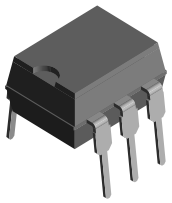
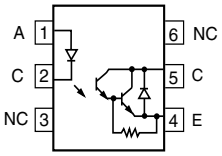
Optocoupler, Photodarlington Output, with Internal RBE





i179019

DESCRIPTION

The IL66B is an optically coupled isolator employing a gallium arsenide infrared emitter and a silicon photodarlington detector. Switching can be accomplished while maintaining a high degree of isolation between driving and load circuits. They can be used to replace reed and mercury relays with advantages of long life, high speed switching and elimination of magnetic fields.

FEATURES

- Internal RBE for high stability
- Isolation test voltage, 5300 V_{RMS}
- No base connection
- High isolation resistance
- Standard plastic DIP package
- Lead (Pb)-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

Pb-free

e3

RoHS COMPLIANT

AGENCY APPROVALS

- UL1577, file no. E52744 system code H or J, double protection
- BSI IEC 60950 IEC 60065
- CSA 93751
- DIN EN 60747-5-2 (VDE 0884)/DIN EN 60747-5-5 pending available with option 1
- FIMKO

ORDER INFORMATION

PART	REMARKS
IL66B-1	CTR > 200 %, DIP-6
IL66B-2	CTR > 750 %, DIP-6
IL66B-1X006	CTR > 200 %, DIP-6 400 mil (option 6)
IL66B-2X006	CTR > 750 %, DIP-6 400 mil (option 6)
IL66B-2X009	CTR > 750 %, SMD-6 (option 9)

Note

For additional information on the available options refer to option information.

ABSOLUTE MAXIMUM RATINGS (1)

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
INPUT				
Peak reverse voltage		V_R	6.0	V
Forward continuous current		I_F	60	mA
Power dissipation		P_{diss}	100	mW
Derate linearly from 55 °C			1.33	mW/°C
OUTPUT				
Collector emitter breakdown voltage		BV_{CEO}	60	V
Emitter collector breakdown voltage		BV_{ECO}	5.0	V
Power dissipation		P_{diss}	200	mW
Derate linearly from 25 °C			2.6	mW/°C

ABSOLUTE MAXIMUM RATINGS (1)

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
COUPLER				
Isolation test voltage	t = 1.0 s	V_{ISO}	5300	V_{RMS}
Isolation resistance	V_{IO} = 500 V, T_{amb} = 25 °C	R_{IO}	$\geq 10^{12}$	Ω
	V_{IO} = 500 V, T_{amb} = 100 °C	R_{IO}	$\geq 10^{11}$	Ω
Total dissipation		P_{tot}	250	mW
Derate linearly	from 25 °C		3.3	mW/°C
Creepage path			7	min mm
Clearance path			7	min mm
Storage temperature		T_{stg}	- 55 to + 150	°C
Operating temperature		T_{amb}	- 55 to + 100	°C
Solder Temperature (2)	10 s	T_{sld}	260	°C

Notes

(1) T_{amb} = 25 °C, unless otherwise specified
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.

(2) Refer to reflow profile for soldering conditions for surface mounted devices (SMD). Refer to wave profile for soldering conditions for through hole devices (DIP).

ELECTRICAL CHARACTERISTICS

PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
INPUT						
Forward voltage	I_F = 10 mA	V_F		1.25	1.5	V
Reverse current	V_R = 3.0 V	I_R		0.01	100	µA
Capacitance	V_R = 0	C_O		25		pF
OUTPUT						
Collector emitter breakdown voltage	I_C = 100 µA	BV_{CEO}	60			V
Collector emitter leakage current	V_{CE} = 50 V, I_F = 0 A	I_{CEO}		1.0	100	nA
COUPLER						
Saturation voltage	I_C = 10 mA	V_{CEsat}			1.0	V

Note

T_{amb} = 25 °C, unless otherwise specified
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

PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Current transfer ratio	I_F = 2.0 mA, V_{CE} = 5.0 V	IL66B-1	CTR	200			%
		IL66B-2	CTR	750	1000		%

SWITCHING CHARACTERISTICS

PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Turn-On, Turn-Off time	V_{CC} = 10 V, I_F = 2 mA, R_L = 100 Ω	t_{on}, t_{off}			200	µs

