

HIGH SENSITIVITY PHOTO TRIAC OUTPUT TYPE SOP PHOTOCOUPLER

PS3701-1
PS3702-1

FEATURES

- **LOW INPUT TRIGGER CURRENT**
IFT: 5 mA MAX
- **HIGH CRITICAL RATE OF RISE OF OFF-STATE VOLTAGE**
dV/dt: 500 V/μs TYP
- **HIGH REPETITIVE PEAK OFF-STATE VOLTAGE**
PS3701-1: VDRM: 600 V MIN
PS3702-1: VDRM: 400 V MIN
- **HIGH ISOLATION VOLTAGE**
BV: 2500 Vr.m.s. MIN
- **TAPING PRODUCT NAME**
PS3701-1-F3, PS3702-1-F3

DESCRIPTION

PS3701-1 and PS3702-1 are optically coupled isolators containing a GaAs light emitting diode and photo triac. Each is mounted in a plastic SOP (Small Out-Line Package) for high density applications.

APPLICATIONS

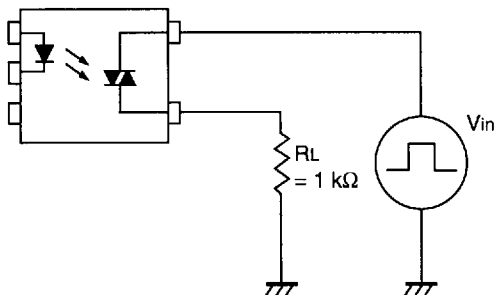
- SSR
- PROGRAMMABLE CONTROLLER
- ELECTRIC HOME APPLIANCE

ELECTRICAL CHARACTERISTICS (TA = 25°C)

PART NUMBER			PS3701-1, PS3702-1		
SYMBOLS	PARAMETERS	UNITS	MIN	TYP	MAX
Diode	VF	Forward Voltage, IF = 10 mA	V	1.1	1.4
	IR	Reverse Current, VR = 5 V	μA		5
	C1	Capacitance, V = 0, f = 1 MHz	pF	30	
Triac	IDRM	Peak Off-State Current, VDRM = Rated	nA		100
	VTM	Peak On-State Voltage, ITM = ± Rated	V	2.3	3
	IH	Holding Current	mA	0.2	
	dV/dt	Critical Rate of Rise of Off-State Voltage ¹ , Vin = ± 1/√2 Rated	V/μs	500	
Coupled	IFT	Trigger Input Current, VT = ± 6 V	mA	2	5
	R1-2	Isolation Resistance, Vin-out = 1 k VDC	Ω	10 ¹¹	
	C1-2	Isolation High Capacitance, V = 0, f = 1 MHz	pF	0.4	

Notes:

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



ABSOLUTE MAXIMUM RATINGS¹ (T_A = 25°C)

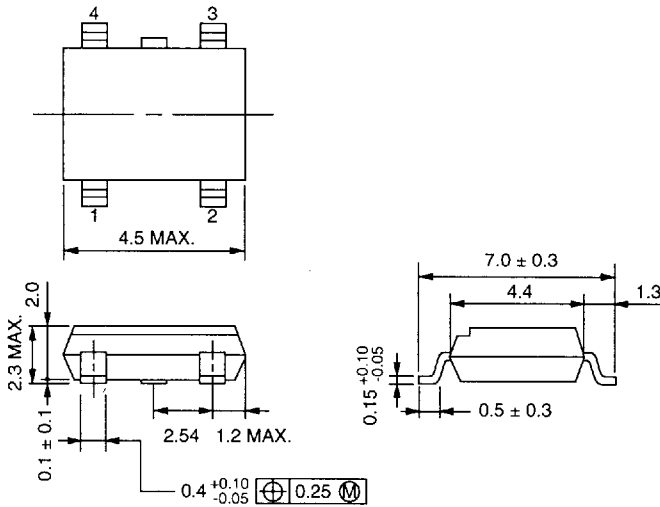
SYMBOLS	PARAMETERS	UNITS	RATINGS	
			PS3701-1	PS3702-1
Diode				
I _F	Forward Current	mA	50	50
V _R	Reverse Voltage	V	6	6
ΔP _D /°C	Power Dissipation Derating	mW/°C	0.8	0.8
P _D	Power Dissipation	mW	80	80
I _{FP}	Peak Forward Current PW = 100 μs, Duty Cycle 1%	A	1	1
Triac				
V _{DRM}	Repetitive Peak Off-State Voltage	V	600	400
I _{T(RMS)}	RMS On State Current	mA	80	80
I _{TSM}	Peak 1 Cycle Surge on Current ²	A	0.5	0.5
ΔP _c /°C	Power Dissipation Derating	mW/°C	1.5	1.5
P _c	Power Dissipation	mW	150	150
Coupled				
BV	Isolation Voltage ³	V _{r.m.s.}	2500	
T _{STG}	Storage Temperature	°C	-40 to +125	
T _{OP}	Operating Temperature	°C	-30 to +100	

