

PRELIMINARY DATA SHEET

NEC

**HIGH OUTPUT CURRENT
PHOTO TRIAC OUTPUT TYPE
10 PIN PHOTOCOUPLER**

**PS3901
PS3901L
PS3902
PS3902L**

FEATURES

- **HIGH RMS ON STATE CURRENT**
I_{T (RMS)}: 1.2 A MAX
- **HIGH INPUT FORWARD CURRENT**
I_F: 150 mA MAX
- **HIGH CRITICAL RATE OF RISE OF OFF-STATE VOLTAGE**
dv/dt: 500 V/μs TYP
- **LOW INPUT TRIGGER CURRENT**
I_{FT}: 5 mA MAX
- **HIGH REPETITIVE PEAK OFF-STATE VOLTAGE**
PS3901: V_{DRM}: 600 V_{r.m.s.}
PS3902: V_{DRM}: 400 V_{r.m.s.} MIN
- **HIGH ISOLATION VOLTAGE**
BV: 5000 V_{r.m.s.} MIN

DESCRIPTION

PS3901, PS3902, PS3901L and PS3902L are optically coupled isolators containing a GaAs light emitting diode and photo triac. PS3901 and PS3902 are in a plastic DIP (Dual In-line Package). PS3901L and PS3902L are lead bending type (Gull-wing) for surface mounting.

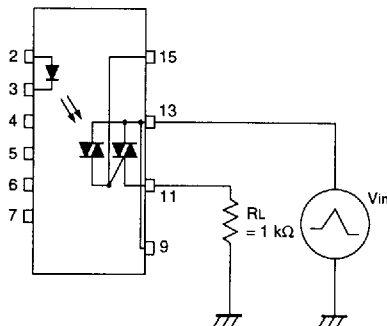
APPLICATIONS

- SSR
- MOTOR-CONTROLLERS
- ELECTRIC HOME APPLIANCES
- FAN HEATERS

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

PART NUMBER				PS3901, PS3902, PS3901L, PS3902L		
SYMBOLS		PARAMETERS	UNITS	MIN	TYP	MAX
Diode	V _F	Forward Voltage, I _F = 10 mA	V		1.1	1.4
	I _R	Reverse Current, V _R = 5 V	μA			10
	C _t	Capacitance, V = 0, f = 1 MHz	pF		30	
Triac	I _{DRM}	Peak Off-State Current, V _{DRM} = Rated	μA			100
	V _T	On-State Voltage, I _T = 1.2 A, I _F = 5 mA	V			3
	I _H	Holding Current	mA			25
	dv/dt	Rate Off-State Voltage ¹ , V _{DRM} = 1/√2 Rated	V/μs		500	
Coupled	I _{FT}	LED Trigger Current, V _T = 6 V	mA			5
	R ₁₋₂	Isolation Resistance, V _{in-out} = 1 k V _{DC}	Ω	10 ¹¹		
	C ₁₋₂	Isolation Capacitance, V = 0, f = 1.0 MHz	pF		1.5	

1. Test Circuit for Critical Rate of Rise of Off-State Voltage



ABSOLUTE MAXIMUM RATINGS¹ (T_A = 25°C)

SYMBOLS	PARAMETERS	UNITS	RATINGS	
			PS3901 PS3901L	PS3902 PS3902L
Diode				
I _F	Forward Current	mA	150	150
V _R	Reverse Voltage	V	6	6
P _D	Power Dissipation	mW	150	150
I _{FP}	Peak Forward Current PW = 100 μs, Duty Cycle 1%	A	1	1
Triac				
V _{DRM}	Repetitive Peak Off-State Voltage	V _{r.m.s.}	600	400
I _{T (RMS)}	RMS On-State Current	A	1.2	1.2
P _c	Power Dissipation	W	1.5	1.5
Coupled				
BV	Isolation Voltage ²	V _{r.m.s.}	5000	
T _{STG}	Storage Temperature	°C	-50 to +150	
T _{OP}	Operating Temperature	°C	-25 to +85	

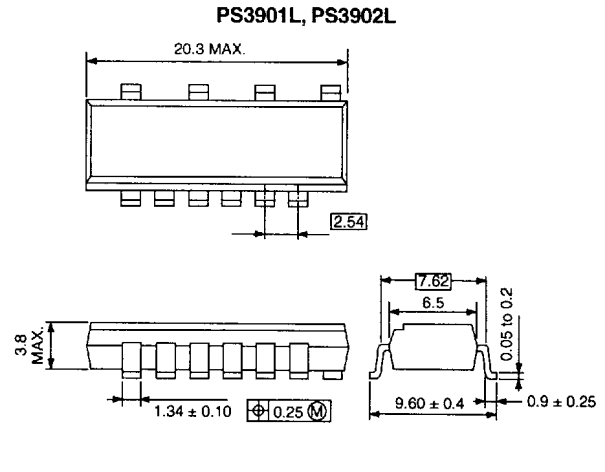
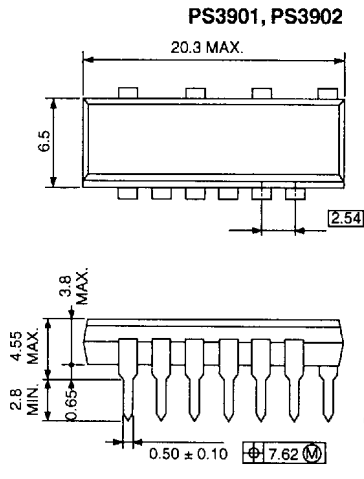
RECOMMENDED OPERATING CONDITIONS (T_A = 25°C)

PART NUMBER			PS3901, PS3902		
SYMBOLS	PARAMETERS	UNITS	MIN	TYP	MAX
V _{CC}	Supply Voltage PS3901, PS3901L PS3902, PS3902L	V _{r.m.s.} V _{r.m.s.}			240 120
I _F	Forward Current	mA	10	15	20
T _{OP}	Operating Temperature	°C	-20		+80

Notes:

1. Operation in excess of any one of these parameters may result in permanent damage.
2. AC voltage for 1 minute at T_A = 25 °C, RH = 60 % between input (Pin No. 2, 3, 4, 5, 6, 7 Common) and output (Pin No. 9, 11, 13, 15 Common).

OUTLINE DIMENSIONS (Units in mm)



PIN CONNECTIONS (Top View)

