

FEATURES

- **1 CHANNEL TYPE**
1A output
- **LOW C X R**
 $C \times R = 15 \text{ pF} \cdot \Omega$
- **LOW OUTPUT CAPACITANCE**
 $C_{OUT} = 1.7 \text{ pF TYP}$
- **LOW OFF-STATE LEAKAGE CURRENT**
 $I_{LOFF} = 0.02 \text{ nA TYP}$
- **HIGH SPEED TURN-ON TIME**
 $t_{ON} = 8 \mu\text{s TYP}$
- **DESIGNED FOR AC/DC SWITCHING LINE CHANGER**
- **SMALL PACKAGE**
4 pin SOP
- **HIGH ISOLATION VOLTAGE**
 $BV = 1500 \text{ Vr.m.s.}$
- **LOW OFFSET VOLTAGE**
- **AVAILABLE IN TAPE AND REEL**
PS7200J-1A-E3, E4, F3, F4

DESCRIPTION

The PS7200J-1A is a low output capacitance solid state relay containing a GaAs LED on the light emitting side (input side) and MOSFETs on the output side.

It is suitable for high-frequency signal control, due to its low C x R and low output capacitance. This device is not recommended for new designs. It has been replaced by the PS7200R.

APPLICATIONS

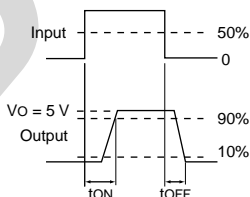
- **MEASUREMENT EQUIPMENT**
- **HIGH SPEED COMMUNICATIONS EQUIPMENT**

ELECTRICAL CHARACTERISTICS¹ ($T_A = 25^\circ\text{C}$)

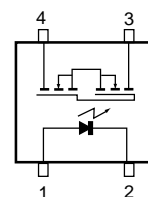
PART NUMBER			PS7200J-1A			
	SYMBOLS	PARAMETERS	UNITS	MIN	TYP	MAX
Diode	V_F	Forward Voltage, $I_F = 10 \text{ mA}$	V		1.2	1.4
	I_R	Reverse Current, $V_R = 5 \text{ V}$	μA			5.0
MOS FET	I_{LOFF}	Off-State Leakage Current, $V_D = 40 \text{ V}$	μA			3.0
	C_{OUT}	Output Capacitance, $V = 0 \text{ V}$, $f = 1 \text{ MHz}$	pF		1.7	
Coupled	I_{FON}	LED On-State Current, $I_L = 100 \text{ mA}$	mA			2
	R_{ON}	On-State Resistance, $I_F = 10 \text{ mA}$, $I_L = 10 \text{ mA}$	Ω		8.5	15
		$I_F = 10 \text{ mA}$, $I_L = 100 \text{ mA}$	Ω		8.5	15
	t_{ON}	Turn-on Time, $I_F = 10 \text{ mA}$, $V_O = 5 \text{ V}$, $PW \geq 10 \text{ ms}$	ms		0.008	1.0
	t_{OFF}	Turn-off Time, $I_F = 10 \text{ mA}$, $V_O = 5 \text{ V}$, $PW \geq 10 \text{ ms}$	ms		0.3	100
	R_{i-o}	Isolation Resistance, $V_{i-o} = 1.0 \text{ kVdc}$	Ω		10^9	
C_{i-o}	Isolation Capacitance, $V = 0 \text{ V}$, $f = 1 \text{ MHz}$	pF		0.5		

Note:

1. Turn-On, Turn-Off Time



PS7200J-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	Break Down Voltage	V	40
I _L	Continuous Load Current	mA	100
P _D	Power Dissipation	mW	100
Coupled			
BV	Isolation Voltage ³	Vr.m.s.	1500
P _T	Total Power Dissipation	mW	150
T _A	Operating Ambient Temp.	°C	-40 to +80
T _{STG}	Storage Temperature	°C	-40 to +100

Notes:

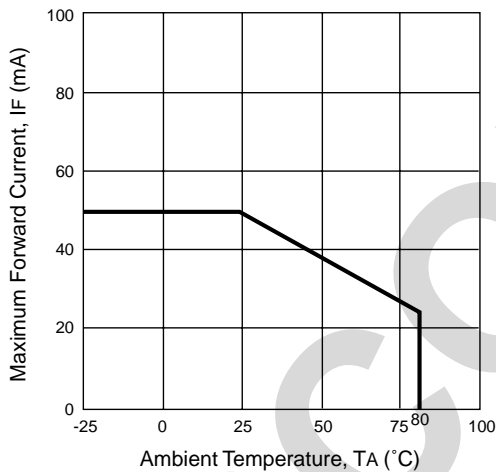
1. Operation in excess of any one of these parameters may result in permanent damage.
2. PW = 100 μs, Duty Cycle = 1 %
3. AC voltage for 1 minute at T_A = 25 °C, RH = 60 % between input and output.

