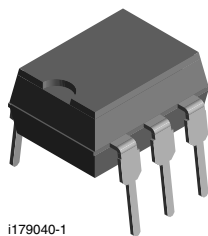
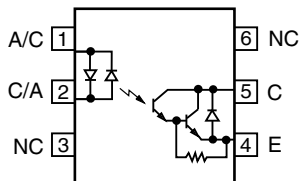




Optocoupler, Photodarlington Output, AC Input, Internal R_{BE}



i179040-1



FEATURES

- Internal R_{BE} for better stability
- $BV_{CEO} \geq 60$ V
- Isolation rated voltage 4420 V_{RMS}
- AC or polarity insensitive inputs
- No base connection
- High insulation resistance, $10^{11} \Omega$ typical
- Standard plastic DIP package
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT

DESCRIPTION

The IL766B is a bidirectional input, optically coupled isolator consisting of two gallium arsenide infrared emitters and a silicon photodarlington sensor.

AGENCY APPROVALS

- UL1577, file no. E52744, double protection
- cUL tested to CSA 22.2 bulletin 5A
- BSI EN 60950, BSI EN 60065

ORDERING INFORMATION													
I	L	7	6	6	B	-	#	X	0	0	#	DIP-6 7.62 mm	DIP-6, 400 mil 10.16 mm
PART NUMBER							CTR BIN	PACKAGE OPTION					
AGENCY CERTIFIED/PACKAGE							CTR (%)						
VDE, UL, BSI, CSA							> 400					> 900	
DIP-6							IL766B-1					IL766B-2	
DIP-6, 400 mil, option 6							-					IL766B-2X006	

Note

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

ABSOLUTE MAXIMUM RATINGS ($T_{amb} = 25^\circ\text{C}$, unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
INPUT				
Forward continuous current		I_F	60	mA
Power dissipation		P_{diss}	200	mW
Derate linearly from 55 °C			2.6	mW/°C
OUTPUT				
Collector emitter breakdown voltage		BV_{CEO}	60	V
Collector base breakdown voltage		BV_{CBO}	70	V
Power dissipation		P_{diss}	200	mW
Derate linearly from 25 °C			2.6	mW/°C
COUPLER				
Total power dissipation	$t = 1.0$ s	P_{tot}	250	mW
Derate linearly from 25 °C			3.3	mW/°C
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 ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
INPUT							
Forward voltage	$I_F = \pm 10\text{ mA}$		V_F	-	1.25	1.5	V
OUTPUT							
Collector emitter breakdown voltage	$I_C = 10\text{ mA}$, $I_F = 0\text{ A}$		BV_{CEO}	60	-	-	V
Collector emitter leakage current	$V_{CE} = 10\text{ V}$, $I_F = 0\text{ A}$		I_{CEO}	-	1.0	100	nA
COUPLER							
Collector emitter, saturation voltage	$I_C = \pm 10\text{ mA}$, $I_F = \pm 10\text{ mA}$		V_{CEsat}	-	-	1.0	V

Note

- Minimum and maximum values were tested requirements. Typical values are characteristics of the device and are the result of engineering evaluations. 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
Saturation voltage, collector emitter	$I_F = \pm 1.0\text{ mA}$, $V_{CE} = 5.0\text{ V}$	IL766B-1	CTR	400	-	-	%
	$I_F = \pm 0.5\text{ mA}$, $V_{CE} = 5.0\text{ V}$	IL766B-2	CTR	900	-	-	%

SWITCHING CHARACTERISTICS							
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT	
Turn-off time	$V_{CC} = 5.0\text{ V}$, $I_F = \pm 2.0\text{ mA}$, $R_L = 100\text{ }\Omega$	t_{off}	-	200	-	μs	

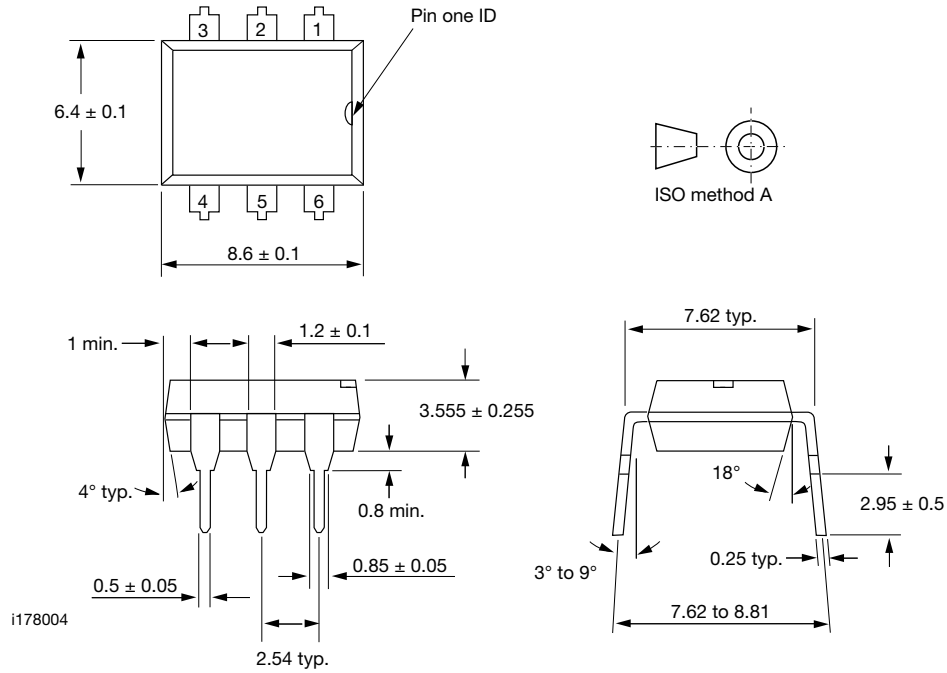
SAFETY AND INSULATION RATINGS				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Climatic classification	According to IEC 68 part 1		55 / 100 / 21	
Comparative tracking index		CTI	175	
Maximum rated withstanding isolation voltage	$t = 1\text{ min}$	V_{ISO}	4420	V_{RMS}
Maximum transient isolation voltage		V_{IOTM}	10 000	V_{peak}
Maximum repetitive peak isolation voltage		V_{IORM}	890	V_{peak}
Isolation resistance	$V_{IO} = 500\text{ V}$, $T_{amb} = 25\text{ }^{\circ}\text{C}$	R_{IO}	$\geq 10^{12}$	Ω
	$V_{IO} = 500\text{ V}$, $T_{amb} = 100\text{ }^{\circ}\text{C}$	R_{IO}	$\geq 10^{11}$	Ω
Output safety power		P_{SO}	400	mW
Input safety current		I_{SI}	275	mA
Safety temperature		T_S	175	$^{\circ}\text{C}$
Creepage distance			≥ 7	mm
Clearance distance			≥ 7	mm
Insulation thickness		DTI	≥ 0.4	mm

Note

- As per IEC 60747-5-5, § 7.4.3.8.2, this optocoupler is suitable for "safe electrical insulation" only within the safety ratings. Compliance with the safety ratings shall be ensured by means of protective circuits

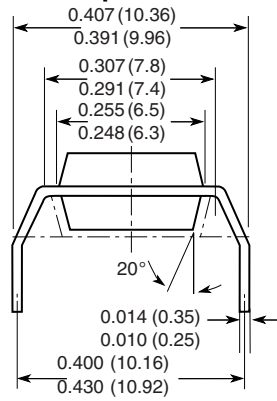


PACKAGE DIMENSIONS in inches (millimeters)



i178004

Option 6



18446



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.