

PHOTO SCR COUPLERS

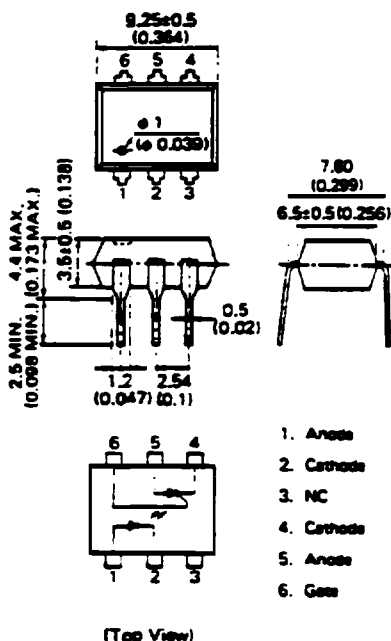
PS3001 (1), PS3002 (1)

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 V_{DC} 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 (T_a=25 °C)

Diode

Reverse Voltage	V _R	6 V
Forward Current (DC)	I _F	80 mA
Peak Forward Current	I _{FP}	3 A
Power Dissipation	P _D	100 mW

SCR

Peak Off and Reverse Voltage	V _{DRM} , V _{RRM}	PS3001 200 V PS3002 400 V
Direct On-State Current	I _T	300 mA
Peak pulse current *1	I _{TP}	3 A
Peak surge on Current	I _{TSM}	3 A
Power Dissipation	P _{SCR}	350 mW
Isolation Voltage *2	BV	2500 V _{AC}
Storage Temperature	T _{stg}	-55 to +125 °C
Operation Temperature	T _{opt}	-55 to +100 °C
Lead Soldering Time (at 260 °C)		10 s.

ELECTRICAL CHARACTERISTICS (Ta=25 °C)

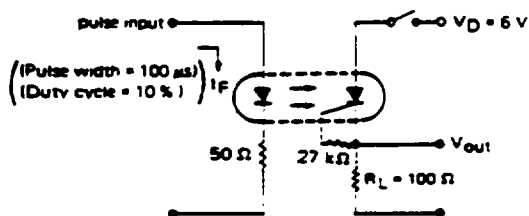
	CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Diode	Forward Voltage	V_F		1.1	1.4	V	$I_F=20\text{ mA}$
	Reverse Current	I_R			10	μA	$V_R=6\text{ V}$
	Junction Capacitance	C_j		50		pF	$V=0, f=1.0\text{ MHz}$
Photo SCR	Peak Off-State Current	I_{DRM}			10	μA	$V_{DRM}=\text{Rated}$ $R_{GK}=27\text{ k}\Omega$
	Reverse Current	I_{RRM}			10	μA	$T_a=100\text{ }^\circ\text{C}$
	On State Voltage	V_{TM}			1.3	V	$I_T=300\text{ mA}$
	Holding Current	I_H		0.2	1	mA	$R_{GK}=27\text{ k}\Omega, V_D=24\text{ V}$
Coupled	Rate of rise of forward blocking Voltage	dV/dt	0.5	1.0		V/ μs	$V_{DRM}=\text{Rated}$ $R_{GK}=27\text{ k}\Omega, T_a=100\text{ }^\circ\text{C}$
	Turn on Current *3	I_{FT}		5	12	mA	$V_D=6\text{ V}, R_{GK}=27\text{ k}\Omega$
	Isolation breakdown Voltage	V_{1-2}	2500			VDC	DC/1 minute
	Isolation Resistance	R_{1-2}	10^{11}			Ω	$V_{in-out}=1.0\text{ kV}$
	Isolation Capacitance	C_{1-2}		0.8		pF	$V=0, f=1.0\text{ MHz}$
	Turn on Time *4	t_{on}		10		μs	$I_{FT}=50\text{ mA}, V_D=6\text{ V}$ $R_{GK}=27\text{ k}\Omega, R_L=100\text{ }\Omega$

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

*2 Measuring Condition
DC voltage for 1 minute at $T_a = 25\text{ }^\circ\text{C}$; RH = 60 %
Between input (pin No. 1, 2 and No. 3 Common)
and output (pin No. 4, 5 and No. 6 Common)

*3 I_{FT} rank
KX : to 12 mA
LX : to 7 mA

*4 Turn on Time Test Circuit



TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