RECOMMENDED OPERATING CONDITIONS (T_A = 25°C)

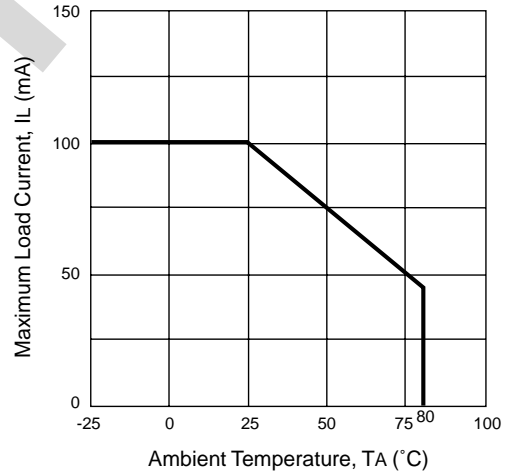
PART NUMBER		PS7200J-1A			
SYMBOLS	PARAMETERS	UNITS	MIN	TYP	MAX
I _F	LED Operating Current	mA	2	10	20
V _F	LED Off Voltage	V	0		0.5

TYPICAL PERFORMANCES CURVES (T_A = 25°C)

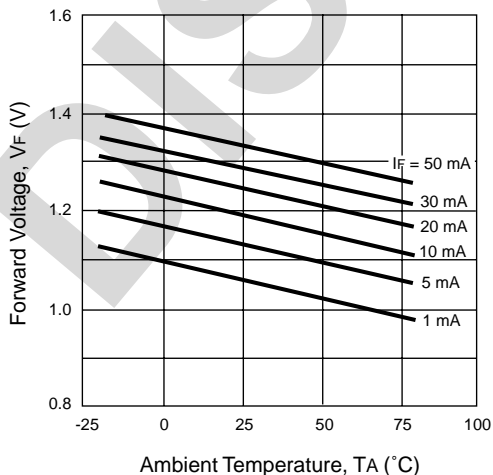
MAXIMUM FORWARD CURRENT vs. AMBIENT TEMPERATURE



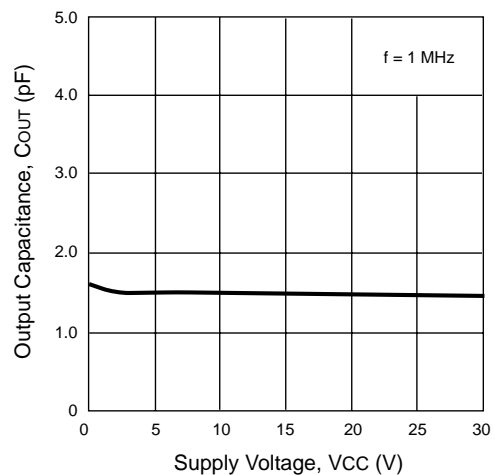
MAXIMUM LOAD CURRENT vs. AMBIENT TEMPERATURE



