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[Vishay Semiconductor/Opto Division](#)  
[ILD766-1](#)

For any questions, you can email us directly:

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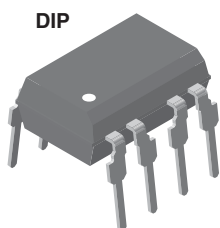


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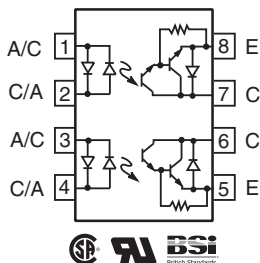
**ILD766**

Vishay Semiconductors

## Optocoupler, Photodarlington Output, AC Input, Internal R<sub>BE</sub>



i179034\_12



### FEATURES

- Internal R<sub>BE</sub> for better stability
- BV<sub>CEO</sub> > 60 V
- AC or polarity insensitive inputs
- Built-in reverse polarity input protection
- Industry standard DIP package
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC



**RoHS**  
COMPLIANT

### APPLICATIONS

- Designed for applications requiring detection or monitoring of AC signals

### AGENCY APPROVALS

- UL1577, file no. E52744 system code H or J, double protection
- CSA 93751
- BSI IEC 60950; IEC 60065

### DESCRIPTION

The ILD766 are bidirectional input optically coupled isolators. They consist of two gallium arsenide infrared emitting diodes coupled to a silicon NPN photodarlington per channel.

The ILD766 has two isolated channels in a single DIP package.

ORDERING INFORMATION			
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px 5px;">I</div> <div style="border: 1px solid black; padding: 2px 5px;">L</div> <div style="border: 1px solid black; padding: 2px 5px;">D</div> <div style="border: 1px solid black; padding: 2px 5px;">7</div> <div style="border: 1px solid black; padding: 2px 5px;">6</div> <div style="border: 1px solid black; padding: 2px 5px;">6</div> <div style="border: 1px solid black; padding: 2px 5px;">-</div> <div style="border: 1px solid black; padding: 2px 5px;">#</div> </div> <p style="text-align: center;">PART NUMBER <span style="margin-left: 150px;">CTR BIN</span></p>			
AGENCY CERTIFIED/PACKAGE	CTR (%)		
	2 mA	1 mA	
UL, CSA, BSI	≥ 500	≥ 500	
DIP-8	ILD766-1	ILD766-2	

#### Note

- Additional options may be possible, please contact sales office.

ABSOLUTE MAXIMUM RATINGS (T <sub>amb</sub> = 25 °C, unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
<b>INPUT</b>				
Forward current		I <sub>F</sub>	60	mA
Power dissipation		P <sub>diss</sub>	90	mW
Derate linearly	from 25 °C		1.2	mW/°C
<b>OUTPUT</b>				
Collector emitter breakdown voltage		BV <sub>CEO</sub>	60	V
Collector base breakdown voltage		BV <sub>CBO</sub>	70	V
Power dissipation		P <sub>diss</sub>	100	mW
Derate linearly	from 25 °C		1.33	mW/°C



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<b>ABSOLUTE MAXIMUM RATINGS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
<b>COUPLER</b>				
Total dissipation		$P_{tot}$	400	mW
Derate linearly	from 25 °C		5.3	mW/°C
Isolation test voltage	$t = 1\text{ s}$	$V_{ISO}$	5300	$V_{RMS}$
Isolation resistance	$T_{amb} = 25\text{ }^{\circ}\text{C}$	$R_{IO}$	$\geq 10^{12}$	$\Omega$
	$T_{amb} = 100\text{ }^{\circ}\text{C}$	$R_{IO}$	$\geq 10^{11}$	$\Omega$
Creepage distance			$\geq 7.0$	mm
Clearance distance			$\geq 7.0$	mm
Comparative tracking index per DIN IEC 112/VDE 0303, part 1		CTI	175	
Storage temperature		$T_{stg}$	- 55 to + 150	°C
Operating temperature		$T_{amb}$	- 55 to + 100	°C
Lead soldering time	at 260 °C		10	s

**Note**

- Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of this document. Exposure to absolute maximum ratings for extended periods of the time can adversely affect reliability.

