International
IOR Rectifier

Data Sheet No. PD10054 revG

Series PVI-NPbF

Photovoltaic Isolator
Single and Dual Channel
5-10 Volt Output

General Description

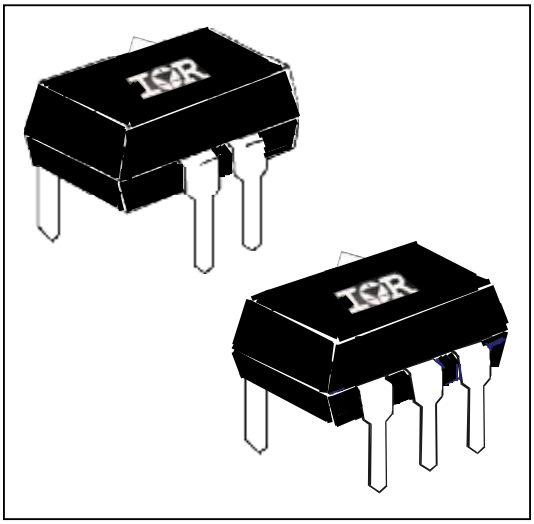
The PVI Series Photovoltaic Isolator generates an electrically isolated DC voltage upon receipt of a DC input signal. It is capable of directly driving gates of power MOSFETs or IGBTs. It utilizes a monolithic integrated circuit photovoltaic generator of novel construction as its output. The output is 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 8µA Output
- Single or Dual Output
- Solid-State Reliability



Applications

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

Part Identification

PVI1050NPbF	
PVI5050NPbF	thru-hole
PVI5080NPbF	
PVI1050NSPbF	surface-mount
PVI5050NSPbF	(gull-wing)
PVI5080NSPbF	
PVI1050NS-TPbF	surface-mount, tape and reel

Electrical Specifications (-40°C ≤ T_A ≤ +85°C unless otherwise specified)

INPUT CHARACTERISTICS	PVI Series	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	PVI Series	Units
Maximum Forward Voltage @ 10µA	8.0 per channel	V(DC)
Maxiumum Reverse Current @ -10VDC	10	µA(DC)

COUPLED CHARACTERISTICS	PVI5050N	PVI5080N	PVI1050N	Units
Minimum Open Circuit Voltage @ ILED = 10mA, 25°C, RL = >10MΩ (see figures 1 to 2)	5.0		5.0/channel 10 series	V (DC)
Minimum Short Circuit Current @ ILED = 10mA, 25°C (see figures 1 to 2)	5.0	8.0	5.0 /channel 10 parallel	µA (DC)
Maximum Capacitance (Input/Output)	1.0		2.0	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		PVI5050N/5080N	PVI1050N	Units
Min. Dielectric Strength, Input-Output		4000	2500	V_{RMS}
Min. Dielectric Strength, Output-to-Output		1200		VDC
Min. Insulation Resistance, Input-to-Output @T_A=+25°C, 50%RH, 100V_{DC}		10^{12}		Ω
Max. Pin Soldering Temperature (10 seconds max.)		+260		°C
Ambient Temperature Range:	Operating	-40 to +85		°C
	Storage	-40 to +125		°C

International Rectifier does not recommend the use of this product in aerospace, avionics, military or life support applications. Users of this International Rectifier product in such applications assume all risks of such use and indemnify International Rectifier against all damages resulting from such use.

