## General Description

The PVI Series Photovoltaic Isolator generates an electrically isolated DC voltage upon receipt of a DC input signal. It is capable of directly driving gates of power MOSFETs or IGBTs. It utilizes a monolithic integrated circuit photovoltaic generator of novel construction as its output. The output is controlled by radiation from a GaAlAs light emitting diode (LED), which is optically isolated from the photovoltaic generator.

The PVI Series is ideally suited for applications requiring high-current and/or high-voltage switching with optical isolation between the low-level driving circuitry and high-energy or high-voltage load circuits. It can be used for directly driving gates of power MOSFETs. The dual-channel device allows its outputs to drive independent discrete power MOSFETs, or be connected in parallel or in series to provide higher current drive for power MOSFETs or higher voltage drive for IGBTs. The PVI Series Photovoltaic isolators employ fast turn-off circuitry.

These PVI Series Photovoltaic Isolators are packaged in 8-pin, molded DIP packages and available with either thru-hole or surface-mount ("gull-wing") leads, in plastic shipping tubes.

Features

- Isolated Voltage Source
- Monolithic Construction
- Up to $8\mu A$ Output
- Single Output
- Solid-State Reliability
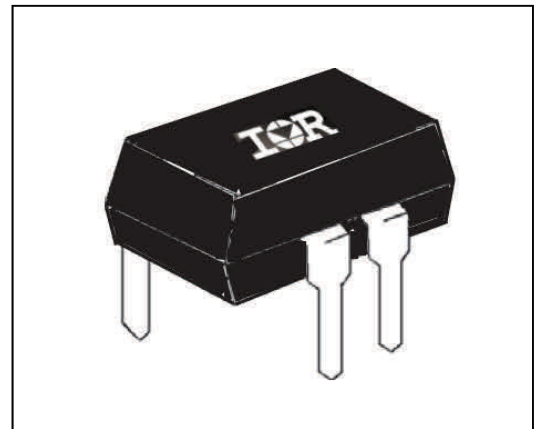
Applications

- Load Distribution
- Industrial Controls
- Current-to-Voltage Conversion
- Custom Solid-State Relay

Part Identification

PVI5080NPbF   thru-hole

PVI5080NSPbF   Surface-mount
                     (gull-wing)

Electrical Specifications (-40°C $\leq T_A \leq$ +85°C unless otherwise specified)

INPUT CHARACTERISTICS	Limits	Units
Input Current Range (see figure 4)	2.0 to 50	mA (DC)
Maximum Forward Voltage Drop @ 10mA, 25°C (see figure 5)	1.4	V (DC)
Maximum Reverse Voltage	6.0	V (DC)
Maximum Reverse Current @ -6.0V (DC), 25°C	100	μA (DC)
Maximum Pulsed Input Current @ 25°C (see figure 6)	1.0	A (peak)

OUTPUT CHARACTERISTICS	Limits	Units
Maximum Forward Voltage @ 10μA	8.0 per channel	V(DC)
Maximum Reverse Current @ -10V$_{DC}$	10	μA (DC)

COUPLED CHARACTERISTICS	Limits	Units
Minimum Open Circuit Voltage @ ILED = 10mA, 25°C, RL = >10MΩ (see figures 1 to 2)	5.0	V(DC)
Minimum Short Circuit Current @ ILED = 14mA, 25°C (see figures 1 to 2)	8.0	μA (DC)
Maximum Capacitance (Input/Output)	1.0	pF
Maximum Ton Time @ ILED=10mA, CLOAD=10pF (See Figure7)　　　　　RL > 20MΩ	300	μS
RL=10MΩ	160	μS
RL=4.7MΩ	90	μS
Maximum Toff Time @ ILED=10mA, CLOAD=10pF (See Figure7)	220	μS

GENERAL CHARACTERISTICS	Limits	Units
Minimum Dielectric Strength, Input-Output	4000	V$_{RMS}$
Minimum Dielectric Strength, Output-to-Output	1200	V$_{DC}$
Minimum Insulation Resistance, Input-to-Output, @T$_A$=+25°C, 50%RH, 100V$_{DC}$	10^{12}	Ω
Maximum Pin Soldering Temperature (10 seconds maximum)	+260	
Ambient Temperature Range:　　　　　　　　Operating	-40 to 85	°C
Storage	-40 to 125	

