

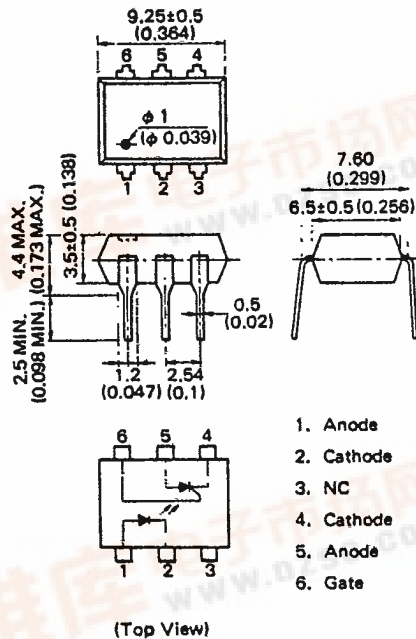
# PHOTO SCR COUPLERS PS3001(1), PS3002(1)

## PHOTO SCR COUPLER

### DESCRIPTION

The PS3001 and PS3002 are optically coupled isolators containing GaAs infrared emitting diode and a PNP silicon photo SCR.

### PACKAGE DIMENSIONS in millimeters (inches)



### FEATURES

- High Voltage Isolation 2 500 VDC MIN.
- Low Turn on Current 12 mA MAX.
- Plastic dual-in-line package
- High Speed Switching
- Economical, Compact.

### APPLICATIONS

- Interface circuit for various instrumentations, control equipments
- Replaceable from a reed relay

### ABSOLUTE MAXIMUM RATINGS (Ta=25 °C)

#### Diode

Reverse Voltage	VR	6 V.
Forward Current (DC)	IF	80 mA
Peak Forward Current	IFP	3 A
Power Dissipation	PD	100 mW

#### SCR

Peak Off and Reverse Voltage	VDRM, VRRM	PS3001 200 V PS3002 400 V
Direct On-State Current	IT	300 mA
Peak pulse current *1	ITP	3 A
Peak surge on Current	ITSM	3 A
Power Dissipation	PSCR	350 mW
Isolation Voltage *2	BV	2500 VAC
Storage Temperature	Tstg	-55 to +125 °C
Operation Temperature	Topt	-55 to +100 °C
Lead Soldering Time (at 260 °C)		10 s.

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ELECTRICAL CHARACTERISTICS (Ta=25 °C)

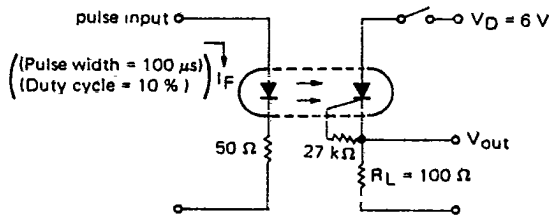
CHARACTERISTIC		SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Diode	Forward Voltage	V <sub>F</sub>		1.1	1.4	V	I <sub>F</sub> =20 mA
	Reverse Current	I <sub>R</sub>			10	μA	V <sub>R</sub> =6 V
	Junction Capacitance	C <sub>t</sub>		50		pF	V=0, f=1.0 MHz
Photo SCR	Peak Off-State Current	I <sub>DRM</sub>			10	μA	V <sub>DRM</sub> =Rated R <sub>GK</sub> =27 kΩ
	Reverse Current	I <sub>RRM</sub>			10	μA	T <sub>a</sub> =100 °C
	On State Voltage	V <sub>TM</sub>			1.3	V	I <sub>T</sub> =300 mA
	Holding Current	I <sub>H</sub>		0.2	1	mA	R <sub>GK</sub> =27 kΩ, V <sub>D</sub> =24 V
	Rate of rise of forward blocking Voltage	dV/dt	0.5	1.0		V/μs	V <sub>DRM</sub> =Rated R <sub>GK</sub> =27 kΩ, T <sub>a</sub> =100 °C
Coupled	Turn on Current *3	I <sub>FT</sub>		5	12	mA	V <sub>D</sub> =6 V, R <sub>GK</sub> =27 kΩ
	Isolation breakdown Voltage	V <sub>1-2</sub>	2500			V <sub>DC</sub>	DC/1 minute
	Isolation Resistance	R <sub>1-2</sub>	10 <sup>11</sup>			Ω	V <sub>in-out</sub> =1.0 kV
	Isolation Capacitance	C <sub>1-2</sub>		0.8		pF	V=0, f=1.0 MHz
	Turn on Time *4	t <sub>on</sub>		10		μs	I <sub>FT</sub> =50 mA, V <sub>D</sub> =6 V R <sub>GK</sub> =27 kΩ, R <sub>L</sub> =100 Ω

\*1 pulse width = 100 μs  
Repetitive Frequency = 100 Hz

\*2 Measuring Condition  
DC voltage for 1 minute at T<sub>a</sub> = 25 °C; RH = 60 %  
Between input (pin No. 1, 2 and No. 3 Common)  
and output (pin No. 4, 5 and No. 6 Common)

\*3 I<sub>FT</sub> rank  
KX : to 12 mA  
LX : to 7 mA

\*4 Turn on Time Test Circuit



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TYPICAL CHARACTERISTICS (Ta=25 °C)