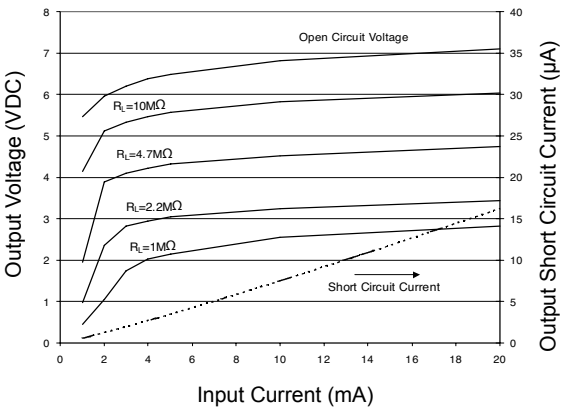


Figure 1. PVI5050N, PVI1050N Typical Output Characteristics

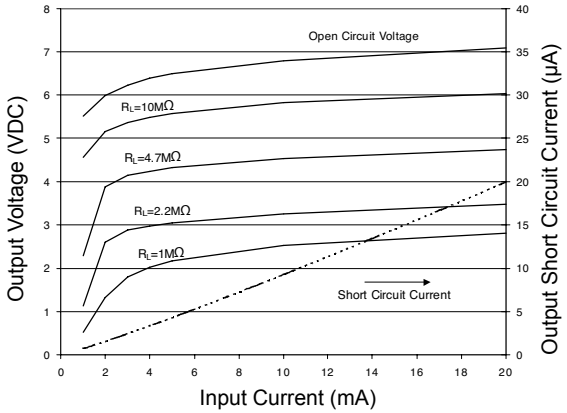


Figure 2. PVI5080N Typical Output Characteristics

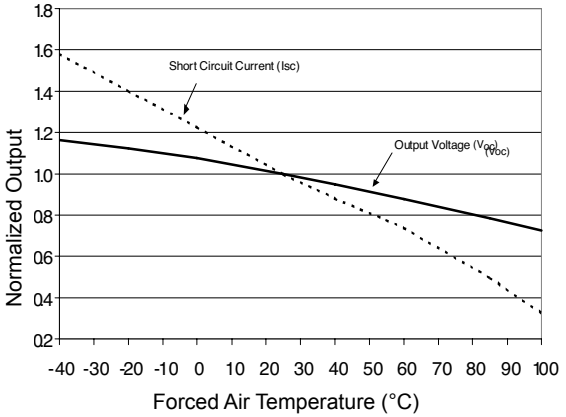


Figure 3. Typical Variation of Output

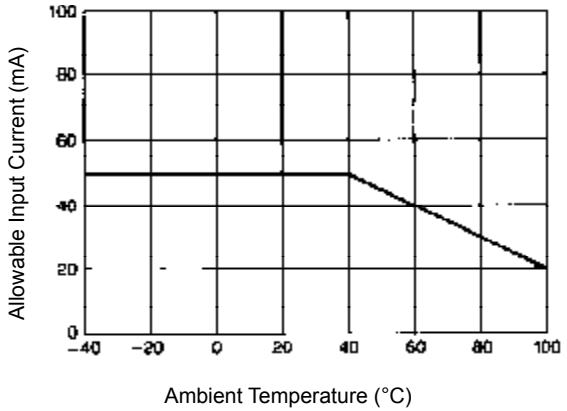


Figure 4. Input Current Derating

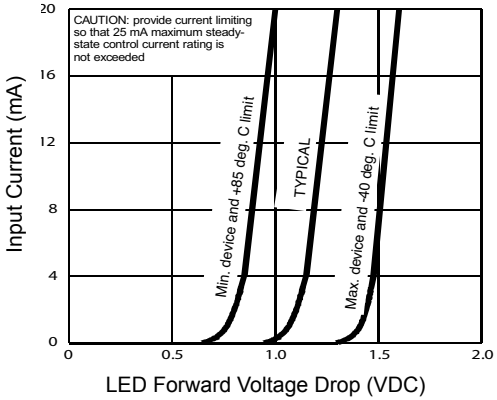


Figure 5. Input Characteristics

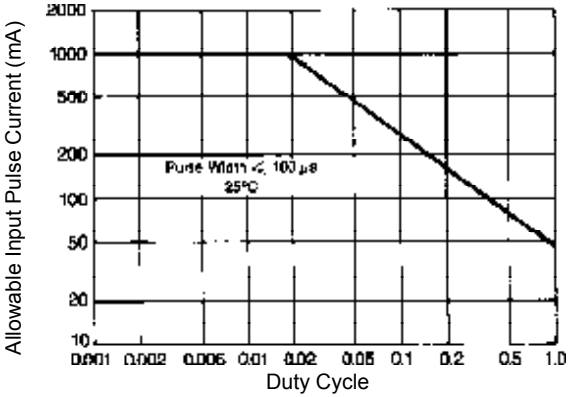


Figure 6. Input Pulse Capability

