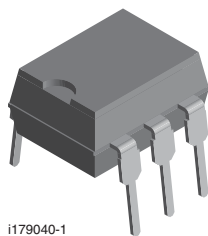
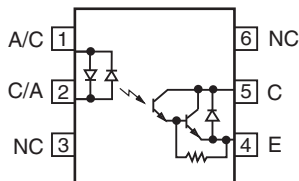




## Optocoupler, Photodarlington Output, AC Input, Internal $R_{BE}$



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](http://www.vishay.com/doc?99912)

RoHS  
COMPLIANT

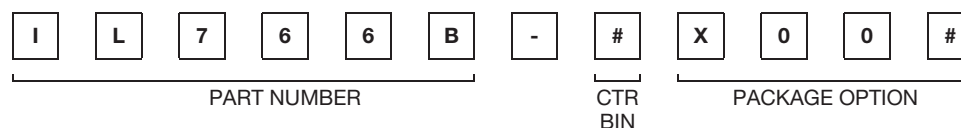
### DESCRIPTION

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



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
<b>INPUT</b>				
Forward continuous current		$I_F$	60	mA
Power dissipation		$P_{diss}$	200	mW
Derate linearly from 55 °C			2.6	mW/°C
<b>OUTPUT</b>				
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
<b>COUPLER</b>				
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



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
<b>INPUT</b>							
Forward voltage	$I_F = \pm 10\text{ mA}$		$V_F$	-	1.25	1.5	V
<b>OUTPUT</b>							
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
<b>COUPLER</b>							
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

<b>CURRENT TRANSFER RATIO</b>							
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	-	-	%

<b>SWITCHING CHARACTERISTICS</b>							
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	-	$\mu\text{s}$	

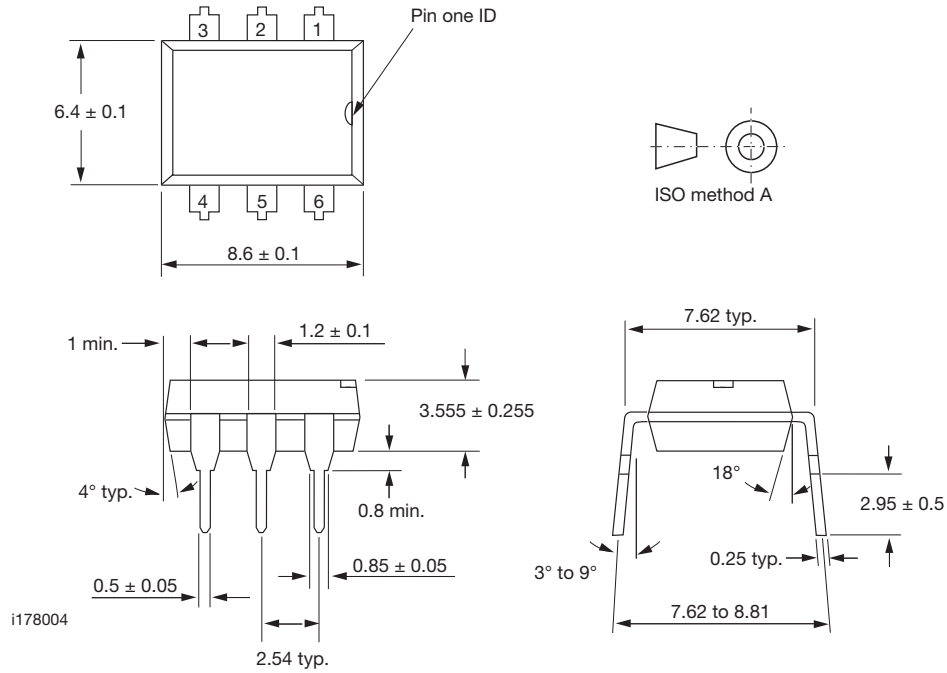
<b>SAFETY AND INSULATION RATINGS</b>				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Climatic classification	According to IEC 68 part 1		55 / 100 / 21	
Comparative tracking index		CTI	175	
Maximum rated withstanding isolation voltage	$t = 1\text{ min}$	$V_{ISO}$	4420	$V_{RMS}$
Maximum transient isolation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

**Note**

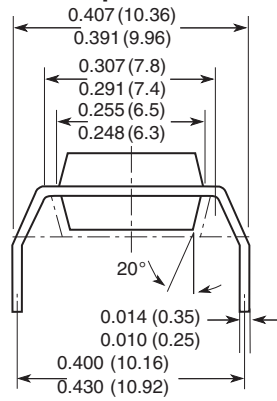
- As per IEC 60747-5-5, § 7.4.3.8.2, this optocoupler is suitable for "safe electrical insulation" only within the safety ratings. Compliance with the safety ratings shall be ensured by means of protective circuits



**PACKAGE DIMENSIONS** in inches (millimeters)



**Option 6**





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