

HIGH ISOLATION VOLTAGE AC INPUT, HIGH COLLECTOR VOLTAGE SOP MULTI PHOTOCOUPLER

PS2707-1
PS2707-2
PS2707-4

FEATURES

- **HIGH ISOLATION VOLTAGE**
BV: 3.75 k V_{r.m.s.} MIN
- **SOP (SMALL OUT-LINE PACKAGE)**
- **ISOLATED CHANNELS PER EACH PACKAGE**
- **AC INPUT RESPONSE**
- **HIGH COLLECTOR TO EMITTER VOLTAGE**
V_{CEO}: 120 V MIN
- **HIGH SPEED SWITCHING**
t_r, t_f = 10 μs TYP
- **TAPING PRODUCT NUMBER (ONLY -1 TYPE)**
PS2707-1-E3, F3

DESCRIPTION

The PS2707-1,-2 and -4 are optically coupled isolators containing a GaAs light emitting diode and a NPN silicon phototransistor. Each is mounted in a plastic SOP (Small Out-Line Package) for high density applications. This package has a shield effect to cut off ambient light.

APPLICATIONS

Interface circuit for various instrumentations and control equipment.

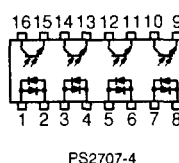
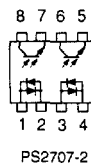
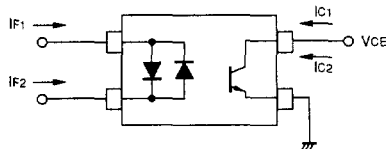
- **AC LINE/DIGITAL LOGIC**
- **DIGITAL LOGIC INTERFACE**
- **TWISTED PAIR LINE RECEIVER**
- **TELEPHONE/TELEGRAPH LINE RECEIVER**
- **SEQUENCE CONTROLLERS**
- **SYSTEMS APPLICATIONS, MEASURING INSTRUMENTS**

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

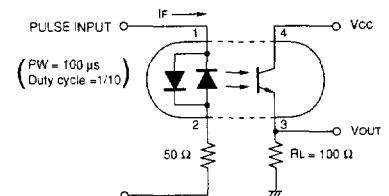
		PART NUMBER		PS2707-1, -2, -4		
SYMBOLS		PARAMETERS	UNITS	MIN	TYP	MAX
Diode	V _F	Forward Voltage, I _F = ±5 mA	V		1.1	1.4
	C	Junction Capacitance, V = 0, f = 1.0 MHz	pF		30	
Transistor	I _{CEO}	Collector to Emitter Dark Current, V _{CE} = 40 V, I _F = 0	nA			100
Coupled	CTR	Current Transfer Ratio, I _F = ±5 mA, V _{CE} = 5 V	%	50	150	400
		I _F = ±1 mA, V _{CE} = 5 V	%	10	80	
	CTR ₁ /CTR ₂	CTR Ratio ¹ , I _F = ±5 mA, V _{CE} = 5 V		0.3	1.0	3.0
	V _{CE(sat)}	Collector Saturation Voltage, I _F = ±10 mA, I _C = 2 mA	V			0.3
	R ₁₋₂	Isolation Resistance, V _{in-out} = 1.0 k V _{DC}	Ω	10 ¹¹		
	C ₁₋₂	Isolation Capacitance, V = 0, f = 1.0 MHz	pF		0.4	
	t _r	Rise Time ² , V _{CC} = 5 V, I _C = 2 mA, R _L = 100 kΩ	μs		10	
t _f	Fall Time ² , V _{CC} = 5 V, I _C = 2 mA, R _L = 100 kΩ	μs		10		

Notes:

$$1. CTR_1 = \frac{I_{C1}}{I_{F1}} \quad CTR_2 = \frac{I_{C2}}{I_{F2}}$$



2. Test Circuit for Switching Time



ABSOLUTE MAXIMUM RATINGS¹ (T_A = 25°C)