Notes:

1. Operation in excess of any one of these parameters may result in permanent damage.
2. Sine Wave f = 50 Hz
3. AC voltage for 1 minute at T_A = 25 °C, RH = 60 % between input (pin No. 1, 2 Common) and output (pin No. 3, 4 Common).

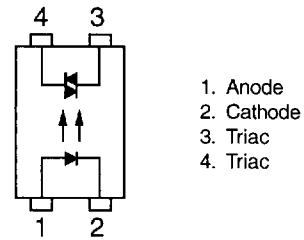
OUTLINE DIMENSIONS (Units in mm)

PS3701-1, PS3702-1



PIN CONNECTIONS (Top View)

PS3701-1, PS3702-1

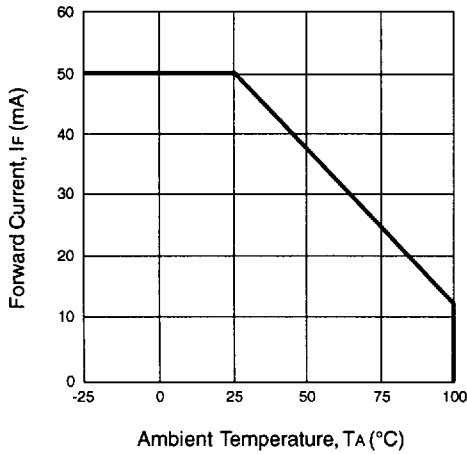


RECOMMENDED OPERATING CONDITIONS

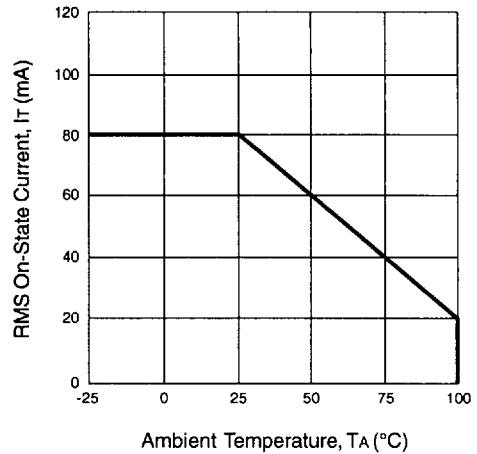
PART NUMBER			PS3701-1, PS3702-1		
SYMBOL	PARAMETERS	UNITS	MIN	TYP	MAX
V _{AC}	Supply Voltage	PS3701	V _{AC}		240
		PS3702			120
I _F	Forward Current	mA	7	10	15
T _{OP}	Operating Temperature	°C	-25		+85

TYPICAL PERFORMANCE CURVES (T_A = 25 °C)

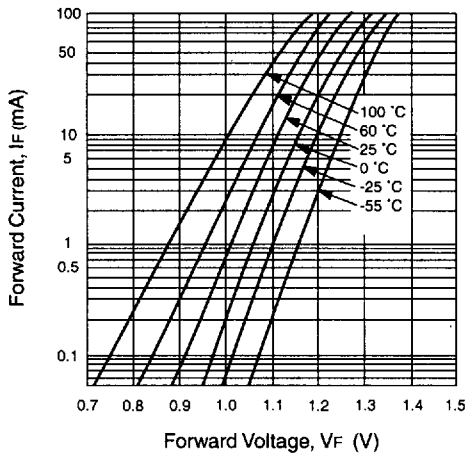
FORWARD CURRENT vs. AMBIENT TEMPERATURE



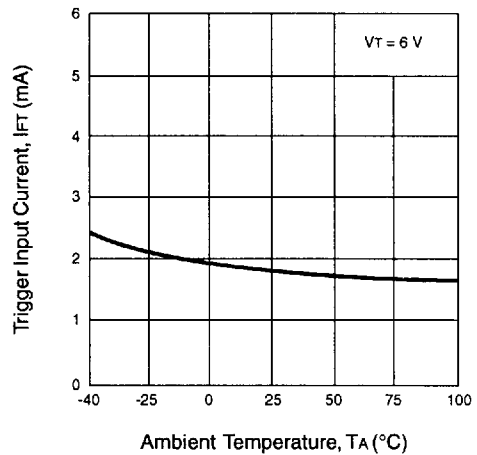
RMS ON-STATE CURRENT vs. AMBIENT TEMPERATURE



