

PRELIMINARY DATA SHEET



NEC's 4 PIN SOP PACKAGE, HIGH ISOLATION VOLTAGE, 3000 V.r.m.s. 1 FORM A TYPE SOLID STATE RELAY

PS7431-1A

FEATURES

- **HIGH ISOLATION VOLTAGE:**
BV: 3000 V_{r.m.s.} MIN
- **SMALL AND THIN PACKAGE:**
4-pin SOP, Height = 2.1 mm
- **1 FORM A OUTPUT**
- **LOW OPERATING CURRENT:**
IF 2 mA MIN
- **DESIGNED FOR AC/DC SWITCHING LINE CHANGER**
- **LOW OFFSET VOLTAGE**
- **AVAILABLE IN TAPE AND REEL:**
PS7431-1A-E3, E4, F3, F4

DESCRIPTION

NEC's PS7431-1A is a solid state relay containing GaAs LEDs on the input side and 1 form, normally open (N.O.) contact MOS FETs on the output side.

APPLICATIONS

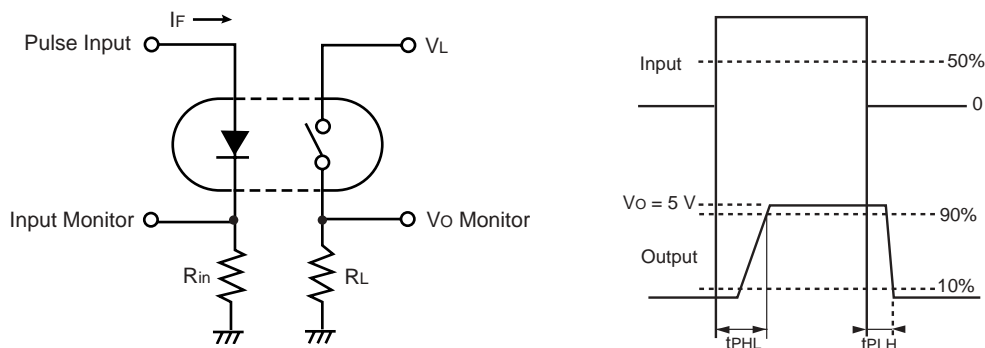
- LAPTOP, PC, PDA
- MODEM CARD
- TELEPHONE, FAX
- MEASUREMENT EQUIPMENT

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

PART NUMBER			PS7431-1A		
SYMBOLS	PARAMETERS	UNITS	MIN	TYP	MAX
Diode	V _F	Forward Voltage, I _F = 10 mA	V	1.2	1.4
	I _R	Reverse Current, V _R = 5 V	μA		5.0
MOS FET	I _{LOFF}	Off-state Leakage Current, V _D = 350 V	μA	0.03	1.0
	C _{OUT}	Output Capacitance, V _D = 0 V, f = 1 MHz	pF	35	
Coupled	I _{Fon}	LED On-state Current, I _L = 120 mA	mA		2.0
	R _{on1}	On-state Resistance, I _F = 10 mA, I _L = 10 mA I _F = 10 mA, I _L = 120 mA, t ≤ 10 ms	Ω	24	36
	R _{on2}			19	25
	t _{on}	Turn-on time ¹	ms	0.8	3.0
	t _{off}	Turn-off time ¹		0.07	0.2
	R _{I-O}	Isolation Resistance, V _{I-O} = 1.0 kVDC	Ω	10 ⁹	
C _{I-O}	Isolation Capacitance, V = 0, f = 1.0 MHz	pF		0.5	

Note:

1. Test Circuit for Switching Time:



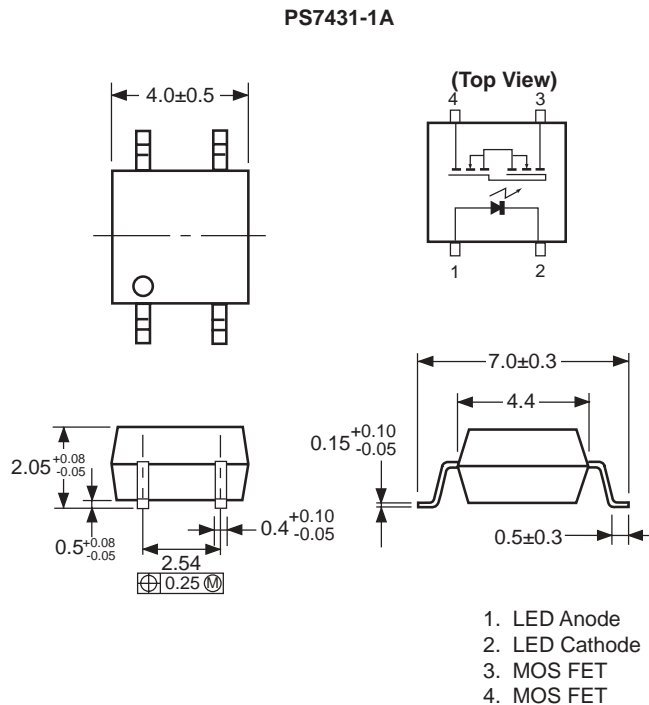
ABSOLUTE MAXIMUM RATINGS¹ (T_A = 25°C)

SYMBOLS	PARAMETERS	UNITS	RATING
Diode			
I _F	Forward Current	mA	50
V _R	Reverse Voltage	V	5
P _D	Power Dissipation	mW	50
I _{FP}	Peak Forward Current	A	1
MOS FET			
V _L	Breakdown Voltage	V	350
I _L	Continuous Load Current	mA	120
I _{LP}	Pulse Load Current ² , (AC/DC connection)	mA	240
P _D	Power Dissipation	mW	310
Coupled			
BV	Isolation Voltage ³	V _{r.m.s.}	3000
P _T	Total Power Dissipation	mW	360
T _A	Operating Ambient Temp.	°C	-40 to +85
T _{STG}	Storage Temperature	°C	-40 to +100

Notes:

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

OUTLINE DIMENSIONS (Units in mm)



RECOMMENDED OPERATING CONDITIONS

SYMBOL	PARAMETER	UNITS	MIN	TYP	MAX
I _F	LED Operating Current	mA	2	10	20
V _F	LED Off Voltage	V	0		0.5

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.

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