



# LOW INPUT CURRENT OPTOCOUPLERS

Vishay Semiconductors

Opto - DIP-4, LSOP-4, SOP-4 and SSOP-4 Phototransistors

## 4-Pin Low Current Phototransistors



Vishay's 4 pin low-current mini optocouplers protect equipment users from electrical shocks and protect the microprocessors within these systems from being damaged by voltage spikes.

### KEY FEATURES

- Offered in DIP-4, LSOP-4, SOP-4 and SSOP-4 packages
- Extensive CTR (current transfer ratio) ranges from 40 % to 600 %
- Low input drive current down to 1 mA
- Certified to UL, CSA, VDE, Fimko, and CQC safety standards
- RoHS-compliant, lead (Pb)-free, and eco-friendly "green" compound

### BENEFITS

- Low power dissipation
- Multiple CTR ranges provide designers with increased flexibility
- SOP-4, SSOP-4 and LSOP-4 products feature 2 mm package height, are suitable for height constraint applications
- Compact packages saves board space compared to DIP-4 package:
  - 60 % savings with SSOP-4
  - 30 % savings with SOP-4

### RESOURCES

- Datasheet: See part number links on [page 2](#)
- Video: <http://www.vishay.com/videos/optoelectronics/low-input-current-optocouplers>
- Optoelectronics product portfolio: <http://www.vishay.com/optoelectronics>
- For technical questions contact [optocoupleranswers@vishay.com](mailto:optocoupleranswers@vishay.com)
- Material categorization: For definitions of compliance please see <http://www.vishay.com/doc?99912>

**RoHS GREEN**  
COMPLIANT **(5-2008)**

One of the World's Largest Manufacturers of  
**Discrete Semiconductors and Passive Components**





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## APPLICATIONS

Isolation in:

- AC adapters
- Switch mode power supplies
- Programmable logic controllers
- Industrial controls
- Office equipment
- Telecom systems
- Power on Ethernet
- Smart meters
- Solar

## 4 PIN LOW INPUT CURRENT PHOTOTRANSISTOR PORTFOLIO

We are releasing five new series of low input current optocouplers: VOS615A, VOS617A, and VOS618CA with phototransistor output, and VOS627A and VOS628A with AC input to complement our 4 pin low input current product portfolio. They feature a  $V_{CEO}$  (collector emitter voltage) of 80 V and operating temperature from - 55 °C to + 110 °C

## 4 PIN PHOTOTRANSISTOR

	DIP-4	LSOP-4	SOP-4	SSOP-4
<b>PACKAGE</b>				
<b>I<sub>F</sub> / SERIES</b>	<b>VO</b>	<b>VOL</b>	<b>VOM</b>	<b>VOS</b>
<b>DC INPUT</b> 	1 mA / (618)	<a href="#">VOL618A</a>	<a href="#">VOM618A</a>	<a href="#">VOS618A</a>
	5 mA / (617)	<a href="#">VO617A</a>	<a href="#">VOL617A</a>	<a href="#">VOM617A</a>
	10 mA / (615)	<a href="#">VO615A</a>	-	-
<b>AC INPUT</b> 	± 1 mA / (628)	-	<a href="#">VOL628A</a>	<a href="#">VOS628A</a>
	± 5 mA / (627)	-	-	<a href="#">VOS627A</a>

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# LOW INPUT CURRENT OPTOCOUPLEDERS

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Opto - DIP-4, LSOP-4, SOP-4 and SSOP-4 Phototransistors