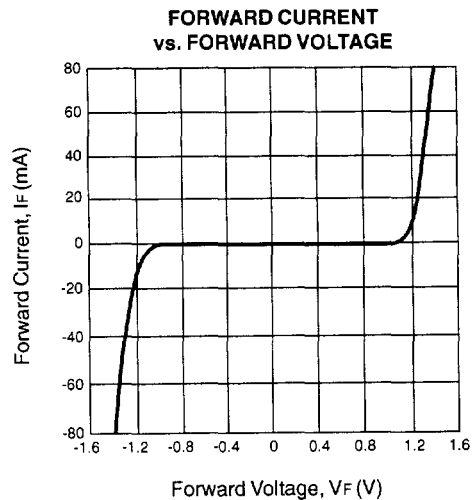
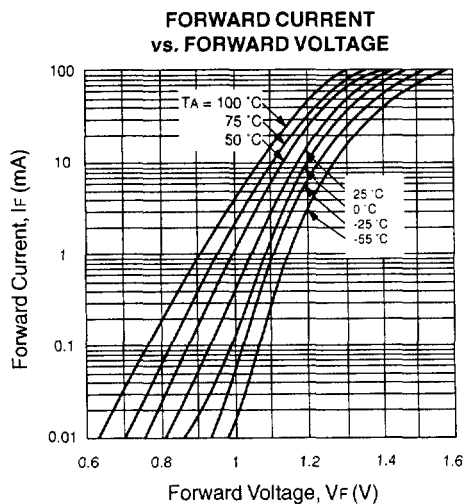
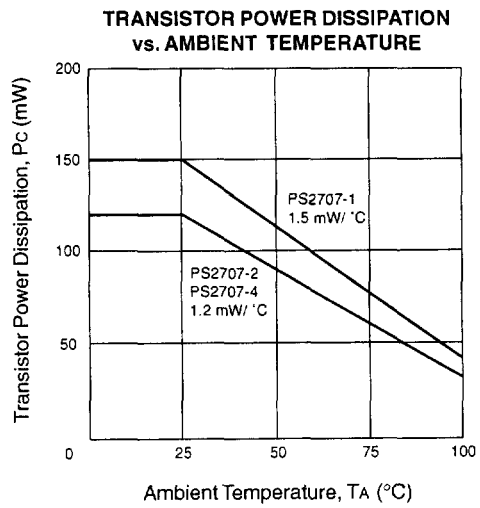
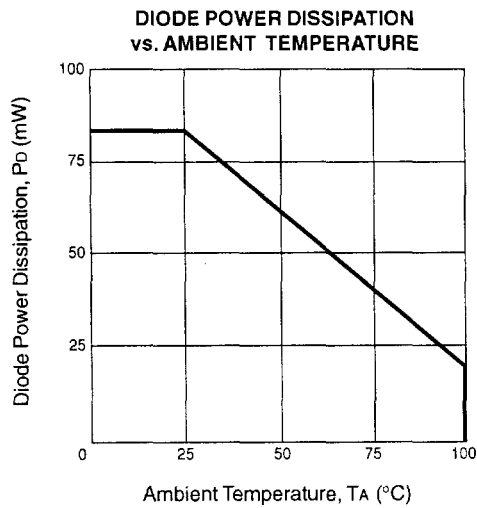
SYMBOLS	PARAMETERS	UNITS	RATINGS	
Diode			PS2707-1	PS2707-2,-4
I _F	Forward Current (DC)	mA	±50	±50
P _D	Power Dissipation	mW/Ch	80	80
I _F (PEAK)	Peak Forward Current PW = 100 μs, Duty Cycle 1%	A	±1	±1
Transistor				
V _{CEO}	Collector to Emitter Voltage (I _C = 1mA, I _B = 0)	V	120	120
V _{ECO}	Emitter to Collector Voltage (I _E = 100μA, I _B = 0)	V	6	6
I _C	Collector Current	mA/Ch	30	30
P _C	Power Dissipation	mW/Ch	150	120
Coupled				
BV	Isolation Voltage ²	V _{r.m.s.}	3750	3750
T _{STG}	Storage Temperature	°C	-55 to +150	-55 to +150
T _{OP}	Operating Temperature	°C	-50 to +100	-55 to +100