<b>ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
<b>INPUT</b>						
Forward voltage	$I_F = \pm 10\text{ mA}$	$V_F$		1.2	1.5	V
<b>OUTPUT</b>						
Collector emitter breakdown voltage	$I_C = 1.0\text{ mA}$	$BV_{CEO}$	60	75		V
Collector base breakdown voltage	$I_C = 10\text{ }\mu\text{A}$	$BV_{CBO}$	60	90		V
Collector emitter leakage current	$V_{CE} = 10\text{ V}$	$I_{CEO}$		10	100	nA
<b>COUPLER</b>						
Collector emitter saturation voltage	$I_F = \pm 10\text{ mA}$ , $I_C = 10\text{ mA}$	$V_{CEsat}$			1.0	V

**Note**

- Minimum and maximum values are testing requirements. Typical values are characteristics of the device and are the result of engineering evaluation. Typical values are for information only and are not part of the testing requirements.

<b>CURRENT TRANSFER RATIO</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
DC current transfer ratio	$V_{CE} = 5.0\text{ V}$ , $I_F = \pm 2\text{ mA}$	$CTR_{DC}$	500			%

<b>SWITCHING CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Rise time	$V_{CC} = 10\text{ V}$ , $I_F = \pm 2.0\text{ mA}$ , $R_L = 100\text{ }\Omega$	$t_r$		100		$\mu\text{s}$
Fall time		$t_f$		100		



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**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)

