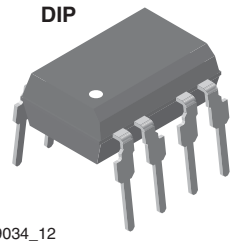
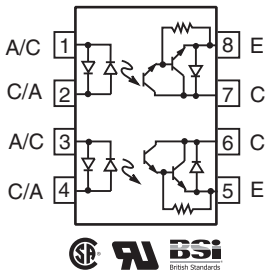
Optocoupler, Photodarlington Output, AC Input, Internal R_{BE}





FEATURES

- Internal R_{BE} for better stability
- BV_{CEO} > 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

Pb-free

e3

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

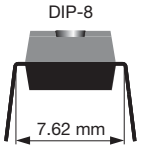
The ILD766 are bidirectional input optically coupled isolators. They consist of two gallium arsenide infrared emitting diodes coupled to a silicon NPN photodarlington per channel.

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

ORDERING INFORMATION

I	L	D	7	6	6	-	#

PART NUMBER — CTR BIN



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_{amb} = 25 °C, unless otherwise specified)

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
INPUT				
Forward current		I_F	60	mA
Power dissipation		P_{diss}	90	mW
Derate linearly	from 25 °C		1.2	mW/°C
OUTPUT				
Collector emitter breakdown voltage		BV_{CEO}	60	V
Collector base breakdown voltage		BV_{CBO}	70	V
Power dissipation		P_{diss}	100	mW
Derate linearly	from 25 °C		1.33	mW/°C

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)				
PARAMETER	**TEST CONDITION**	**SYMBOL**	**VALUE**	**UNIT**
COUPLER				
Total dissipation		P_{tot}	400	mW
Derate linearly	from 25 °C		5.3	mW/°C
Isolation test voltage	t = 1 s	V_{ISO}	5300	V_{RMS}
Isolation resistance	T_{amb} = 25 °C	R_{IO}	$\geq 10^{12}$	Ω
	T_{amb} = 100 °C	R_{IO}	$\geq 10^{11}$	Ω
Creepage distance			≥ 7.0	mm
Clearance distance			≥ 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.

ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
INPUT						
Forward voltage	I_F = ± 10 mA	V_F		1.2	1.5	V
OUTPUT						
Collector emitter breakdown voltage	I_C = 1.0 mA	BV_{CEO}	60	75		V
Collector base breakdown voltage	I_C = 10 µA	BV_{CBO}	60	90		V
Collector emitter leakage current	V_{CE} = 10 V	I_{CEO}		10	100	nA
COUPLER						
Collector emitter saturation voltage	I_F = ± 10 mA, I_C = 10 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.

CURRENT TRANSFER RATIO (T_{amb} = 25 °C, unless otherwise specified)						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
DC current transfer ratio	V_{CE} = 5.0 V, I_F = ± 2 mA	CTR_{DC}	500			%

SWITCHING CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Rise time	V_{CC} = 10 V, I_F = ± 2.0 mA, R_L = 100 Ω	t_r		100		µs
Fall time		t_f		100		

TYPICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

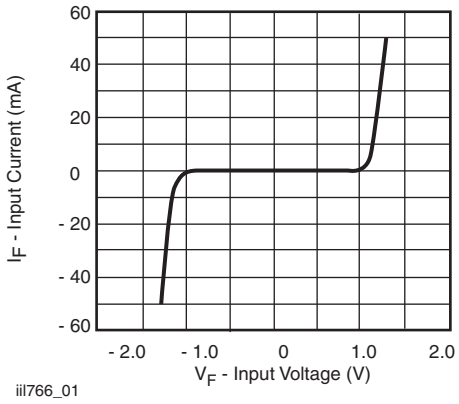


Fig. 1 - Input Characteristics

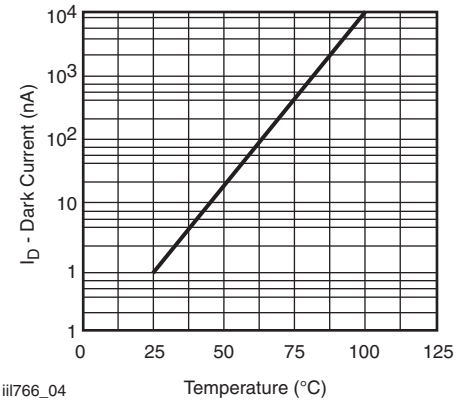


Fig. 4 - I_{CEO} at V_{CE} = 10 V vs. Temperature

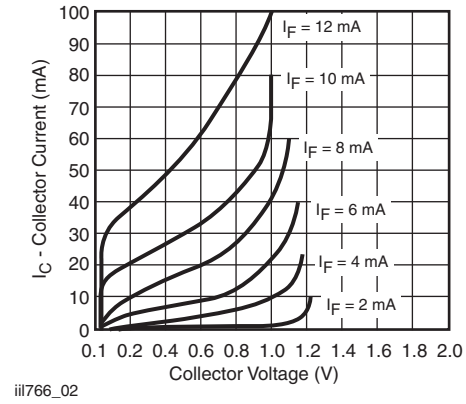


Fig. 2 - Transistor Current vs. Voltage

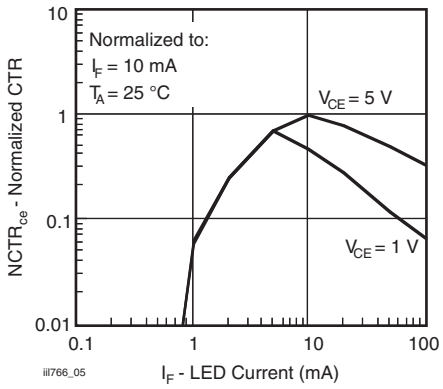


Fig. 5 - Normalized CTR vs. Forward Current

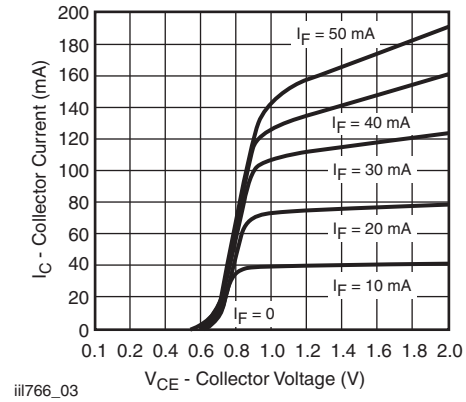


Fig. 3 - Transistor Output Current vs. Voltage

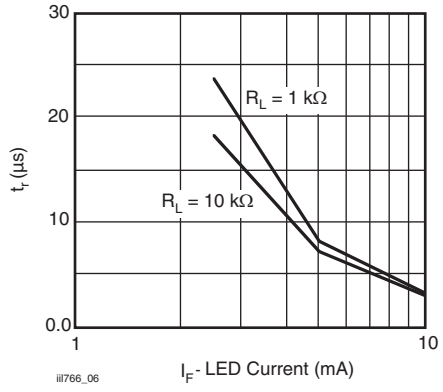


Fig. 6 - t_r vs. Forward Current

