

CURRENT LIMIT TYPE
4-PIN SOP 400 V OCMOS FET
(1-ch OCMOS FET)**DESCRIPTION**

The PS7241S-1A is a solid state relay containing a GaAs LED on the light emitting side (input side) and normally open (N.O.) contact MOS FETs and current control circuit on the output side. Current control circuit of OCMOS FET protects this device from thermal breakdown and output circuit.

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

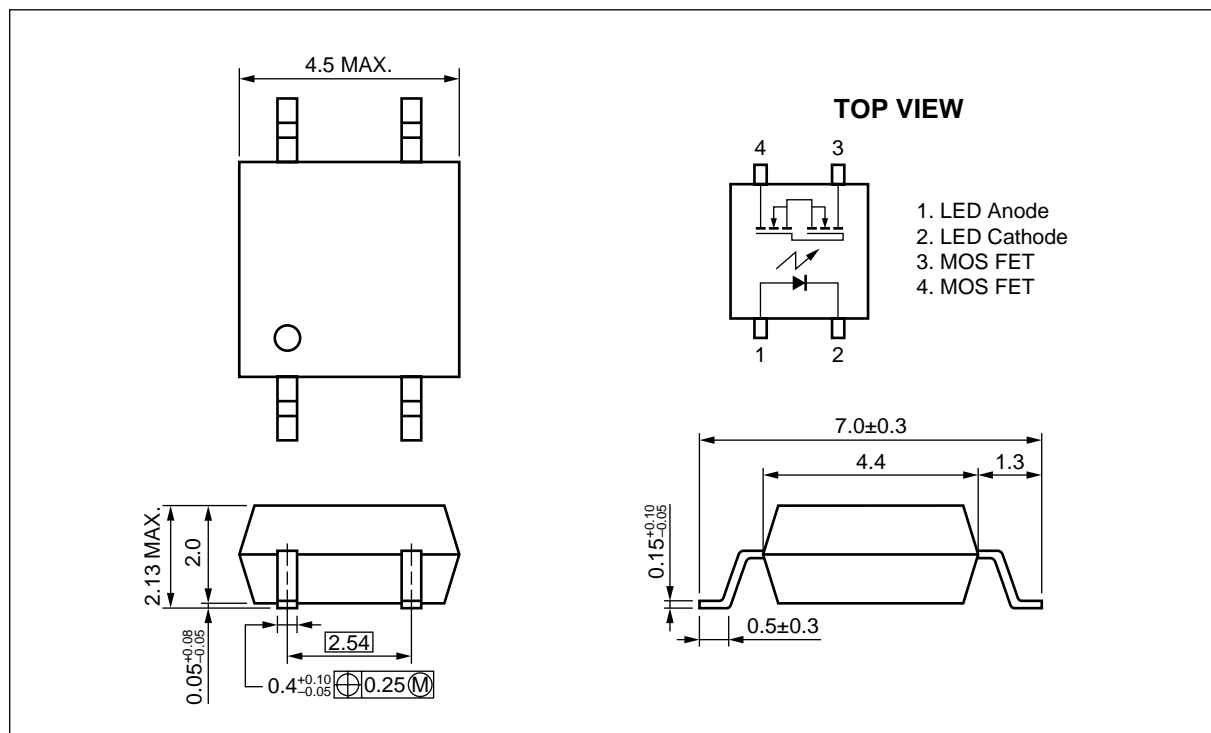
FEATURES

- Shut down type circuit.
- Limit current ($I_{LMT} = 125$ to 180 mA)
- 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)
- Break down voltage ($V_L = 400$ V)
- Continuous load current ($I_L = 120$ mA)
- Designed for AC/DC switching line changer
- Low offset voltage
- Ordering number of taping product: PS7241S-1A-E3, E4, F3, F4

APPLICATIONS

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

The information in this document is subject to change without notice.



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	1 500	Vr.m.s.
Total Power Dissipation		P _T	350	mW
Operating Ambient Temperature		T _A	-40 to +80	°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

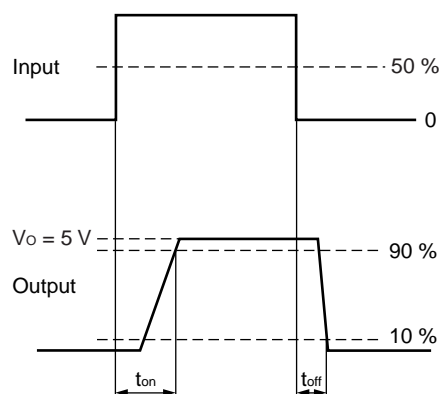
RECOMMENDED OPERATING CONDITIONS ($T_A = 25\text{ }^{\circ}\text{C}$)

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

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Diode	Forward Voltage	V_F	$I_F = 10\text{ mA}$		1.2	1.4	V
	Reverse Current	I_R	$V_R = 5\text{ V}$			5.0	μA
MOS FET	Off-state Leakage Current	I_{Leak}	$V_D = 400\text{ V}$			1	μA
	Output Capacitance	C_{out}	$V = 0\text{ V}, f = 1\text{ MHz}$		65		pF
Coupled	LED On-state Current	I_{Fon}	$I_L = 120\text{ mA}$			2	mA
	On-state Resistance	R_{on1}	$I_F = 10\text{ mA}, I_L = 10\text{ mA}$		28	35	Ω
		R_{on2}	$I_F = 10\text{ mA}, I_L = 120\text{ mA}$		24	30	
	Turn-on Time ^{*1}	t_{on}	$I_F = 10\text{ mA}, V_O = 5\text{ V},$ $PW \geq 10\text{ ms}$		0.5	2.0	ms
	Turn-off Time ^{*1}	t_{off}			0.07	0.2	
	Isolation Resistance	$R_{\text{I-O}}$	$V_{\text{I-O}} = 1.0\text{ kV}_{\text{DC}}$	10^9			Ω
	Isolation Capacitance	$C_{\text{I-O}}$	$V = 0\text{ V}, f = 1\text{ MHz}$		0.5		pF
	Limit Current	I_{LMT}	$I_F = 10\text{ mA}, V_L = 6\text{ V}, t = 5\text{ ms}$	125	150	180	mA

*1 Turn-on, Turn-off time



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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Anti-radioactive design is not implemented in this product.