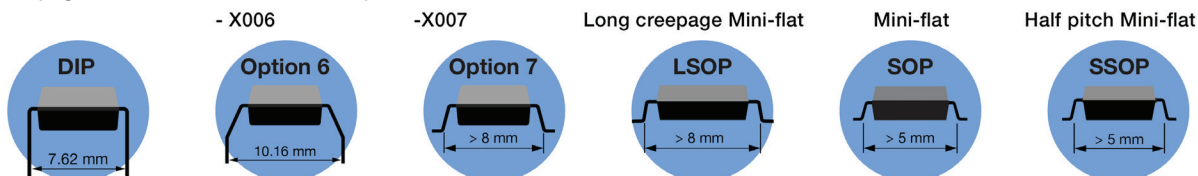
## PACKAGE COMPARISON

PACKAGE COMPARISON				
<b>Length</b>	10.16 mm	10.20 mm	7.00 mm	7.00 mm
<b>Width</b>	4.58 mm	4.10 mm	3.85 mm	2.60 mm
<b>Height</b>	3.85 mm	2.00 mm	2.00 mm	2.00 mm
<b>Foot Print</b>	47 mm <sup>2</sup> Full Pitch	42 mm <sup>2</sup> Full Pitch	27 mm <sup>2</sup> Full Pitch	19 mm <sup>2</sup> Half Pitch
SAFETY SPECIFICATIONS				
<b>V<sub>iso</sub></b>	5300 V <sub>RMS</sub>	5000 V <sub>RMS</sub>	3750 V <sub>RMS</sub>	3750 V <sub>RMS</sub>
<b>DTI</b>	> 0.4 mm	> 0.4 mm	> 0.4 mm	> 0.4 mm
<b>Creepage</b>	≥ 7.0 mm/ 8.0 (1)	≥ 8.0 mm	≥ 5.0 mm	≥ 5.0 mm
<b>Clearance</b>	≥ 7.0 mm/ 8.0 (1)	≥ 8.0 mm	≥ 5.0 mm	≥ 5.0 mm
SAFETY STANDARD				
	DIN EN 60747-5-5 (VDE 0884-5)			
	UL 1577			
	CSA (Component Acceptance Service No.5A)			
	GB8898-2011; GB4943.1-2011			
	EN 60065 EN 60950-1	EN 60950-1	EN 60065 EN 60950-1	EN 60065 EN 60950-1
	BSI EN 60065 BSI EN 60950	BSI EN 60065 BSI EN 60950		

(1) Option 6 and 7

## LEAD OPTIONS

You can choose through-hole or surface-mount lead options for your design. We offer the DIP-4 package in three versions: standard DIP, wide lead bending Option 6, and SMD Option 7. Mini-flat packages only come in SMD lead type. Options 6 and 7 provide greater creepage and clearance distance compared to a standard DIP.



# LOW INPUT CURRENT OPTOCOUPLEDERS

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## CTR OPTIONS

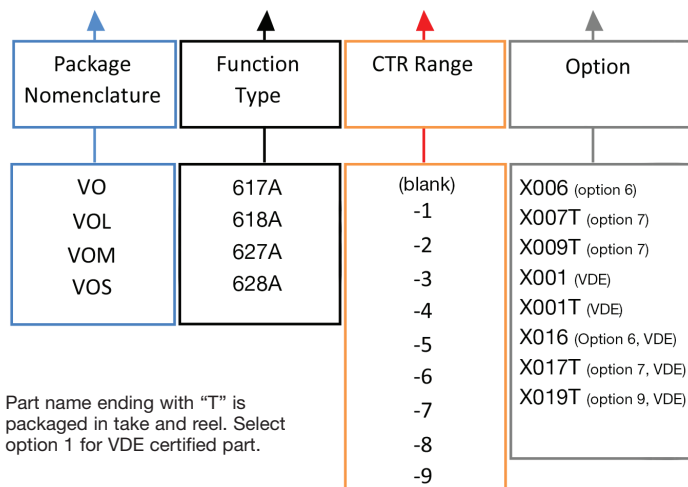
To increase design flexibility, Vishay provides ten CTR values over a wide range from 40 % to 600 %. Please go to datasheets to see detailed information.

CTR SELECTION	CTR RANGE
(blank)	50 % to 600 %
- 1	40 % to 80 %
- 2	63 % to 125 %
- 3	100 % to 200 %
- 4	160 % to 320 %
- 5	50 % to 100 %
- 6	250 % to 500%
- 7	80 % to 160 %
- 8	130 % to 260 %
- 9	200 % to 400 %

CTR availability varies based upon product. Please go to datasheets to see detailed information.