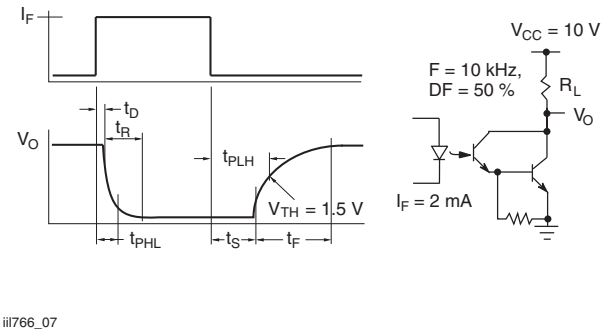


Fig. 7 - Saturated Switching Characteristics Measurements-Schematic and Waveform

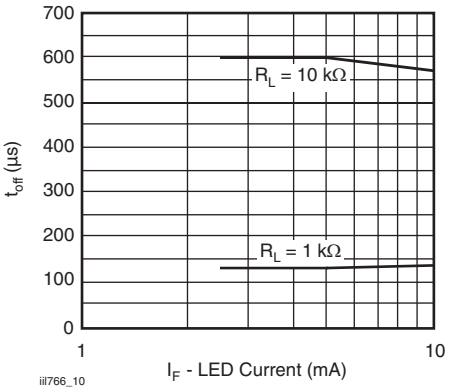


Fig. 10 - t_{off} vs. Forward Current

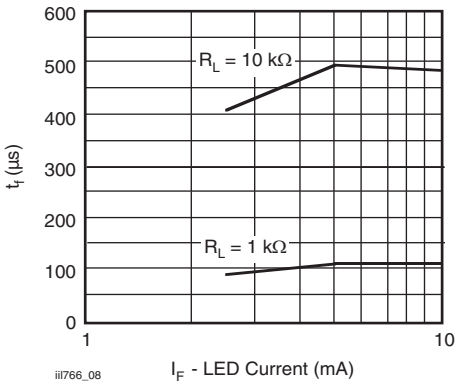


Fig. 8 - t_{fall} vs. Forward Current

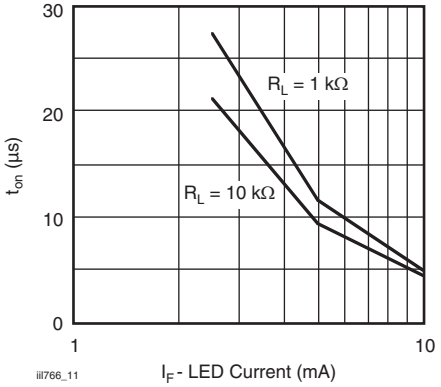


Fig. 11 - t_{on} vs. Forward Current

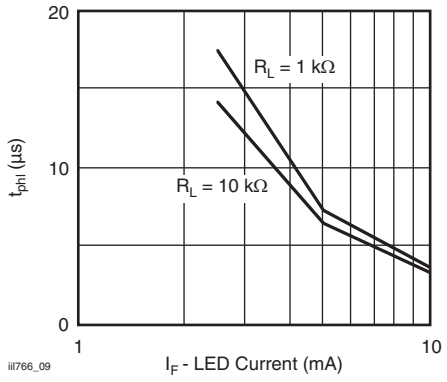


Fig. 9 - t_{phl} vs. Forward Current

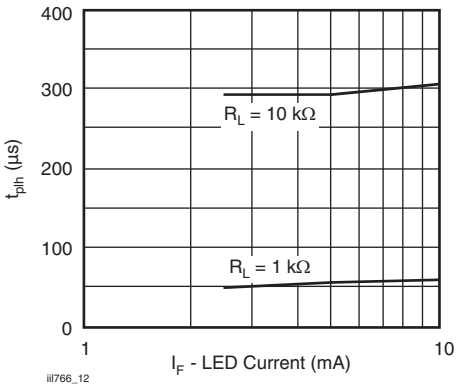
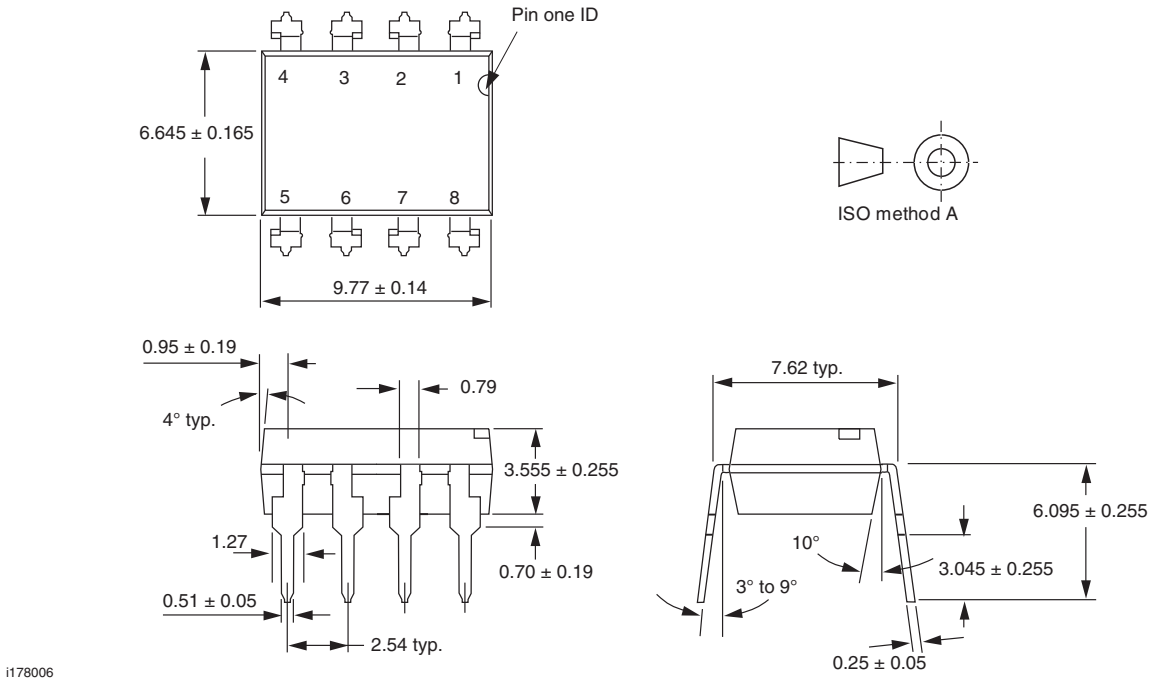
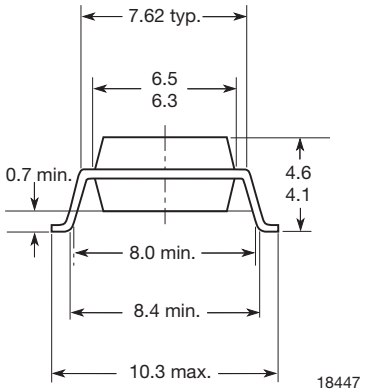


