

NEC

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

PS7241C-1A**FEATURES**

- **LIMIT CURRENT:**
 $I_{LMT} = 155$ to 210 mA
- **SMALL AND THIN PACKAGE:**
4 pin SOP, Height = 2.1 mm
- **1 CHANNEL TYPE:**
1a output
- **LOW LED OPERATING CURRENT:**
 $I_F = 2$ 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

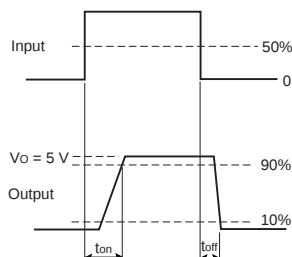
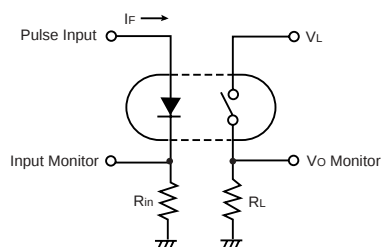
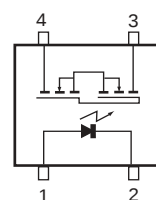
- LAPTOP PC, PDA
- MODEM CARD
- TELEPHONE, FAX
- MEASUREMENT EQUIPMENT

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

PART NUMBER				PS7241C-1A		
SYMBOLS		PARAMETERS		UNITS	MIN	MAX
Diode	V_F	Forward Voltage, $I_F = 10$ mA		V		1.4
	I_R	Reverse Current, $V_R = 5$ V		μA		5.0
MOS FET	I_{LOFF}	Off-State Leakage Current, $V_D = 400$ V		μA		1.0
	C_{OUT}	Output Capacitance, $V_D = 0$ V, $f = 1$ MHz		pF	65	
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	Ω	28	35
	R_{on2}		$I_F = 10$ mA, $I_L = 120$ mA	Ω	24	30
	t_{ON}	Turn-on Time ¹ , $I_F = 10$ mA, $V_O = 5$ V, $PW \geq 10$ ms		ms	0.5	2.0
	t_{OFF}			ms	0.07	0.2
	R_{i-o}	Isolation Resistance, $V_{i-o} = 1.0$ kVDC		Ω	10^9	
	C_{i-o}	Isolation Capacitance, $V = 0$ V, $f = 1$ MHz		pF	0.5	
	I_{LMT}	Limit Current, $I_F = 10$ mA, $V_L = 6$ V, $t = 5$ ms		mA	155	210

Note:

1. Test Circuit for Switching Time

**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)