TYPICAL CHARACTERISTICS

T_{amb} = 25 °C, unless otherwise specified

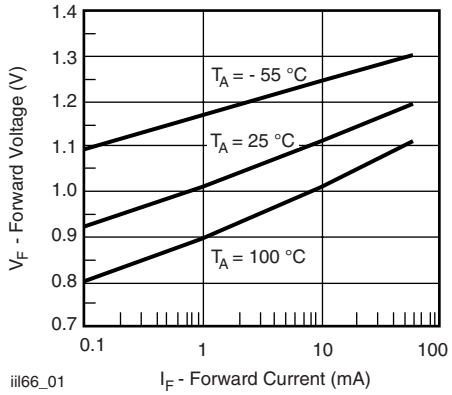


Fig. 3 - Forward Voltage vs. Forward Current

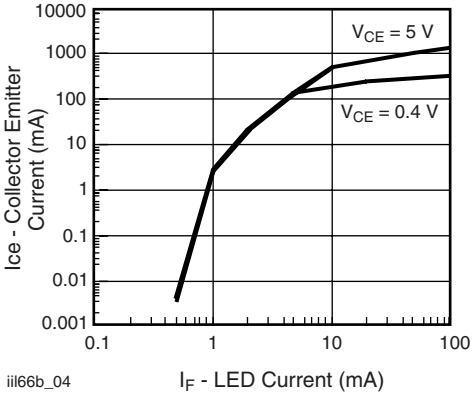


Fig. 6 - Non-Saturated and Saturated Collector Emitter Current vs. LED Current

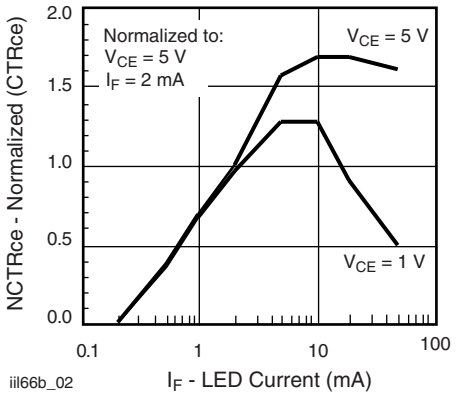


Fig. 4 - Normalized Non-Saturated and Saturated CTR_{CE} vs. LED Current

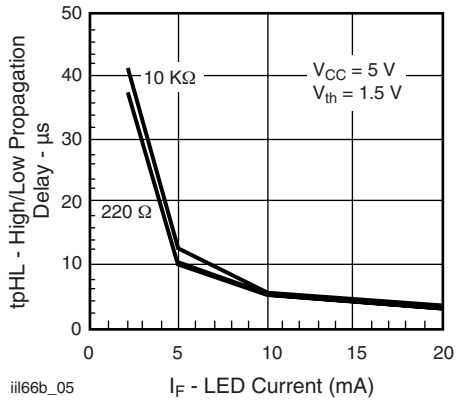


Fig. 7 - High to low Propagation Delay vs. Collector Load Resistance and LED Current