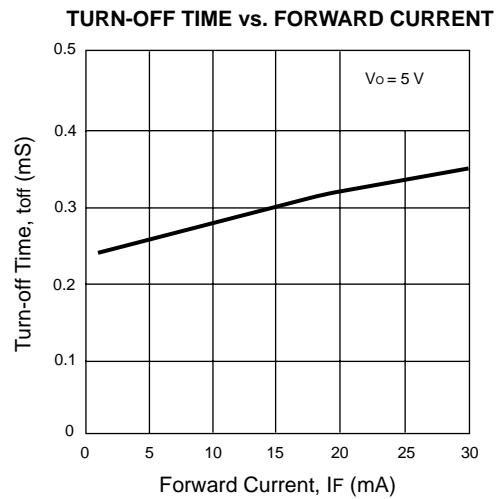
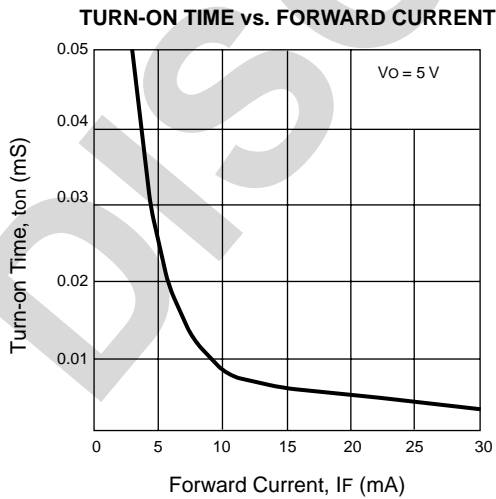
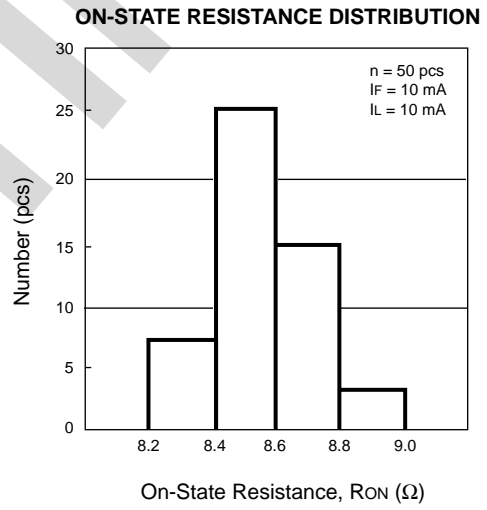
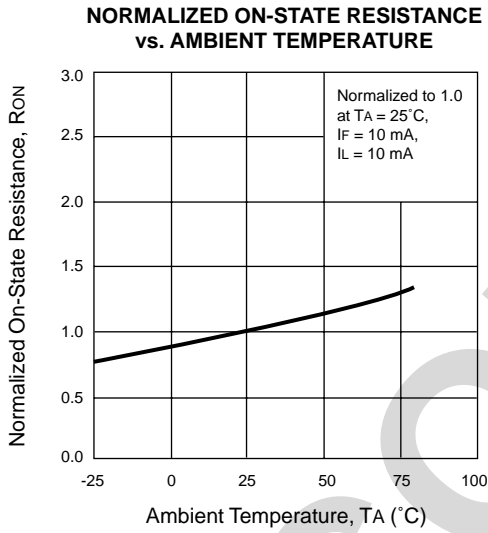
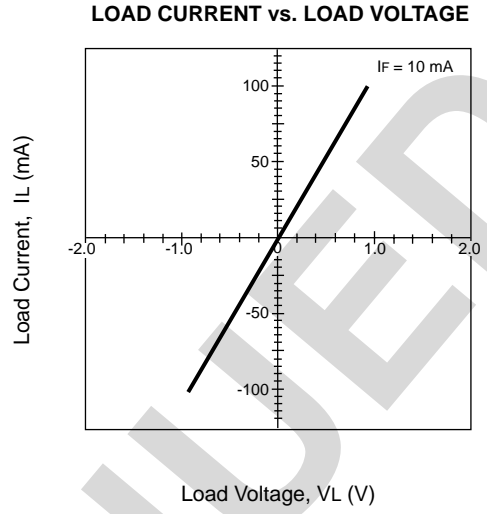
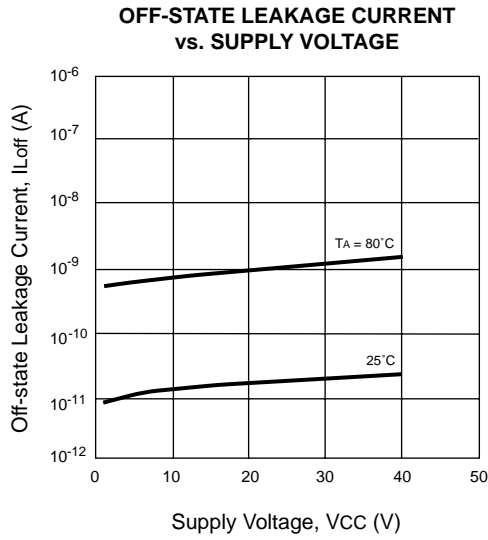
FORWARD VOLTAGE vs. AMBIENT TEMPERATURE



OUTPUT CAPACITANCE vs. SUPPLY VOLTAGE

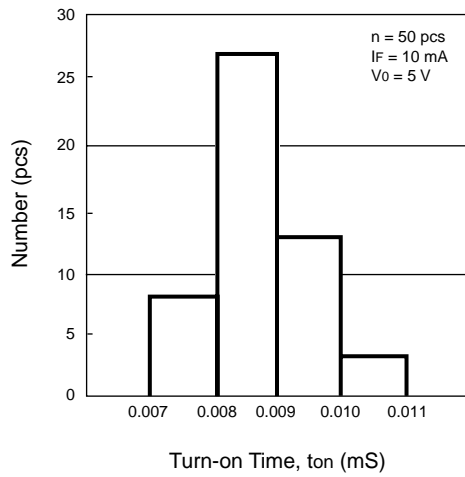


TYPICAL PERFORMANCE CURVES (TA = 25°C)

