PRELIMINARY DATA SHEET

CEL

PS2861H-1

NEC's HIGH ISOLATION VOLTAGE 4-PIN SOP OPTOCOUPLER

FEATURES

- **LONG INSULATION DISTANCE:** 0.4 mm MIN.
- **HIGH CURRENT TRANSFER RATIO:** CTR = 200% TYP
- **SMALL AND THIN PACKAGE** Half-pitch 4-pin SOP, 1.27 mm
- **HIGH ISOLATION VOLTAGE:** 3,000 $V_{r.m.s.}$
- **TAPING PRODUCT NUMBER** PS2861H-1-F3/F4 :3 500 pcs/reel

DESCRIPTION

NEC's PS2861H-1 is an optically coupled isolator containing a GaAs light emitting diode and an NPN silicon phototransistor. This is a half-pitch SOP (Small Out-line Package) for high density mounting surface mountable applications. This is ideal for implementing highly isolated interface, 3kVrms in accordance with international safety standards.

APPLICATION

- **SWITCHING MODE POWER SUPPLY**
- **MODEM, FAX AND TELEPHONE**
- **DATA INTERFACE OF DIFFERENT POTENTIALS**

ELECTRICAL CHARACTERISTICS (T_A = 25°C, Unless otherwise specified)

PART NUMBER				PS2861H-1		
	SYMBOLS	PARAMETERS	UNITS	MIN	TYP	MAX
Diode	V_F	Forward Voltage, I_F = 5 mA	V		1.15	1.4
	I_R	Reverse Current, V_R = 5 V	μA			5
	C_t	Junction Capacitance, V= 0, f = 1 MHz	pF		15	
Transistor	I_{CEO}	Collector to Emitter Dark Current, I_F = 0 mA, V_{CE} = 40 V	nA			100
Coupled	$V_{ECO(Sat)}$	Collector Saturation Voltage, I_F = 5 mA, I_C = 2 mA	V			0.3
	CTR	Current Transfer Ratio, I_F = 5 mA, V_{CE} = 5 V	%	50	200	400
	CTR	Current Transfer Ratio, I_F = 1 mA, V_{CE} = 5 V	%	25	135	270
	R_{I-O}	Isolation Resistance, V_{I-O} = 1 k VDC	Ω	10^{11}		
	C_{I-O}	Isolation Capacitance, V = 0 V, f = 1 MHz	pF		0.4	
	t_r	Rise Time, V_{CC} = 5 V, I_C = 2 mA, R_L = 100 Ω	μs		4	
	t_f	Fall Time, V_{CC} = 5 V, I_C = 2 mA, R_L = 100 Ω	μs		6	

Date Published: August 03, 2005

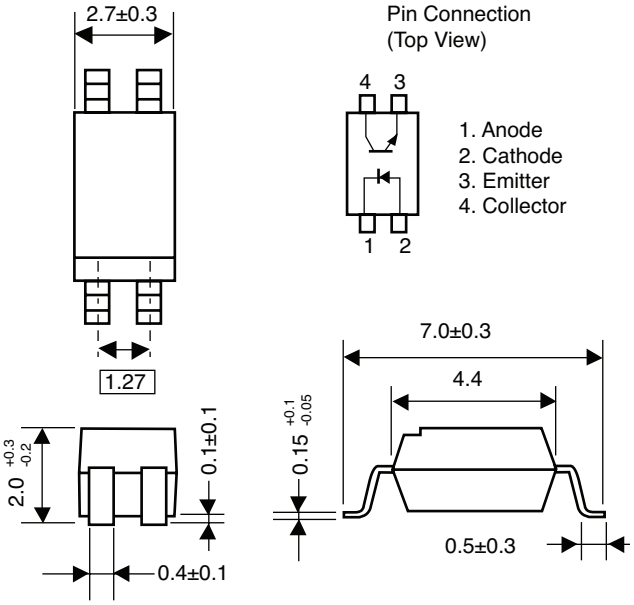
ABSOLUTE MAXIMUM RATINGS[1] (T_A = 25°C)