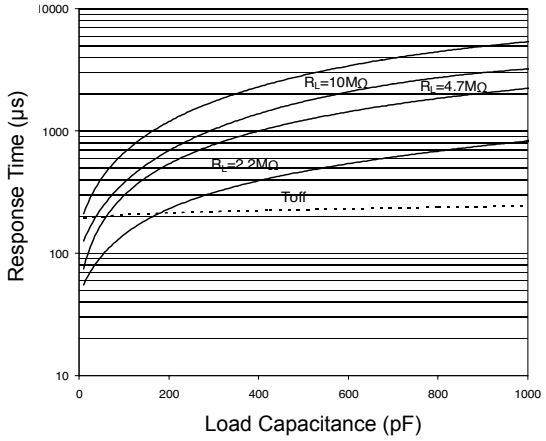
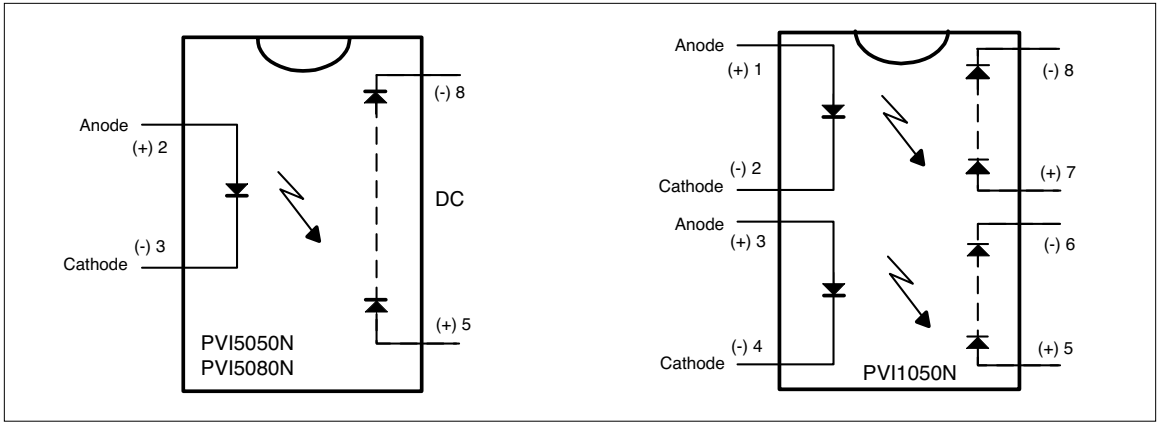


Figure 7. Typical Response Time

Wiring Diagram

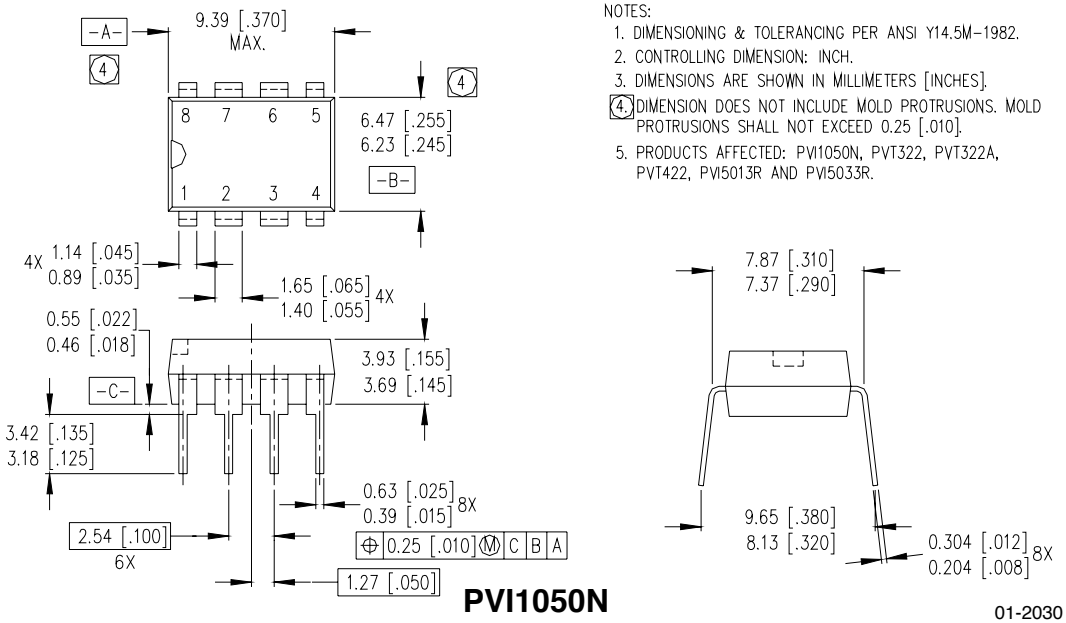


Application Note:

The outputs of the PVI1050N (pins 5-6 and 7-8) may be placed in series connection to produce a 10-volt output with a 5μA minimum short circuit current. Alternatively, the two ouptut of the PVI1050 may be connected in parallel to produce a 5.0-volt ouput with a 10μA minimum short circuit current.