Notes:

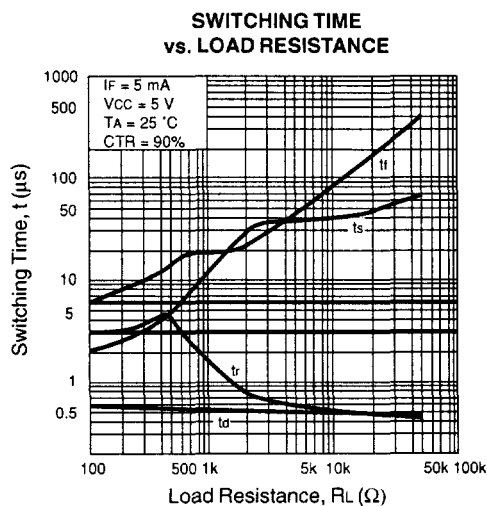
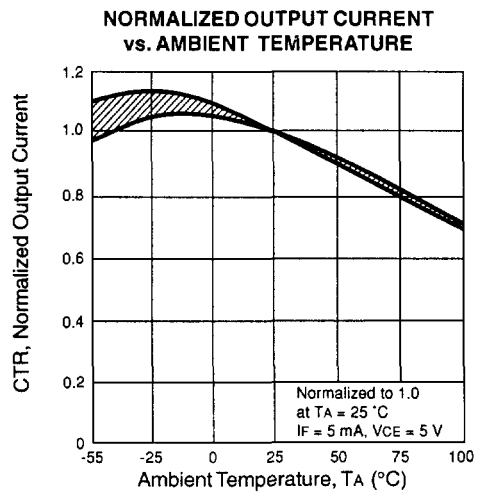
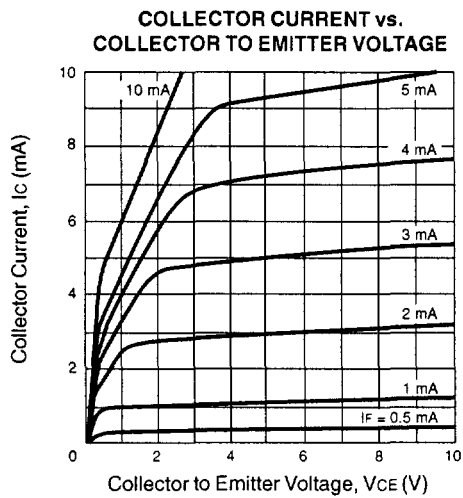
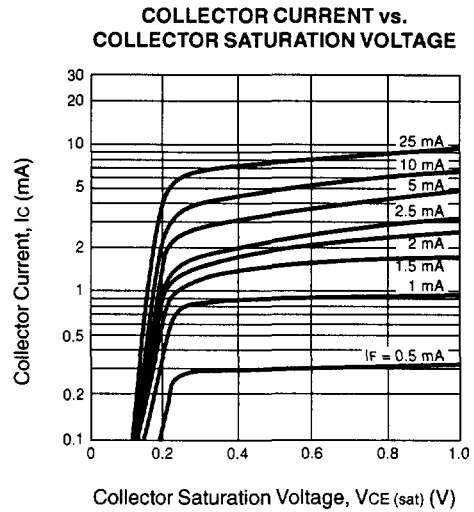
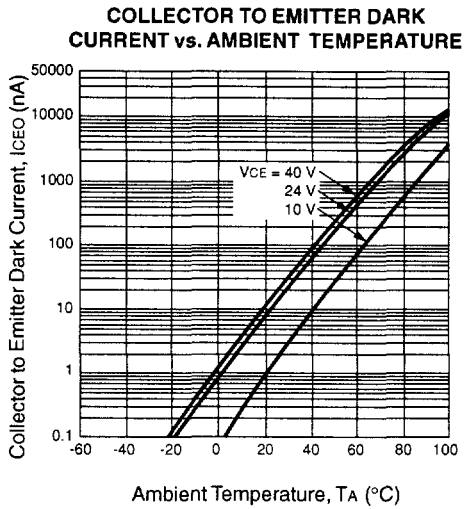
1. Operation in excess of any one of these parameters may result in permanent damage.
2. AC voltage for 1 minute at T_A = 25 °C, RH = 60 % between input and output.



