CEL

NEC's 1 Mbps HIGH CMR ANALOG OUTPUT TYPE 8-PIN SOP HIGH-SPEED PHOTOCOUPLER

PS8802-1
PS8802-2

FEATURES

- **HIGH ISOLATION VOLTAGE**
  BV: 2500 $V_{r.m.s.}$
- **HIGH COMMON MODE TRANSIENT IMMUNITY**
  C_{MH}, C_{ML} = ±10 kV/ μs MIN
- **HIGH SUPPLY VOLTAGE**
  V_{CC} = 35 V
- **HIGH-SPEED RESPONSE**
  t_{PHL} = 0.8 μs MAX, t_{PLH} = 1.2 μs MAX

DESCRIPTION

NEC's PS8802-1 and PS8802-2 is an optically coupled isolator containing a GaAlAs LED on the light emitting side (input side) and a PIN photodiode and a high-speed amplifer transistor on the output side on one chip.

This is a plastic S08 type for high density applications.

APPLICATIONS

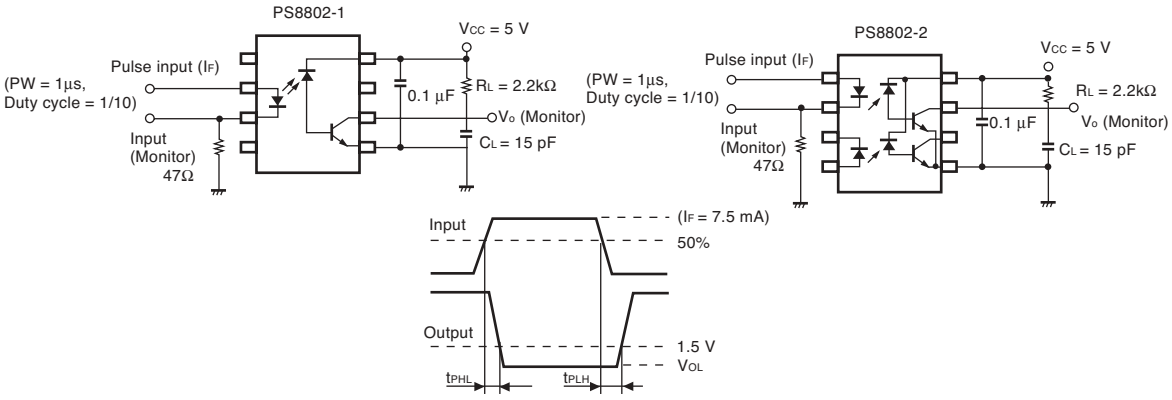
- **COMPUTERS AND PERIPHERALS**
- **GENERAL PURPOSE INVERTER**
- **SUBSTITUTIONS FOR RELAYS AND PULSE TRANSFORMERS**
- **POWER SUPPLY**
- **FACTORY AUTOMATION**
- **SERIAL BUS ISOLATION**

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

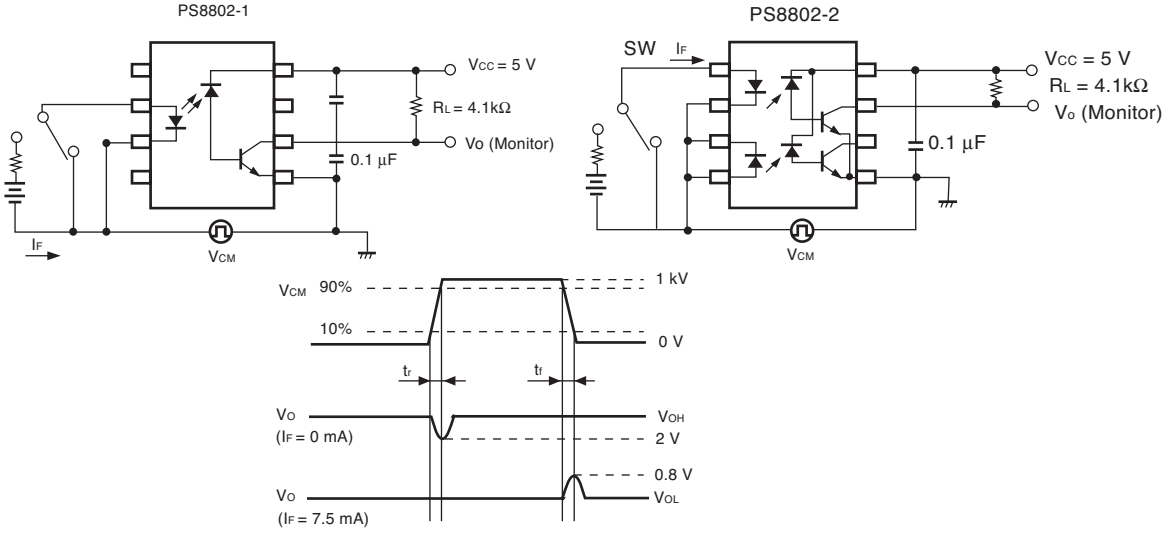
PART NUMBER			PS8802-1, PS8802-2			
	SYMBOLS	PARAMETERS	UNITS	MIN	TYP	MAX
Diode	V_F	Forward Voltage, I_F = 16 mA	V		1.7	2.2
	I_R	Reverse Current, V_R = 3 V	μA			10
	$\Delta V_F/\Delta T$	Forward Voltage Temperature Coefficient, I_F = 16 mA	mV/ºC		-2.1	
	C_t	Terminal Capacitance, V = 0, f = 1 MHz	pF		30	
Detector	I_{OH} (1)	High Level Output Current, I_F= 0 mA, V_{CC} = V_O = 5.5 V	nA		3	500
	I_{OH} (2)	High Level Output Current, I_F= 0 mA, V_{CC} = V_O = 30 V	μA			100
	V_{OL}	Low Level Output Voltage, I_F= 16 mA, V_{CC} = 4.5 V, I_O = 1.2 mA	V		0.1	0.4
	I_{CCL}	Low Level Supply Current, I_F= 16 mA, V_O = open, V_{CC} = 30 V	μA		50	
	I_{CCH}	High Level Supply Current, I_F= 0 mA, V_O = open, V_{CC} = 30 V			0.01	2
Coupled	CTR	Current Transfer Ratio (IC/IF), I_F= 16 mA, V_{CC} = 30 V, V_O = 0.4 V	%	15	20	35
	R_{I-O}	Isolation Resistance, V_{I-O} = 1 kV_{DC}, RH = 40 to 60 %	Ω	10^{11}		
	C_{I-O}	Isolation Capacitance, C_{I-O} = V = 0, f = 1 MHz	pF		0.4	
	t_{PHL}	Propagation Delay Time (H→L)[1], I_F= 16 mA, V_{CC} = 30 V, R_L = 2.2 kΩ, C_L = 15 pF	μs		0.5	0.8
	t_{PLH}	Propagation Delay Time (L→H)[1], I_F= 16 mA, V_{CC} = 30 V, R_L = 2.2 kΩ, C_L = 15 pF			0.6	1.2
	C_{MH}	Common Mode Transient Immunity at High Level Output, I_F= 0 mA, V_{CC} = 5 V, R_L = 2.2 kΩ, V_{CM} = 1.5 kV	kV/μs	10		
	C_{ML}	Common Mode Transient Immunity at Low Level Output, I_F= 16 mA, V_{CC} = 5 V, R_L = 4.1 kΩ, V_{CM} = 1.5 kV		-10		