Infineon Technology does not recommend the use of this product in aerospace, avionics, military or life support applications. Users of this Infineon Technology product in such applications assume all risks of such use and indemnify Infineon Technology against all damages resulting from such use.
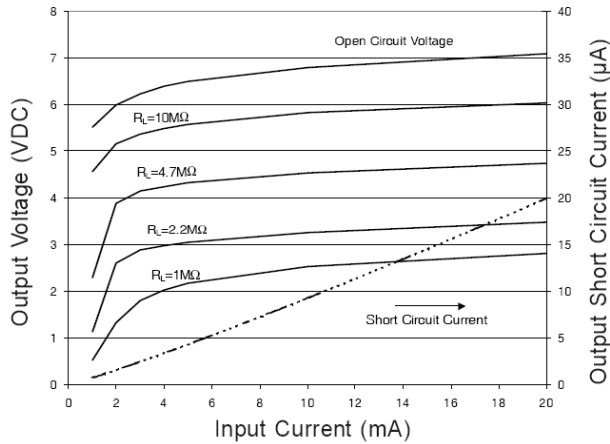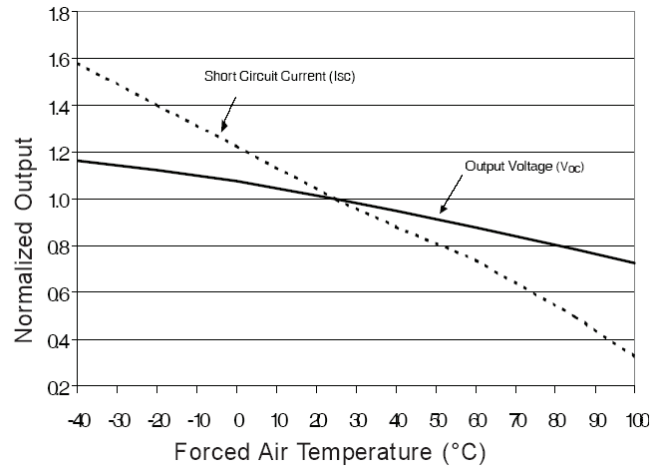
Figure 1. Typical Output Characteristics

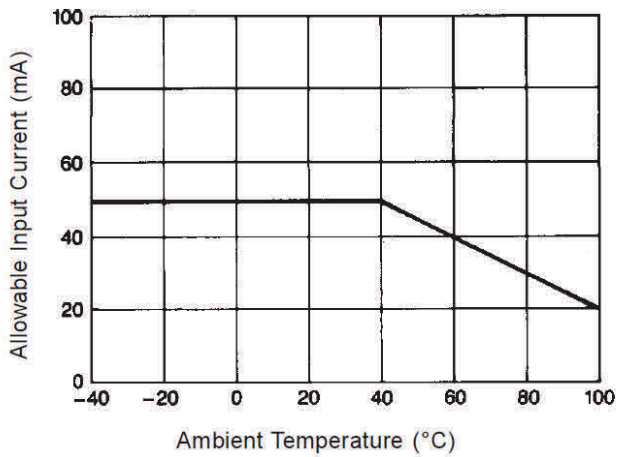**Figure 2.** Typical Variation of Output
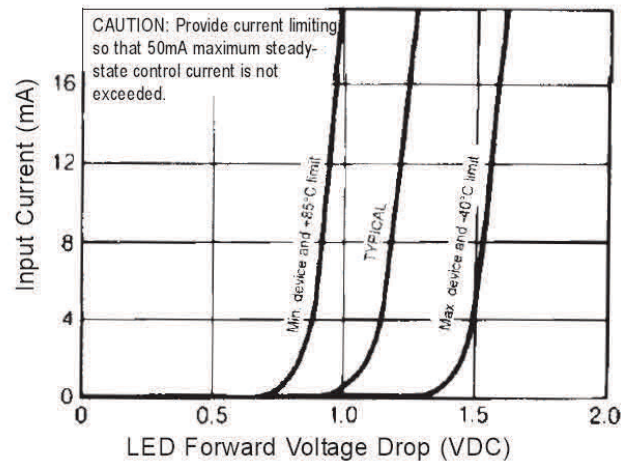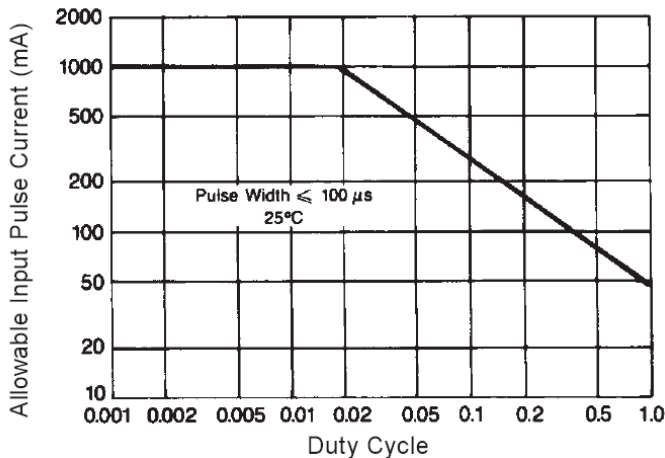