The two outputs of the PVI1050N may be applied separately with a maximum 1200VDC between the outputs. Input-to-output isolation to either output is 2500V (RMS).

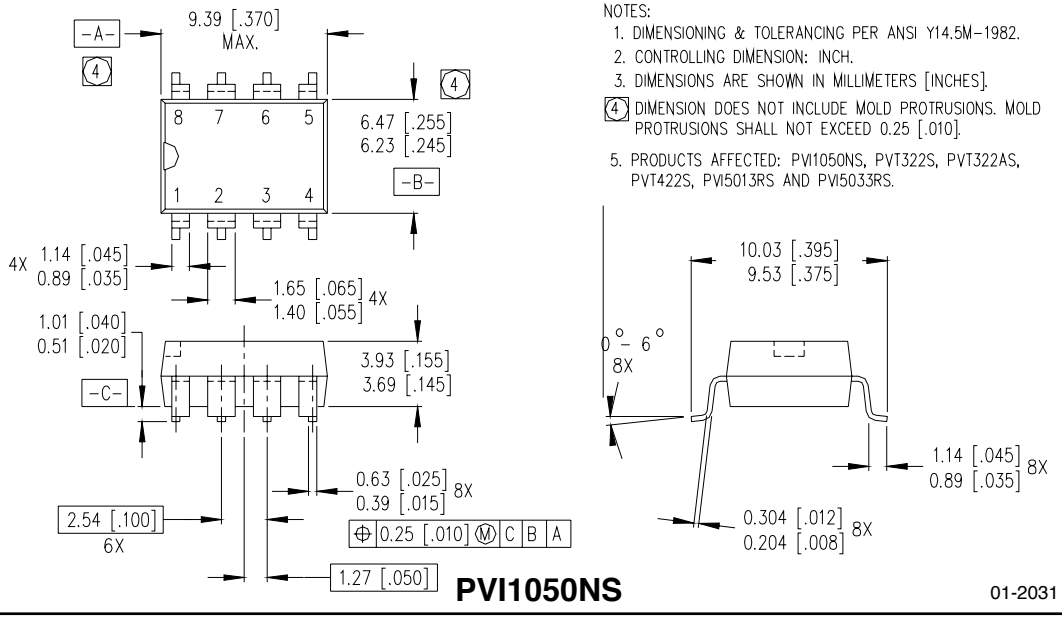
Case Outlines



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 PROTRUSIONS. MOLD PROTRUSIONS SHALL NOT EXCEED 0.25 [.010].
5. PRODUCTS AFFECTED: PVI1050N, PVT322, PVT322A, PVT422, PVI5013R AND PVI5033R.