(See notes on next page)

Notes:
1. Test circuit for propagation delay time



2. Test circuit for common mode transient immunity.

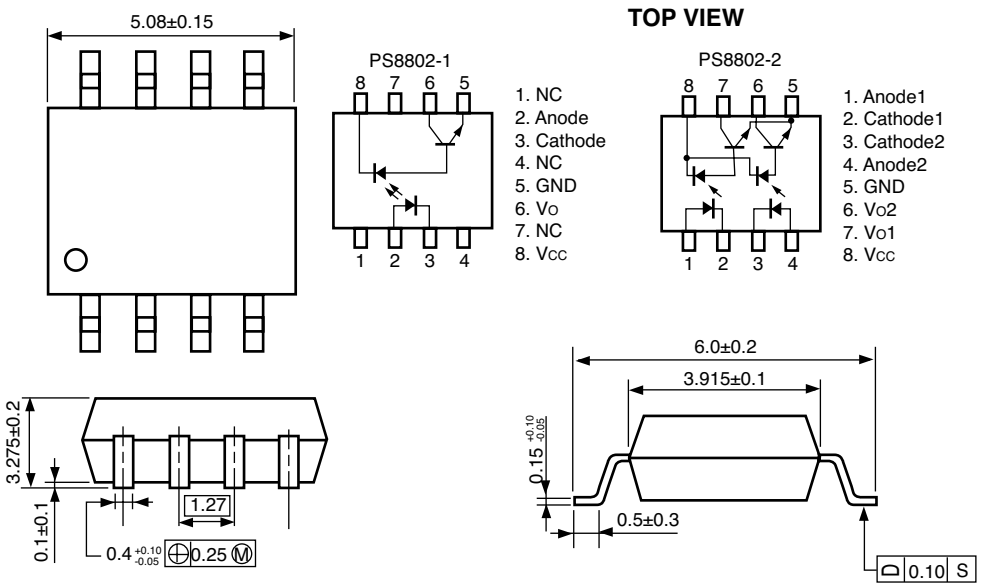


ABSOLUTE MAXIMUM RATINGS[1] (T_A = 25°C)

SYMBOLS	PARAMETERS	UNITS	RATINGS PS8802-1,-2
Diode			
I_F	Forward Current (DC)	mA	25
V_R	Reverse Voltage	V	5.0
P_D	Power Dissipation	mW	45
Detector			
V_{CC}	Supply Voltage	V	35
V_O	Output Voltage	V	35
I_O	Output Current	mA	8.0
P_C	Power Dissipation	mW	100
Coupled			
BV	Isolation Voltage[2]	$V_{r.m.s.}$	2500
T_{STG}	Storage Temperature	°C	-55 to +150
T_A	Operating Ambient Temperature	°C	-55 to +100

Notes:
1. Operation in excess of any one of these parameters may result in permanent damage.
2. Reduced to 1.00 mw/ºC at TA = 25ºC or more.
3. AC voltage for 1 minute at T_A = 25 ºC, RH = 60 % between input and ouput.

OUTLINE DIMENSIONS (Units in mm)



Life Support Applications

These NEC products are not intended for use in life support devices, appliances, or systems where the malfunction of these products can reasonably be expected to result in personal injury. The customers of CEL using or selling these products for use in such applications do so at their own risk and agree to fully indemnify CEL for all damages resulting from such improper use or sale.