Fig. 12 - t_{plh} vs. Forward Current

PACKAGE DIMENSIONS in millimeters

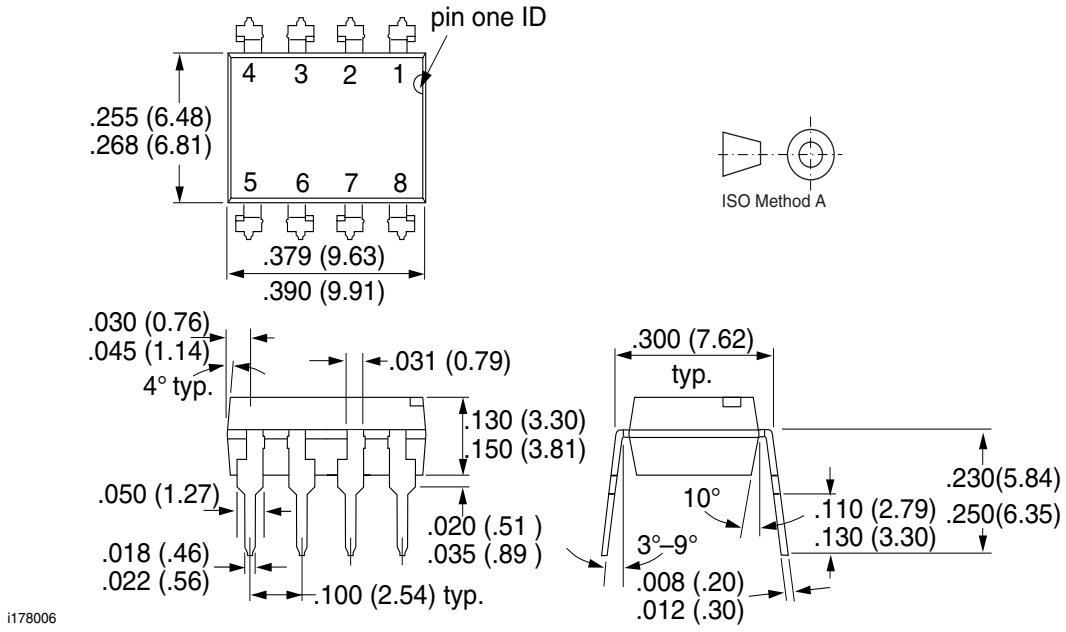


Option 7



DIP-8

Package Dimensions in Inches (mm)



Ozone Depleting Substances Policy Statement

It is the policy of **Vishay Semiconductor GmbH** to

1. Meet all present and future national and international statutory requirements.
2. Regularly and continuously improve the performance of our products, processes, distribution and operatingsystems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

Vishay Semiconductor GmbH has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

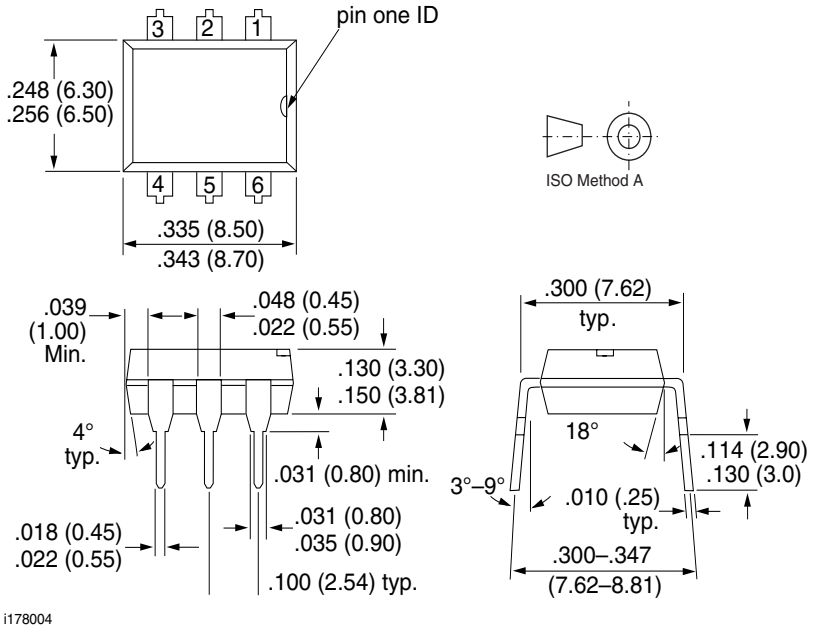
1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively
2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA
3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

Vishay Semiconductor GmbH can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.

Vishay Semiconductor GmbH, P.O.B. 3535, D-74025 Heilbronn, Germany
Telephone: 49 (0)7131 67 2831, Fax number: 49 (0)7131 67 2423

DIP-6A

Package Dimensions in Inches (mm)



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