PVI1050N

01-2030 01



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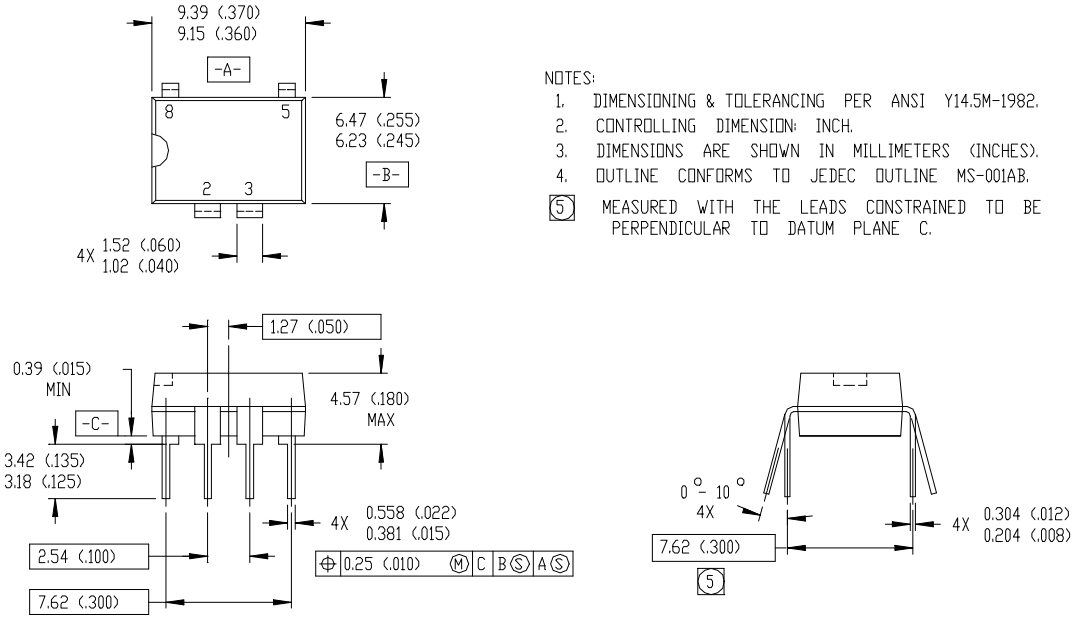
4. DIMENSION DOES NOT INCLUDE MOLD PROTRUSIONS. MOLD PROTRUSIONS SHALL NOT EXCEED 0.25 [.010].
5. PRODUCTS AFFECTED: PVI1050NS, PVT322S, PVT322AS, PVT422S, PVI5013RS AND PVI5033RS.

PVI1050NS

01-2031 01



NOTES:

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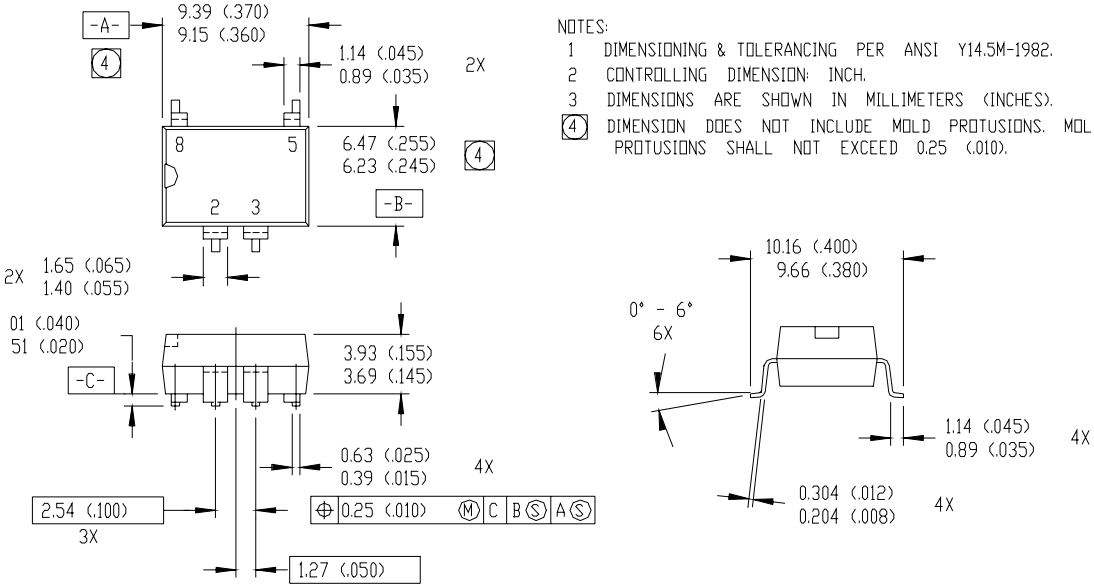
2. CONTROLLING DIMENSION: INCH.
3. DIMENSIONS ARE SHOWN IN MILLIMETERS (INCHES).
4. OUTLINE CONFORMS TO JEDEC OUTLINE MS-001AB.

(5) MEASURED WITH THE LEADS CONSTRAINED TO BE PERPENDICULAR TO DATUM PLANE C.

PVI5050N/PVI5080N

01-2013 00 (MS-001AB)



NOTES:

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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).

PVI5050NS/PVI5080NS

01-2019 00

Data and specifications subject to change without notice. 2/2008

Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.

Как с нами связаться

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