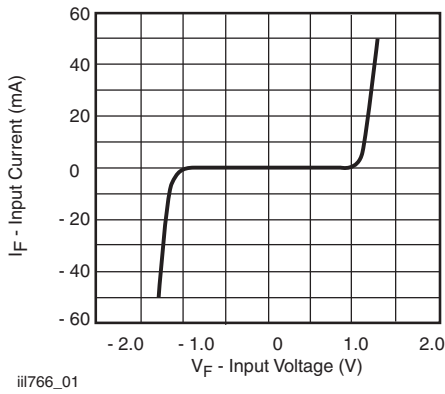


Fig. 1 - Input Characteristics

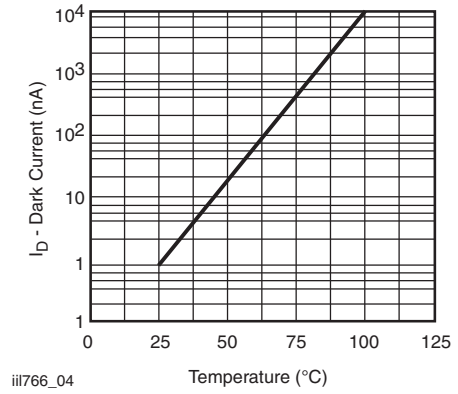


Fig. 4 -  $I_{CEO}$  at  $V_{CE} = 10\text{ V}$  vs. Temperature

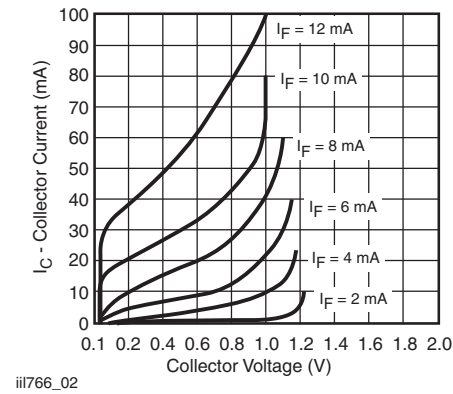


Fig. 2 - Transistor Current vs. Voltage

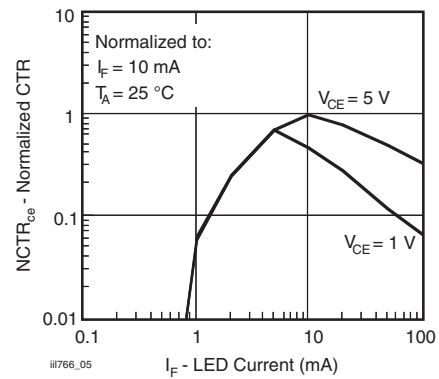


Fig. 5 - Normalized CTR vs. Forward Current

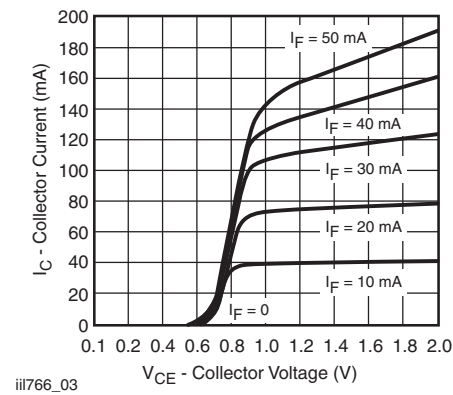


Fig. 3 - Transistor Output Current vs. Voltage

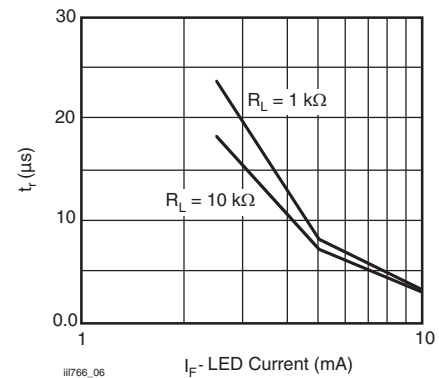


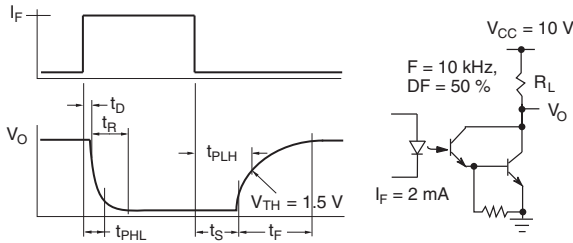
Fig. 6 -  $t_r$  vs. Forward Current



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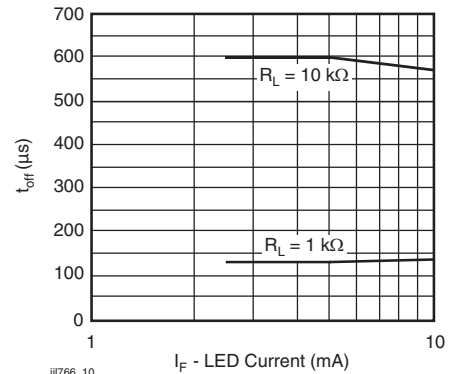
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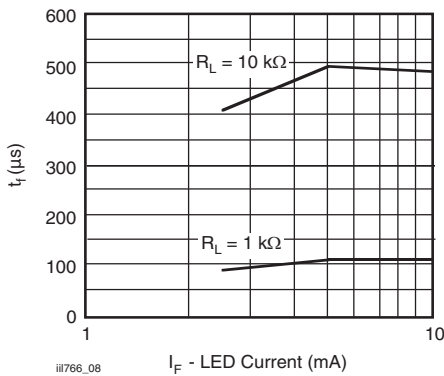
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Fig. 7 - Saturated Switching Characteristics Measurements-Schematic and Waveform



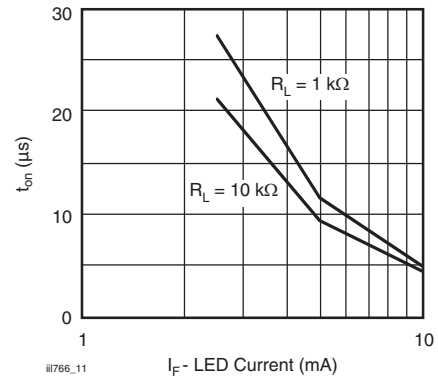
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Fig. 10 -  $t_{off}$  vs. Forward Current



