

CURRENT LIMIT TYPE 4 PIN SOP 400 V 1-CH OCMOS FET

PS7241C-1A

FEATURES

- **LIMIT CURRENT:**
ILMT = 155 to 210 mA
- **SMALL AND THIN PACKAGE:**
4 pin SOP, Height = 2.1 mm
- **1 CHANNEL TYPE:**
1a output
- **LOW LED OPERATING CURRENT:**
IF = 2 mA
- **DESIGNED FOR AC/DC SWITCHING LINE CHANGER**
- **LOW OFFSET VOLTAGE**
- **SURFACE MOUNT AVAILABLE:**
PS7241C-1A-E3, E4, F3, F4

DESCRIPTION

The PS7241C-1A is a solid state relay containing GaAs LEDs on the light emitting side (input side) and MOS FETs including current control circuit on the output side. The current control circuit of the 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.

APPLICATIONS

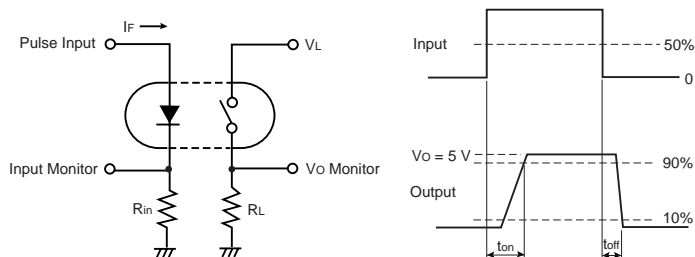
- LAPTOP PC, PDA
- MODEM CARD
- TELEPHONE, FAX
- MEASUREMENT EQUIPMENT

ELECTRICAL CHARACTERISTICS (TA = 25 °C)

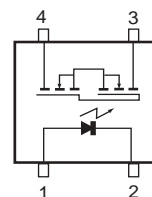
| | | PART NUMBER | | PS7241C-1A | | |
|---------|---|--|-------|-----------------|------|-----|
| | SYMBOLS | PARAMETERS | UNITS | MIN | TYP | MAX |
| Diode | VF | Forward Voltage, IF = 10 mA | V | | 1.2 | 1.4 |
| | IR | Reverse Current, VR = 5 V | µA | | | 5.0 |
| MOS FET | ILOFF | Off-State Leakage Current, VD = 400 V | µA | | | 1.0 |
| | COUT | Output Capacitance, VD = 0 V, f = 1 MHz | pF | | 65 | |
| Coupled | IFon | LED On-State Current, IL = 120 mA | mA | | | 2.0 |
| | Ron1 | On-state Resistance, IF = 10 mA, IL = 10 mA IF = 10 mA, IL = 120 mA | Ω | | 28 | 35 |
| | Ron2 | | Ω | | 24 | 30 |
| | tON | Turn-on Time ¹ , IF = 10 mA, Vo = 5 V, PW ≥ 10 ms | ms | | 0.5 | 2.0 |
| | tOFF | | ms | | 0.07 | 0.2 |
| | Ri-o | Isolation Resistance, Vi-o = 1.0 kVDC | Ω | 10 ⁹ | | |
| | Cl-o | Isolation Capacitance, V = 0 V, f = 1 MHz | pF | | 0.5 | |
| ILMT | Limit Current, IF = 10 mA, VL = 6 V, t = 5 ms | mA | | 155 | 180 | 210 |

Note:

1. Test Circuit for Switching Time



PS7241C-1A



PS7241C-1A

ABSOLUTE MAXIMUM RATINGS¹ (T_A = 25°C)

| SYMBOLS | PARAMETERS | UNITS | RATINGS |
|------------------|---|---------|-------------|
| Diode | | | |
| I _F | Forward Current (DC) | mA | 50 |
| V _R | Reverse Voltage | V | 5.0 |
| P _D | Power Dissipation | mW | 50 |
| I _{FP} | Peak Forward Current ² | A | 1 |
| MOSFET | | | |
| V _L | Breakdown Voltage | V | 400 |
| I _L | Continuous Load Current | mA | 120 |
| I _{LP} | Pulse Load Current ³ (AC/DC connection) | mA | 120 |
| P _D | Power Dissipation | mW | 300 |
| Coupled | | | |
| BV | Isolation Voltage ⁴ | Vr.m.s. | 1500 |
| P _T | Total Power Dissipation | mW | 350 |
| T _A | Operating Ambient Temp. | °C | -40 to +80 |
| T _{STG} | Storage Temperature | °C | -40 to +100 |

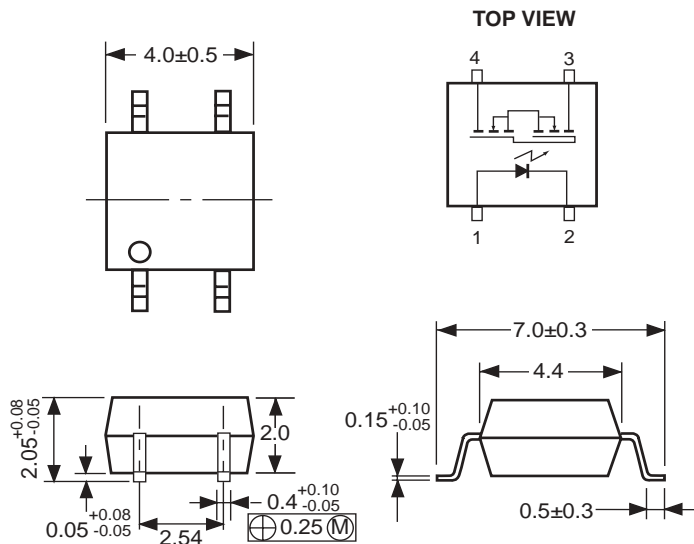
RECOMMENDED OPERATING CONDITIONS (T_A = 25°C)

| PART NUMBER | | PS7241C-1A | | | |
|----------------|-----------------------|------------|-----|-----|-----|
| SYMBOLS | PARAMETERS | UNITS | MIN | TYP | MAX |
| I _F | LED Operating Current | mA | 2 | 10 | 20 |
| V _F | LED Off Voltage | V | 0 | | 0.5 |

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 shot
4. AC voltage for 1 minute at T_A = 25 °C, RH = 60 % between input and output.

OUTLINE DIMENSIONS (Units in mm)



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