## NOMENCLATURE

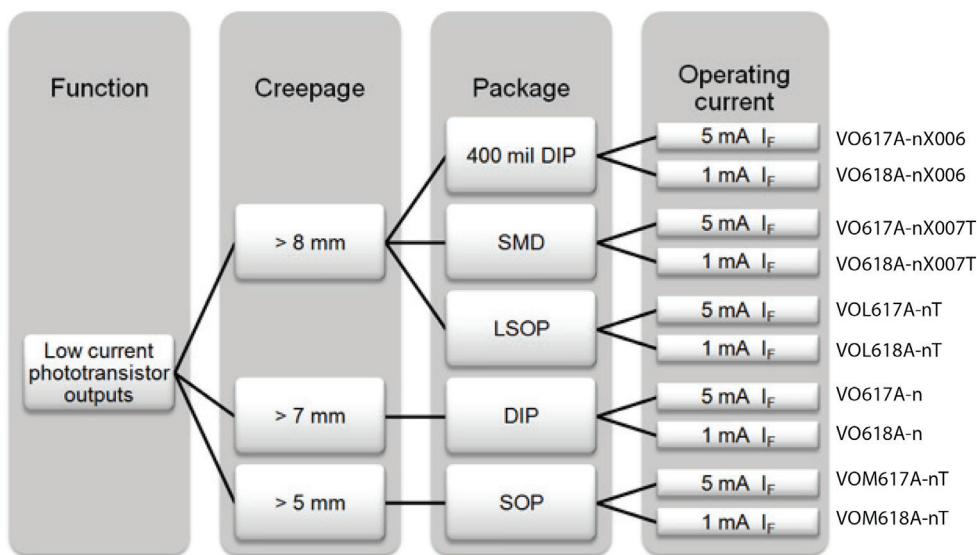
**VO617A-3X016**



Part name ending with "T" is packaged in take and reel. Select option 1 for VDE certified part.

## SELECTION GUIDE - PHOTOTRANSISTOR OUTPUT

You can select the specific set of features that you want through our selector guide. Data-sheets are also set up to clearly define all product that are currently available.



### Cannot find what you want?

Products not currently offered can be made available by contacting the local Vishay Sales offices

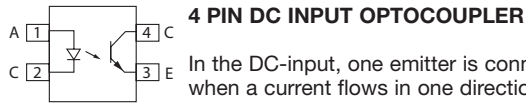


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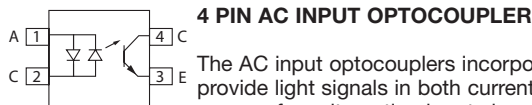
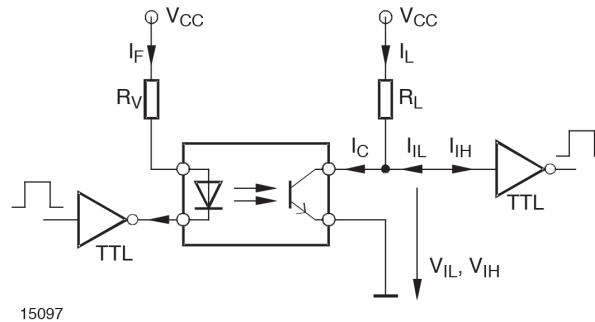
## CONFIGURATION AND APPLICATION

The 4 pin phototransistors come with two different input configurations. Figure 1 shows the input circuit for DC input signals while Figure 2 shows the input circuit for AC input signals.



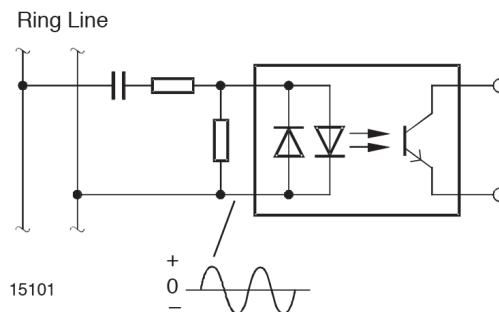
### 4 PIN DC INPUT OPTOCOUPLER

In the DC-input, one emitter is connected in the input circuit so that the emitter emits light to provide a signal when a current flows in one direction (one-direction input type), which permits DC input only. This configuration is commonly used for switching or regulating unidirectional signals: microcontroller ports, comparators, or voltage regulators at SMPS to transmit galvanic isolated signals.



### 4 PIN AC INPUT OPTOCOUPLER

The AC input optocouplers incorporate an input circuit with two emitters connected in reverse parallel; they provide light signals in both current direction (bi-directional input type). This configuration is mainly used for half waves of an alternating input signal.





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## WORLDWIDE SALES CONTACTS

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