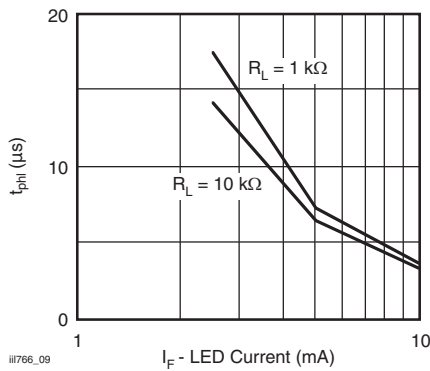
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Fig. 8 -  $t_{fall}$  vs. Forward Current



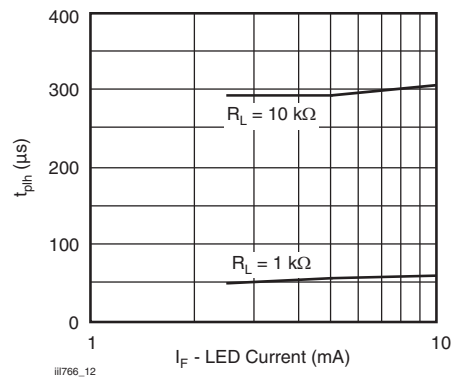
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Fig. 11 -  $t_{on}$  vs. Forward Current



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Fig. 9 -  $t_{prl}$  vs. Forward Current



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Fig. 12 -  $t_{plh}$  vs. Forward Current

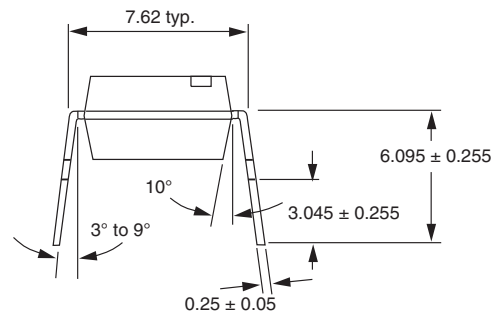
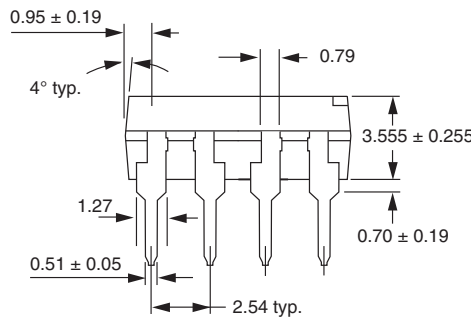
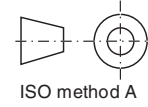
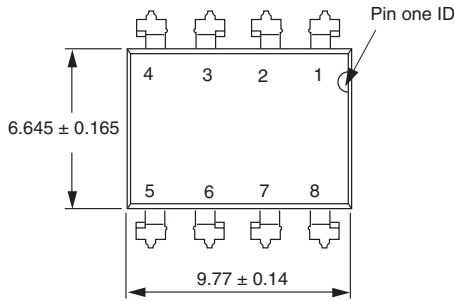


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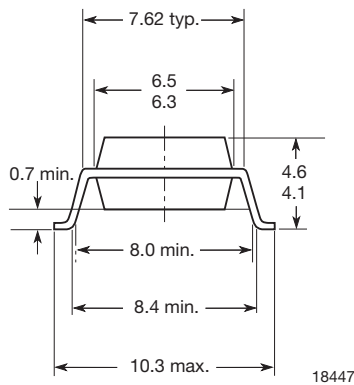
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**PACKAGE DIMENSIONS** in millimeters



1178006

**Option 7**



18447



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