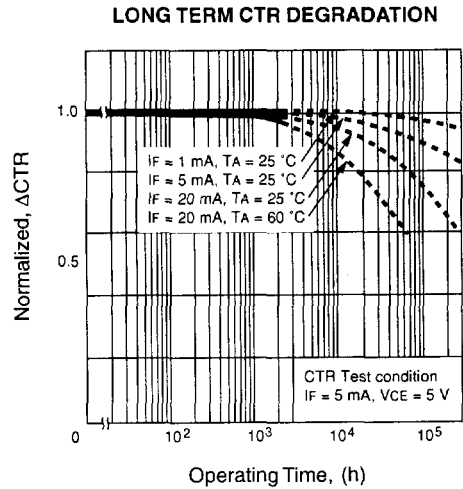
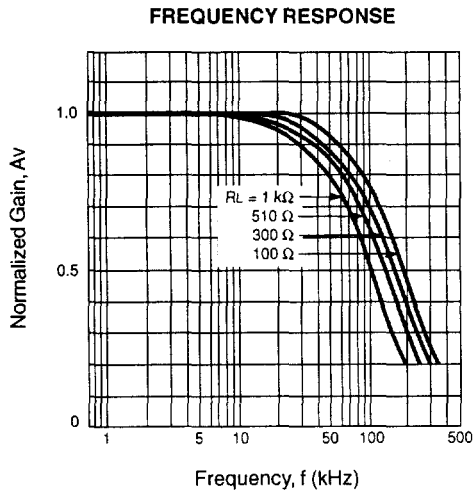
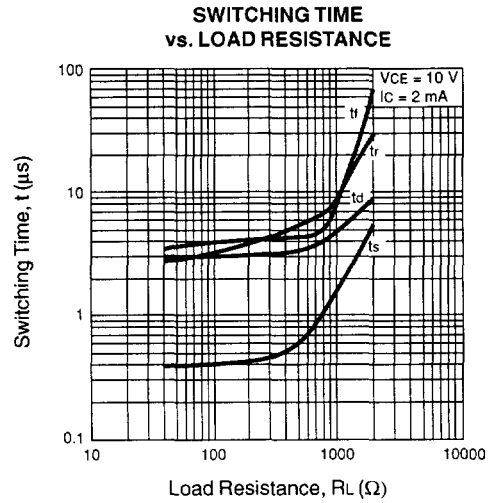
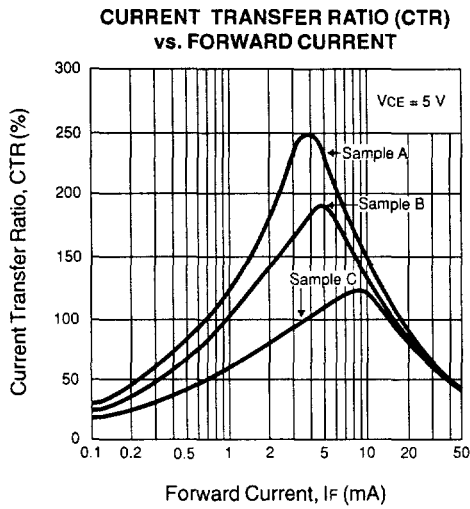
TYPICAL PERFORMANCE CURVES (T_A = 25 °C)



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



TYPICAL PERFORMANCE CURVES (TA = 25 °C)



PS2707-1, PS2707-2, PS2707-4

OUTLINE DIMENSIONS (Units in mm)