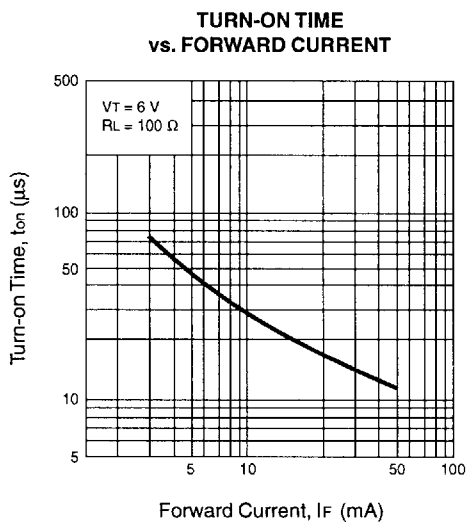
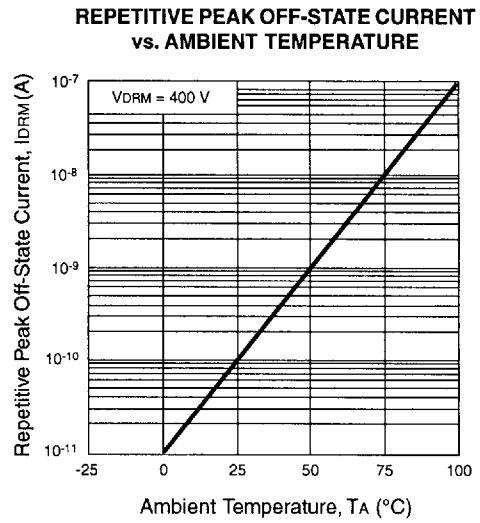
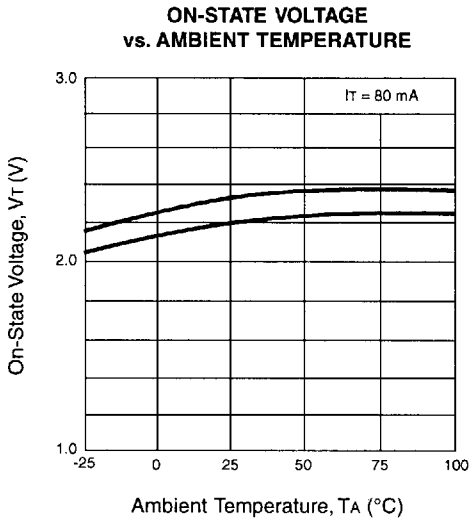
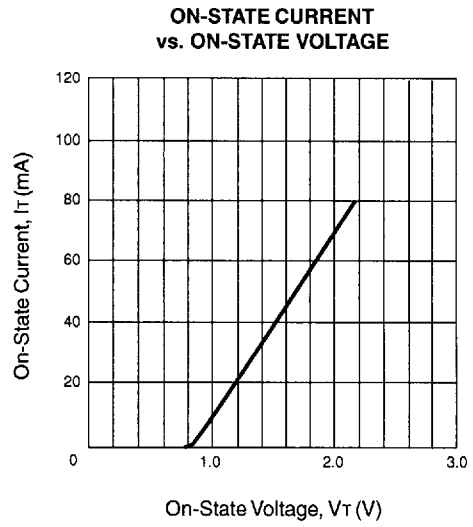
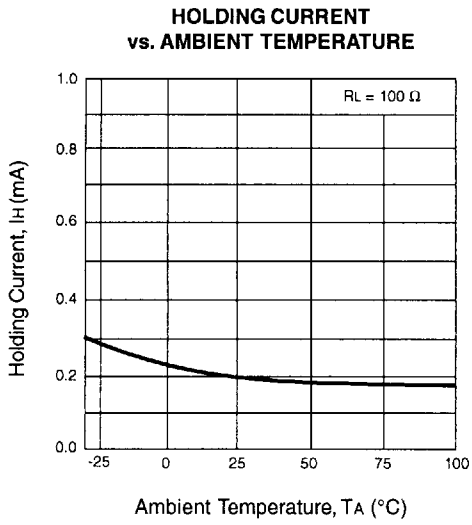
FORWARD CURRENT vs. FORWARD VOLTAGE



TRIGGER INPUT CURRENT vs. AMBIENT TEMPERATURE



TYPICAL PERFORMANCE CURVES ($T_A = 25^\circ\text{C}$)



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