Figure 3. Input Current Derating

Figure 4. Input Characteristics
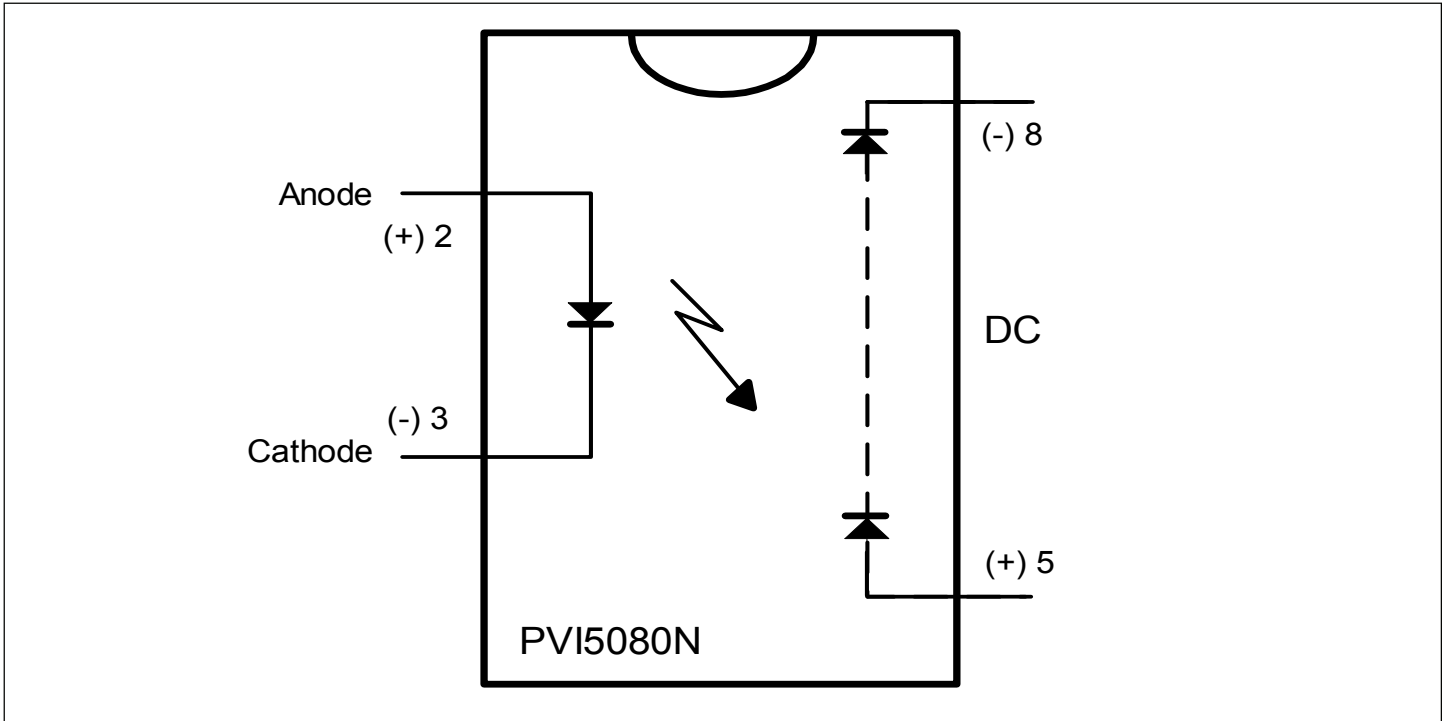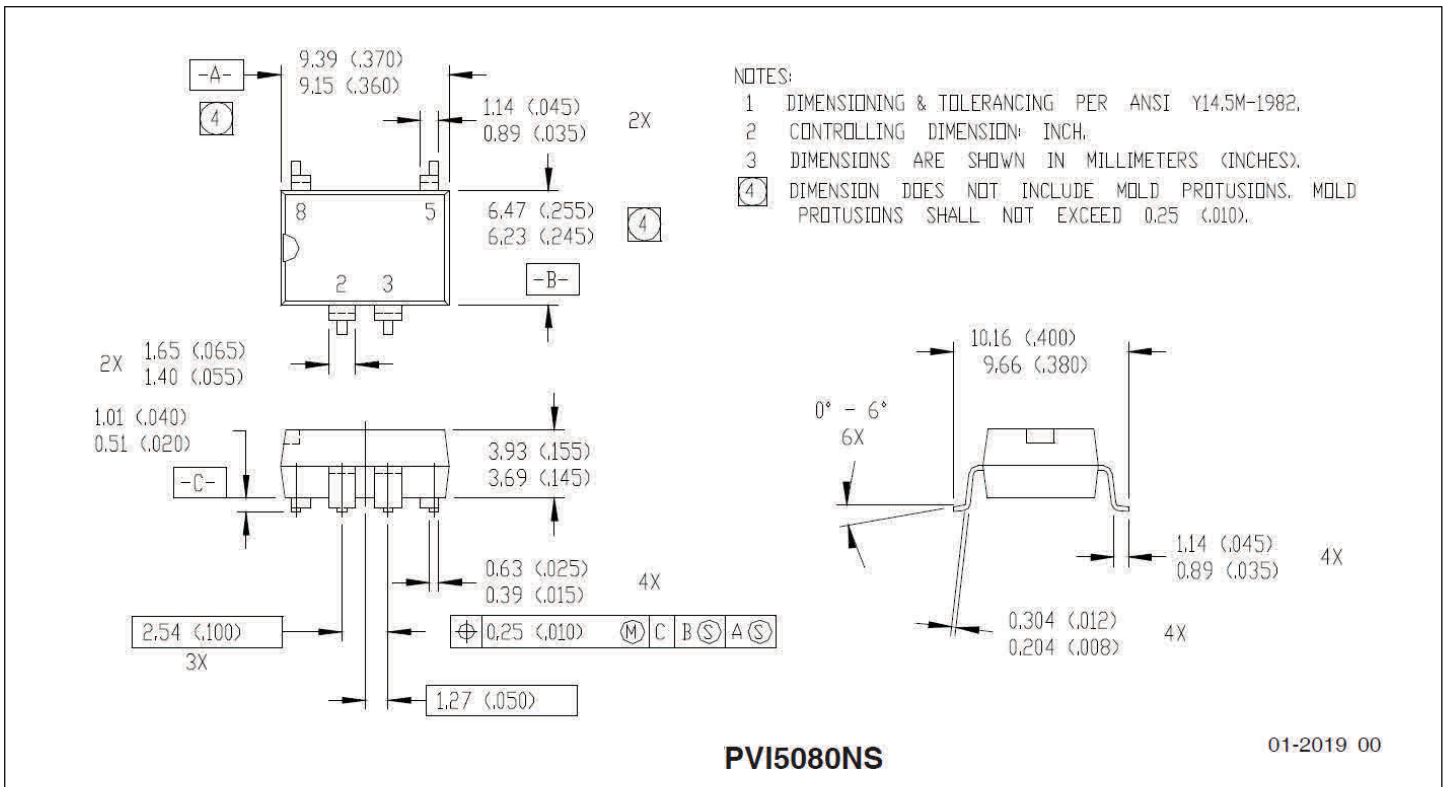