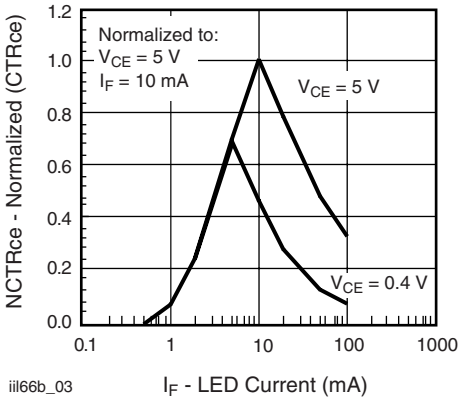


Fig. 5 - Normalized Non-Saturated and Saturated CTR_{CE} vs. LED Current

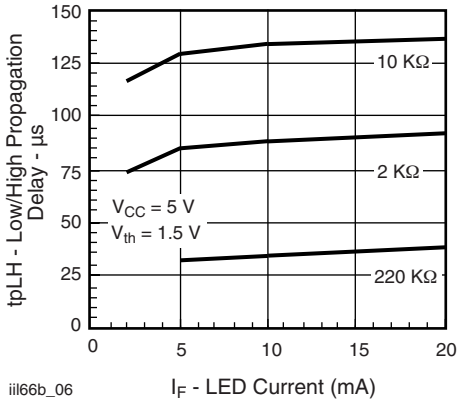
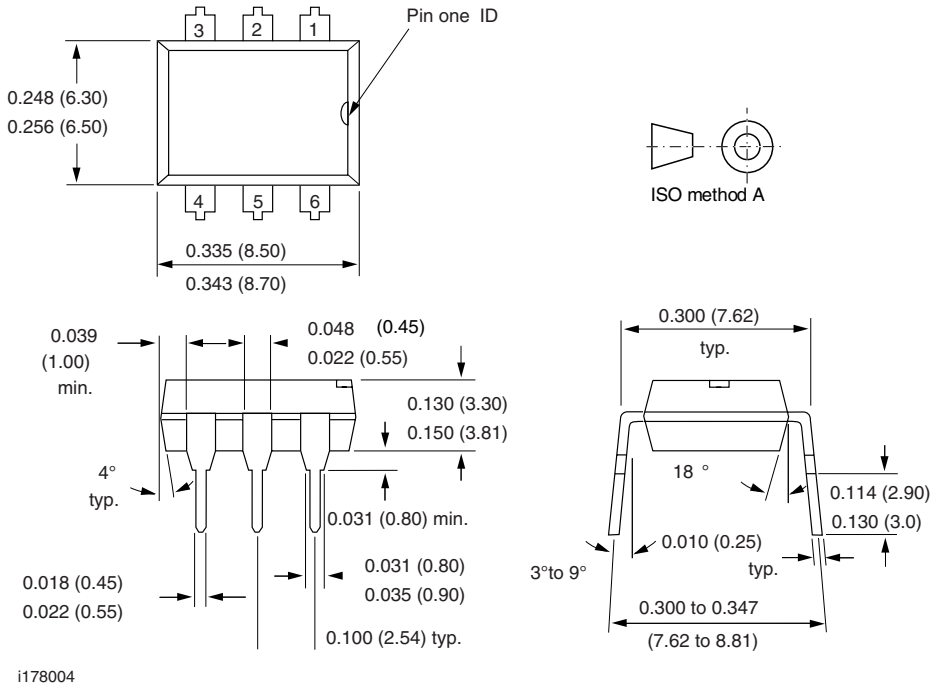
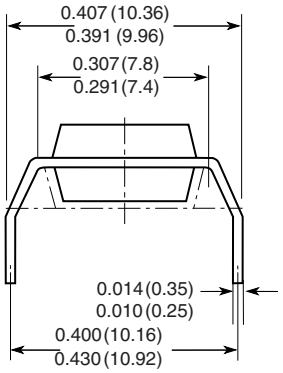


Fig. 8 - Low to High Propagation Delay vs. Collector Load Resistance and LED Current

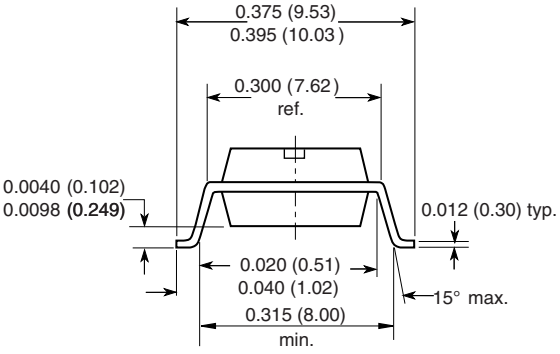
PACKAGE DIMENSIONS in inches (millimeters)



Option 6



Option 9



18493

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 operating systems 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.

We reserve the right to make changes to improve technical design
and may do so without further notice.
Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer. Should the buyer use Vishay Semiconductors products for any unintended or unauthorized application, the buyer shall indemnify Vishay Semiconductors against all claims, costs, damages, and expenses, arising out of, directly or indirectly, any claim of personal damage, injury or death associated with such unintended or unauthorized use.

Vishay Semiconductor GmbH, P.O.B. 3535, D-74025 Heilbronn, Germany

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