

PRELIMINARY DATA SHEET

NEC

Solid State Relay
OCMOS FET

PS7441-1A

4-PIN SOP HIGH ISOLATION VOTAGE 3 750 Vr.m.s. (1-ch Optical Coupled MOS FET)

DESCRIPTION

The PS7441-1A is a solid state relay containing a GaAs LED on the light emitting side (input side) and MOS FETs on the output side.

It is suitable for analog signal control because of its low offset and high linearity.

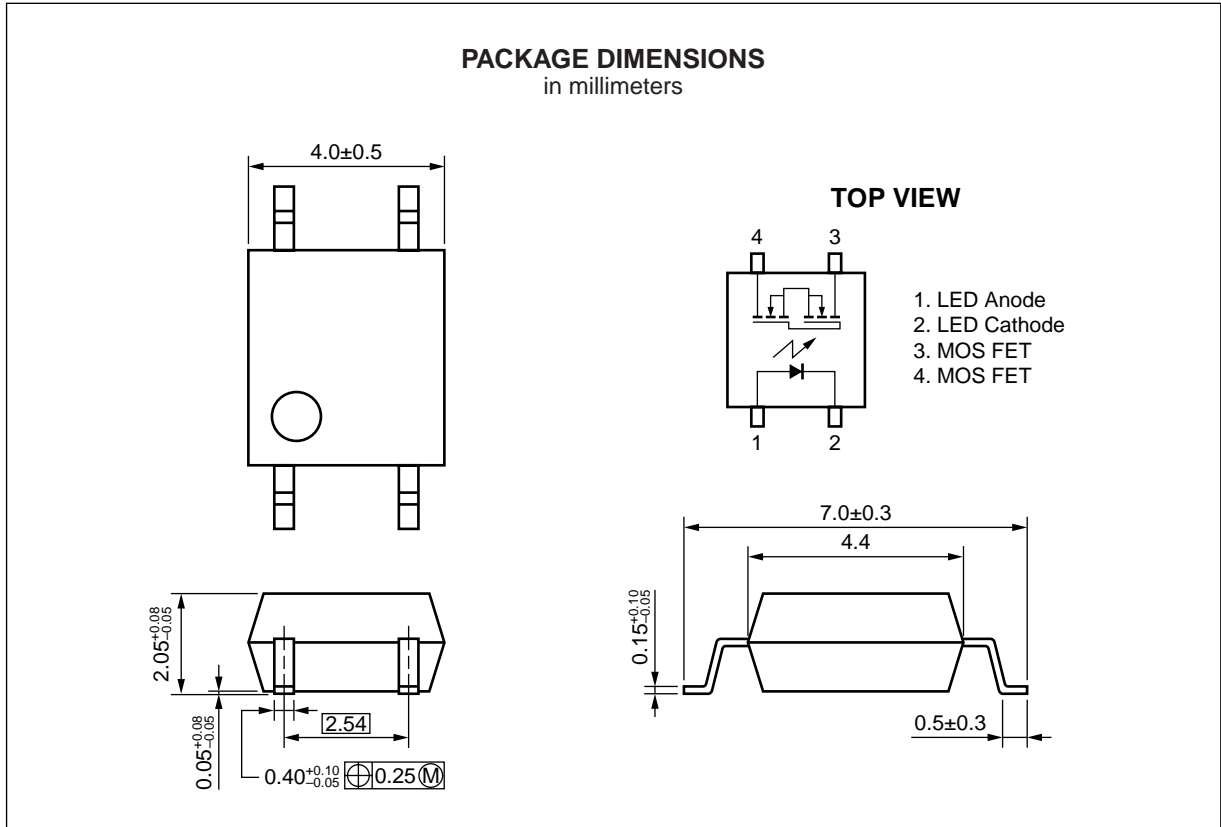
FEATURES

- High isolation voltage (BV = 3 750 Vr.m.s.)
- Small and thin package (4-pin SOP, Height = 2.1 mm)
- 1 channel type (1 a output)
- Low LED operating current ($I_F = 2$ mA)
- Designed for AC/DC switching line changer
- Low offset voltage
- Ordering number of taping product: PS7441-1A-E3, E4, F3, F4

APPLICATIONS

- Laptop PC, PDA
- Modem card
- Telephone, FAX
- Measurement equipment

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ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C, unless otherwise specified)

Parameter		Symbol	Ratings	Unit
Diode	Forward Current (DC)	I _F	50	mA
	Reverse Voltage	V _R	5.0	V
	Power Dissipation	P _D	50	mW
	Peak Forward Current *1	I _{FP}	1	A
MOS FET	Break Down Voltage	V _L	400	V
	Continuous Load Current	I _L	120	mA
	Power Dissipation	P _D	300	mW
Isolation Voltage *2		BV	3 750	Vr.m.s.
Total Power Dissipation		P _T	350	mW
Operating Ambient Temperature		T _A	-40 to +85	°C
Storage Temperature		T _{stg}	-40 to +100	°C

*1 PW = 100 μs, Duty Cycle = 1 %

*2 AC voltage for 1 minute at T_A = 25 °C, RH = 60 % between input and output

RECOMMENDED OPERATING CONDITIONS (T_A = 25 °C)

Parameter	Symbol	MIN.	TYP.	MAX.	Unit
LED Operating Current	I _F	2	10	20	mA
LED Off Voltage	V _F	0		0.5	V

ELECTRICAL CHARACTERISTICS (T_A = 25 °C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Diode	Forward Voltage	V _F	I _F = 10 mA		1.2	1.4	V
	Reverse Current	I _R	V _R = 5 V			5.0	μA
MOS FET	Off-state Leakage Current	I _{Loff}	V _D = 400 V			1.0	μA
	Output Capacitance	C _{out}	V _D = 0 V, f = 1 MHz		54		pF
Coupled	LED On-state Current	I _{Fon}	I _L = 120 mA			2.0	mA
	On-state Resistance	R _{on1}	I _F = 10 mA, I _L = 10 mA		18	30	Ω
		R _{on2}	I _F = 10 mA, I _L = 120 mA, t ≤ 10 ms		15	25	
	Turn-on Time	t _{on}	I _F = 10 mA, V _O = 5 V, R _L = 2 kΩ		0.8	3.0	ms
	Turn-off Time	t _{off}	PW ≥ 10 ms		0.07	0.2	
	Isolation Resistance	R _{I-O}	V _{I-O} = 1.0 kV _{bc}		10 ⁹		Ω
Isolation Capacitance	C _{I-O}	V = 0 V, f = 1 MHz			0.5	pF	

CAUTION

Within this device there exists GaAs (Gallium Arsenide) material which is a harmful substance if ingested. Please do not under any circumstances break the hermetic seal.

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