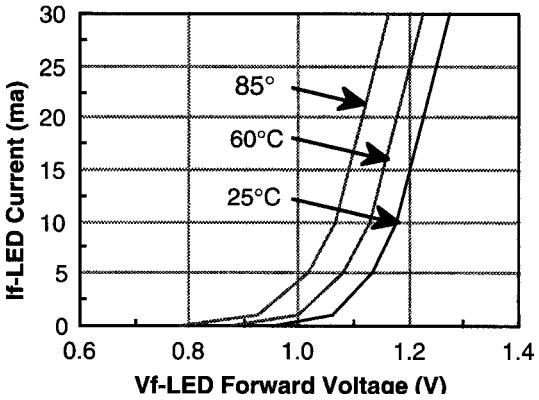

Figure 2. Collector-emitter current versus temperature

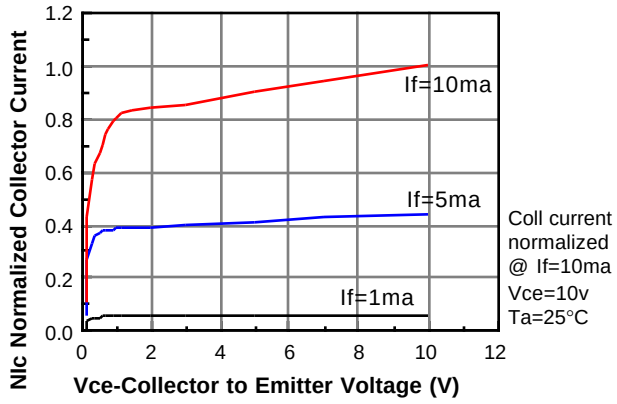

Figure 3. Normalized CTRce versus forward current

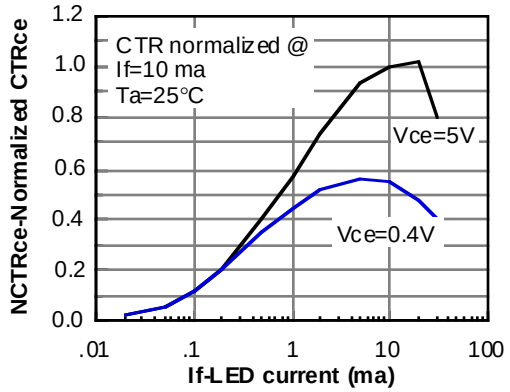

Figure 4. CTR (normalized) versus temperature

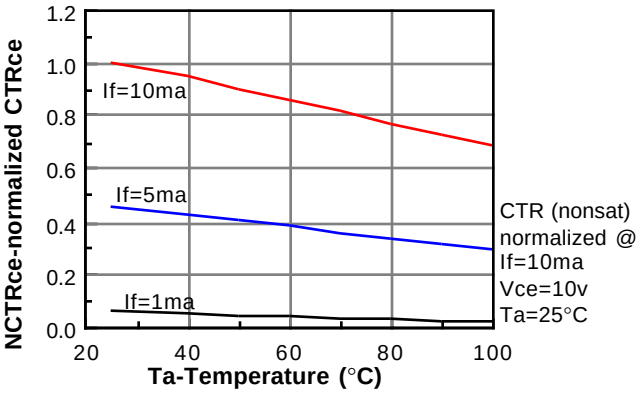

Figure 5. Switching speed versus load resistor

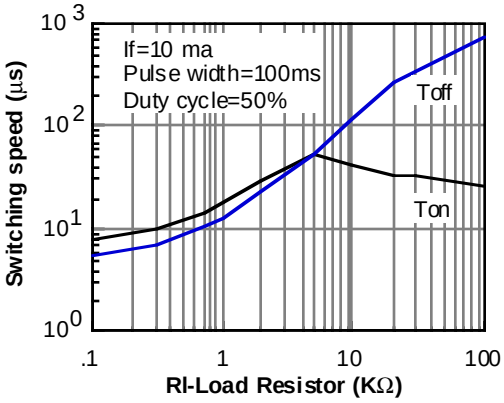

Figure 6. Collector current versus temperature

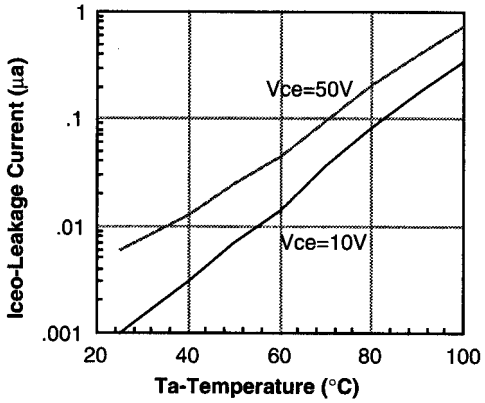

Figure 7. Power dissipation versus ambient temperature

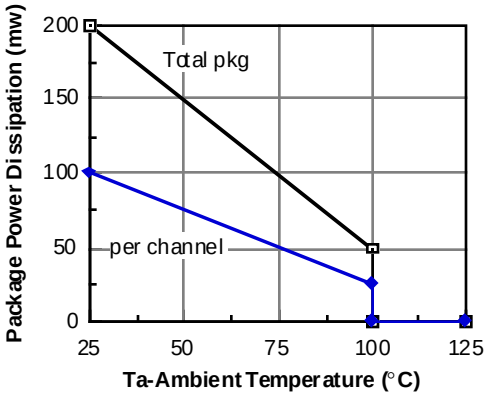

Figure 8. Switching time test schematic and waveform