

**4-PIN SOP, 1.1  $\Omega$  LOW ON-STATE RESISTANCE  
1-ch Optical Coupled MOS FET****DESCRIPTION**

The PS7200K-1A is a low output capacitance solid state relay containing GaAs LEDs on the light emitting side (input side) and MOS FETs on the output side.

It is suitable for high-frequency signal control, due to its low  $C \times R$ , low on-state resistance, and low off-state leakage current.

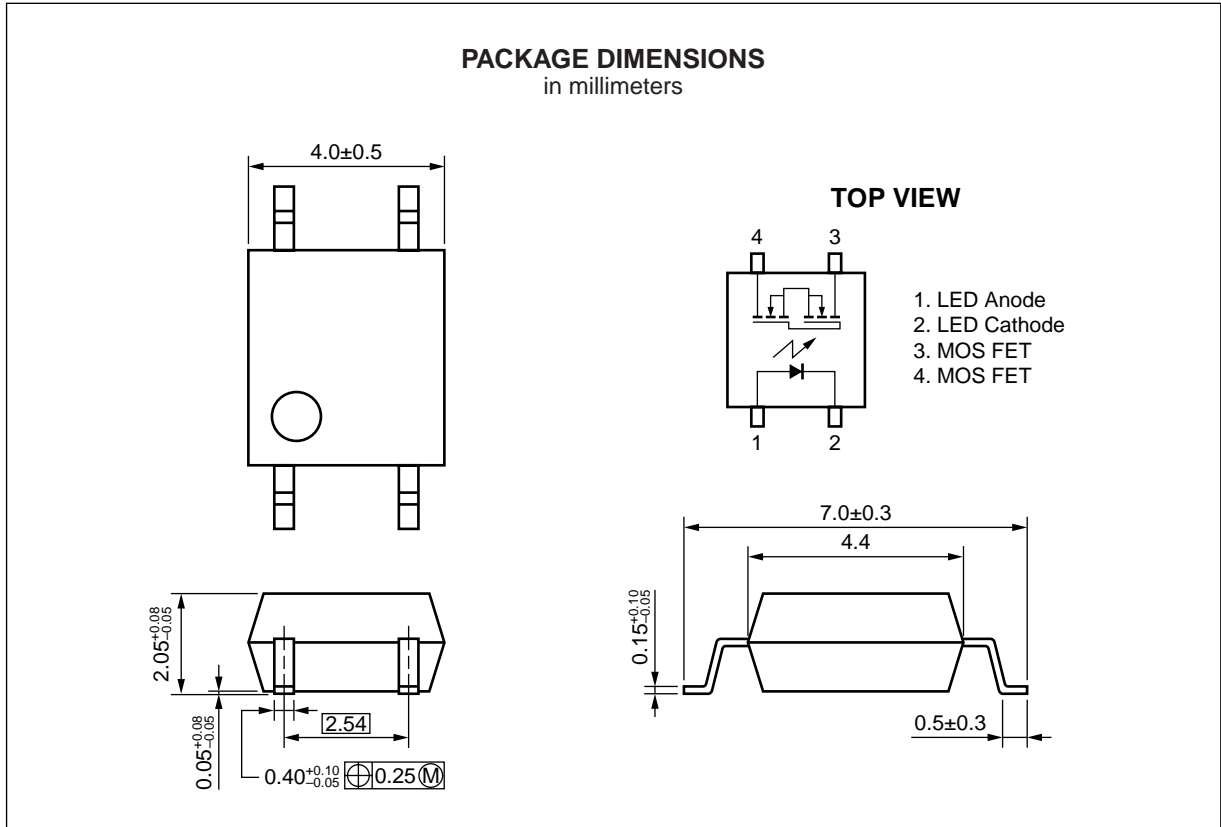
**FEATURES**

- Low  $C \times R$  ( $C \times R = 10.5 \text{ pF} \cdot \Omega$ )
- Low on-state resistance ( $R_{\text{on}} = 1.1 \Omega$  TYP.)
- Low off-state leakage current ( $I_{\text{Loff}} = 0.03 \text{ nA}$  TYP.)
- High-speed turn-on time ( $t_{\text{on}} = 0.1 \text{ ms}$  TYP.)
- 1 channel type (1 a output)
- Designed for AC/DC switching line changer
- Small and thin package (4-pin SOP, Height = 2.1 mm)
- High isolation voltage ( $BV = 1\,500 \text{ Vr.m.s.}$ )
- Low offset voltage
- Ordering number of taping product: PS7200K-1A-E3, E4, F3, F4

**APPLICATIONS**

- Measurement equipment

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Not all devices/types available in every country. Please check with local NEC representative for availability and additional information.



**ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = 25 °C, unless otherwise specified)**

Parameter		Symbol	Ratings	Unit
Diode	Forward Current (DC)	I <sub>F</sub>	50	mA
	Reverse Voltage	V <sub>R</sub>	5.0	V
	Power Dissipation	P <sub>D</sub>	50	mW
	Peak Forward Current *1	I <sub>FP</sub>	1	A
MOS FET	Break Down Voltage	V <sub>L</sub>	40	V
	Continuous Load Current	I <sub>L</sub>	200	mA
	Pulse Load Current *2 (AC/DC Connection)	I <sub>LP</sub>	400	mA
	Power Dissipation	P <sub>D</sub>	100	mW
Isolation Voltage *3		BV	1 500	Vr.m.s.
Total Power Dissipation		P <sub>T</sub>	150	mW
Operating Ambient Temperature		T <sub>A</sub>	-40 to +80	°C
Storage Temperature		T <sub>stg</sub>	-40 to +100	°C

\*1 PW = 100 μs, Duty Cycle = 1 %

\*2 PW = 100 ms, 1 shot

\*3 AC voltage for 1 minute at T<sub>A</sub> = 25 °C, RH = 60 % between input and output

**RECOMMENDED OPERATING CONDITIONS (T<sub>A</sub> = 25 °C)**

Parameter	Symbol	MIN.	TYP.	MAX.	Unit
LED Operating Current	I <sub>F</sub>	2	10	20	mA
LED Off Voltage	V <sub>F</sub>	0		0.5	V

**ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25 °C)**

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Diode	Forward Voltage	V <sub>F</sub>	I <sub>F</sub> = 10 mA		1.2	1.4	V
	Reverse Current	I <sub>R</sub>	V <sub>R</sub> = 5 V			5.0	μA
MOS FET	Off-state Leakage Current	I <sub>loff</sub>	V <sub>D</sub> = 40 V		0.03	100	nA
	Output Capacitance	C <sub>out</sub>	V <sub>D</sub> = 0 V, f = 1 MHz		9.6		pF
Coupled	LED On-state Current	I <sub>Fon</sub>	I <sub>L</sub> = 200 mA			2.0	mA
	On-state Resistance	R <sub>on1</sub>	I <sub>F</sub> = 10 mA, I <sub>L</sub> = 10 mA		1.1	2.0	Ω
		R <sub>on2</sub>	I <sub>F</sub> = 10 mA, I <sub>L</sub> = 200 mA, t ≤ 10 ms		1.4	2.0	
	Turn-on Time	t <sub>on</sub>	I <sub>F</sub> = 10 mA, V <sub>O</sub> = 5 V, PW ≥ 10 ms		0.1	1.0	ms
	Turn-off Time	t <sub>off</sub>					
	Isolation Resistance	R <sub>I-O</sub>	V <sub>I-O</sub> = 1.0 kV <sub>DC</sub>	10 <sup>9</sup>			Ω
	Isolation Capacitance	C <sub>I-O</sub>	V = 0 V, f = 1 MHz		0.3		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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