Figure 5. Input Pulse Capability
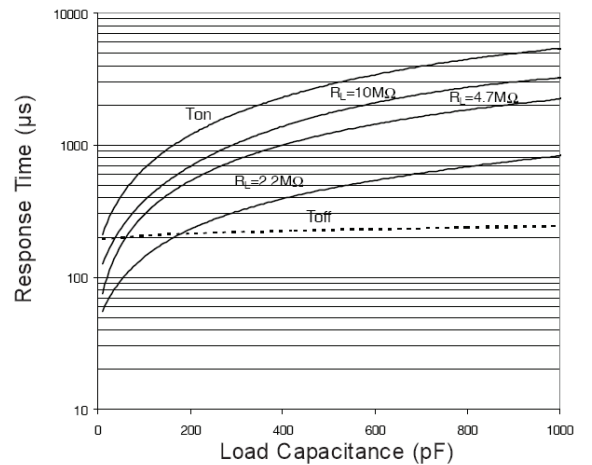
Figure 6. Typical Response Time

2017-12-05

Wiring Diagram

Anode

(+) 2

(-) 3

Cathode

(-) 8

DC

(+) 5

PVI5080N

Case Outlines

PVI5080N

NOTES:
1. DIMENSIONING & TOLERANCING PER ANSI Y14.5M-1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSIONS ARE SHOWN IN MILLIMETERS (INCHES).
4. OUTLINE CONFORMS TO JEDEC OUTLINE MS-001AB.
5. MEASURED WITH THE LEADS CONSTRAINED TO BE PERPENDICULAR TO DATUM PLANE C.

01-2013 00 (MS-001AB)

PVI5080NS

NOTES:
1. DIMENSIONING & TOLERANCING PER ANSI Y14.5M-1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSIONS ARE SHOWN IN MILLIMETERS (INCHES).
4. DIMENSION DOES NOT INCLUDE MOLD PROTUSIONS. MOLD PROTUSIONS SHALL NOT EXCEED 0.25 (.010).

01-2019 00

Qualifiction Information

Qualification Level	Industrial (per JEDEC JESD47F[†] guidelines)	
Moisture Sensitivity Level	PVI5080NPbF	N/A
	PVI5080NSPbF	MSL4 (per JEDEC J-STD-020E & JEDEC J-STD-033C) [†]
RoHS Compliant	Yes	

† Applicable version of JEDEC standard at the time of product release.

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