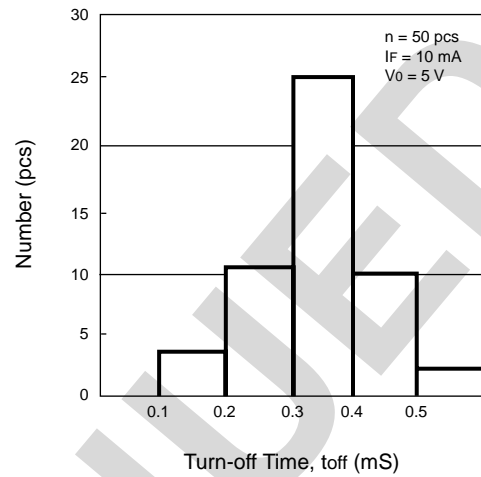


TYPICAL PERFORMANCE CURVES (TA = 25°C)

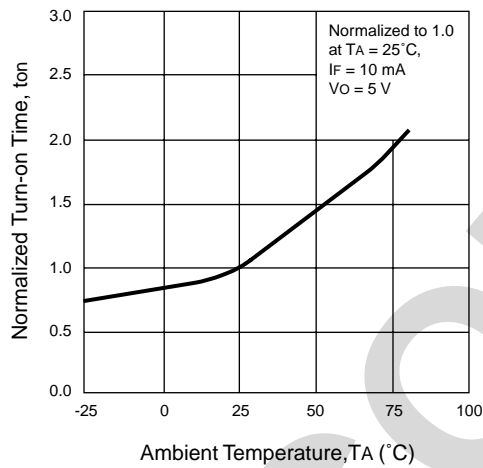
TURN-ON TIME DISTRIBUTION



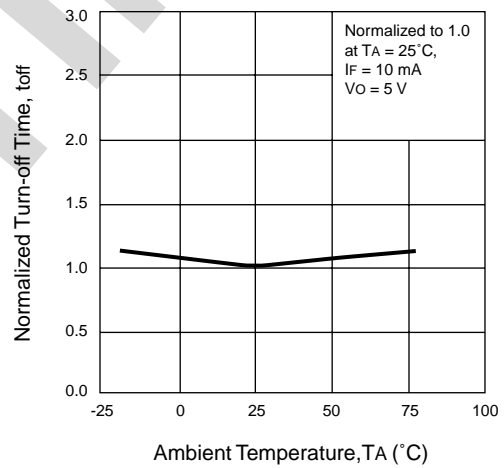
TURN-OFF TIME DISTRIBUTION



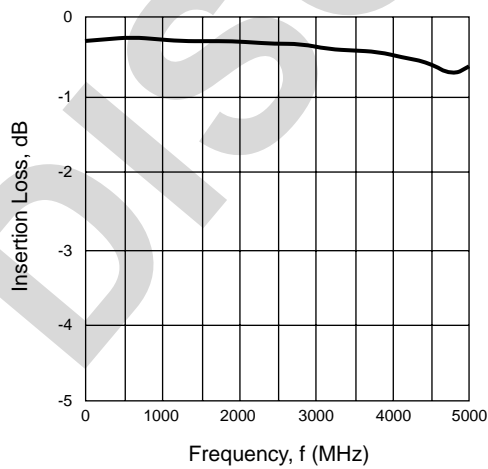
NORMALIZED TURN-ON TIME vs. AMBIENT TEMPERATURE



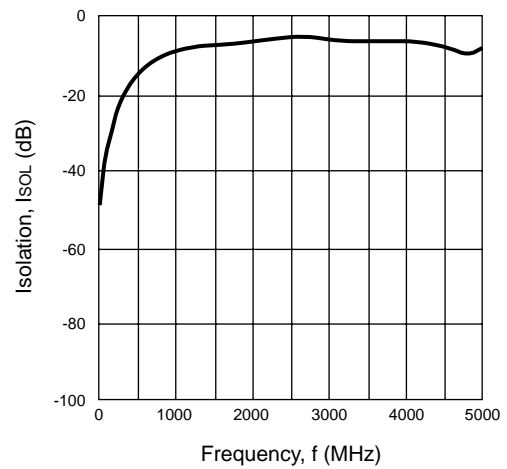
NORMALIZED TURN-OFF TIME vs. AMBIENT TEMPERATURE