PART NUMBER				
	SYMBOLS	PARAMETERS	RATING	UNIT
Diode	V_F	Forward Voltage	50	mA
	I_R	Reverse Current	6	V
	P_D	Power Dissipation	60	mW
Transistor	ΔP_D/°C	Power Dissipation Derating	0.6	mW/°C
Coupled	I_{FP}	Peak Forward Current[2]	0.5	A
	V_{CEO}	Collector to Emitter Voltage	40	V
	V_{ECO}	Emitter to Collector Voltage	5	V
	I_C	Collector Current	40	mA
	P_C	Power Dissipation	120	mW
	ΔP_C/°C	Power Dissipation Derating	1.2	mW/°C
	BV	Isolation Voltage[3]	3,000	$V_{r.m.s.}$
	P_T	Total Power Dissipation	170	mW
	T_A	Operating Temperature	-55 to 100	°C
	T_{stg}	Storage Temperature	-55 to 150	°C

Notes:
1. Operation in excess of any one of these parameters may result in permanent damage.
2. PW = 100 μs, duty cycle = 1%.
3. AC voltage for 1 minute at T_A = 25 °C, RH = 60 % between input and ouput.

OUTLINE DIMENSIONS (Units in mm)

PS2861H-1



ORDERING INFORMATION (Solder Contains Lead)

PART NUMBER	PACKAGE	PACKING STYLE	APPLICATION PART NUMBER
PS2861H-1	4-pin SOP	Magazine case 100 pcs	PS2861H-1
PS2861H-1-F3		Embossed Tape 3500 pcs/reel	
PS2861H-1-F4			

ORDERING INFORMATION (Pb-Free)

PART NUMBER	PACKAGE	PACKING STYLE	APPLICATION PART NUMBER
PS2861H-1-A	4-pin SOP	Magazine case 100 pcs	PS2861H-1
PS2861H-1-F3-A		Embossed Tape 3500 pcs/reel	
PS2861H-1-F4-A			

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.

CEL California Eastern Laboratories, Your source for NEC RF, Microwave, Optoelectronic, and Fiber Optic Semiconductor Devices.
4590 Patrick Henry Drive • Santa Clara, CA 95054-1817 • (408) 988-3500 • FAX (408) 988-0279 • **www.cel.com**

CEL California Eastern Laboratories

4590 Patrick Henry Drive
Santa Clara, CA 95054-1817
Telephone: (408) 919-2500
Facsimile: (408) 988-0279

Subject: Compliance with EU Directives

CEL certifies, to its knowledge, that semiconductor and laser products detailed below are compliant with the requirements of European Union (EU) Directive 2002/95/EC Restriction on Use of Hazardous Substances in electrical and electronic equipment (RoHS) and the requirements of EU Directive 2003/11/EC Restriction on Penta and Octa BDE.

CEL Pb-free products have the same base part number with a suffix added. The suffix –A indicates that the device is Pb-free. The –AZ suffix is used to designate devices containing Pb which are exempted from the requirement of RoHS directive (*). In all cases the devices have Pb-free terminals. All devices with these suffixes meet the requirements of the RoHS directive.

This status is based on CEL's understanding of the EU Directives and knowledge of the materials that go into its products as of the date of disclosure of this information.

Restricted Substance per RoHS	Concentration Limit per RoHS (values are not yet fixed)	Concentration contained in CEL devices	
Lead (Pb)	< 1000 PPM	-A	-AZ
		Not Detected	(*)
Mercury	< 1000 PPM	Not Detected	
Cadmium	< 100 PPM	Not Detected	
Hexavalent Chromium	< 1000 PPM	Not Detected	
PBB	< 1000 PPM	Not Detected	
PBDE	< 1000 PPM	Not Detected	

If you should have any additional questions regarding our devices and compliance to environmental standards, please do not hesitate to contact your local representative.