INSERTION LOSS vs. FREQUENCY



ISOLATION vs. FREQUENCY

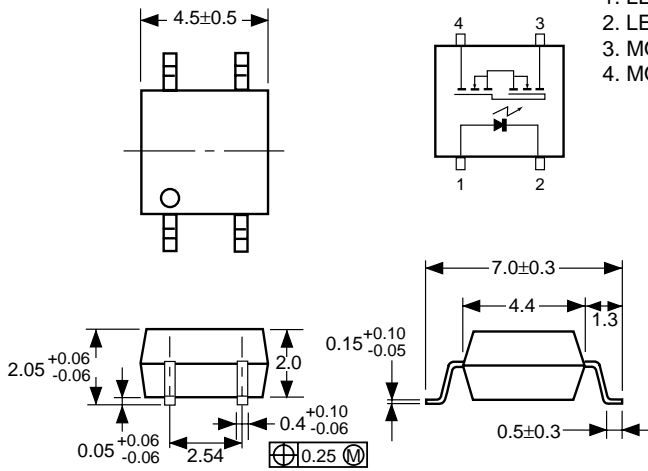


OUTLINE DIMENSIONS (Units in mm)

PS7200J-1A

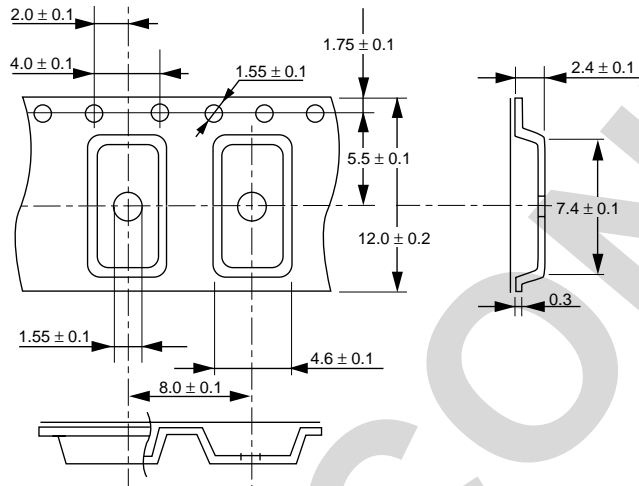
(Top View)

- 1. LED Anode
- 2. LED Cathode
- 3. MOSFET
- 4. MOSFET

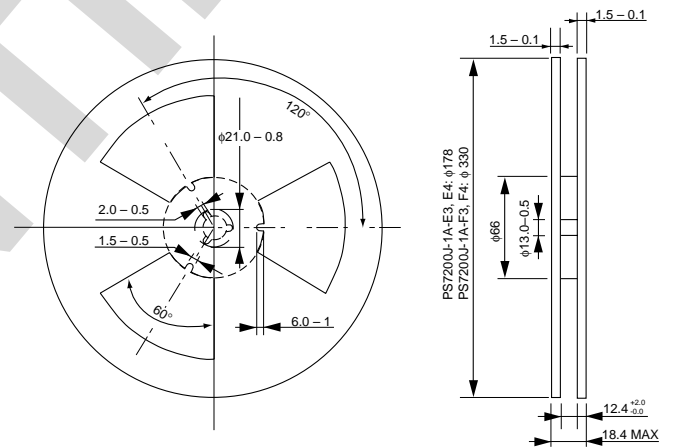


TAPING SPECIFICATIONS (Units in mm)

OUTLINE AND DIMENSIONS (TAPE)



OUTLINE AND DIMENSIONS (REEL)

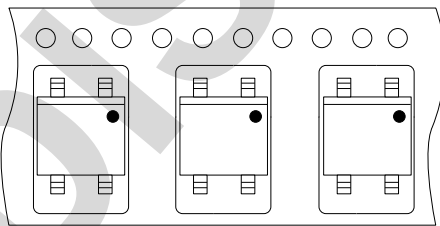


Notes:

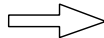
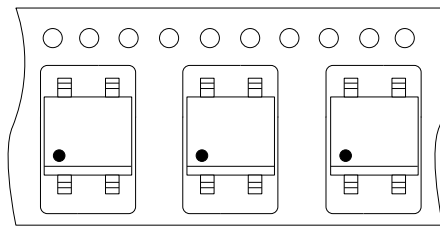
- 1. Packing : PS7200J-1A-E3, E4 900 pcs.
- PS7200J-1A-F3, F4 3500 pcs.

TAPE DIRECTION

PS7200J-1A-E3
PS7200J-1A-F3



PS7200J-1A-E4
PS7200J-1A-F4



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