Features

- High reliability
- Arc-Free with no snubbing circuits
- 1500Vrms Input / Output isolation
- Tape & Reel version available
- Low driver power requirements (TTL/CMOS Compatible)
- SOP package 4 Pin type in miniature design (4.4 x 4.3 x 2.0mm)

Description

The PMA216D is a miniature 1-Form A solid state relay in a 4 pin SOP package that employs optically coupled MOSFET technology to provide 1500V of input to output isolation. The optically coupled input is controlled by a highly efficient GaAlAs infrared LED and MOS FETs on the output side.

Application

Telecommunications (PC, Electronic notepad) / Measuring and Testing Equipment / Industrial Control / Security Equipments / High Speed Inspection Machine, Data Communication Equipments, Factory Automotive Equipments, etc.

Absolute Maximum Ratings (Ambient Temperature: 25℃)

Item		Symbol	Value	Units	Note
Input	Continuous LED Current	I_F	50	mA	
	Peak LED Current	I_{FP}	1000	mA	f=100Hz, duty=1%
	LED Reverse Voltage	V_R	5	V	
	Input Power Dissipation	P_{In}	75	mW	

Absolute Maximum Ratings (Ambient Temperature: 25℃)

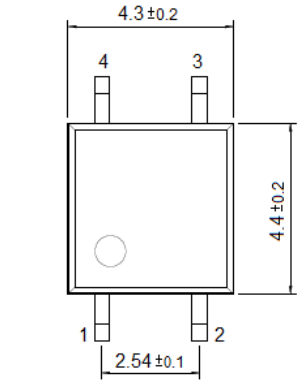
Item		Symbol	Value	Units	Note
Output	Load Voltage	V_L	20	VDC	
	Load Current	I_L	5	A	
	Peak Load Current	I_{Peak}	35	A	300μs (1 pulse)
	Output Power Dissipation	P_{out}	1.8	W	
Total Power Dissipation		P_T	2	W	
I/O Breakdown Voltage		$V_{I/O}$	1500	Vrms	RH=60%, 1min
Operating Temperature		T_{Opr}	-40 to +85	℃	
Storage Temperature		T_{Stg}	-40 to +100	℃	
Pin Soldering Temperature		T_{Sol}	260	℃	10 sec max.

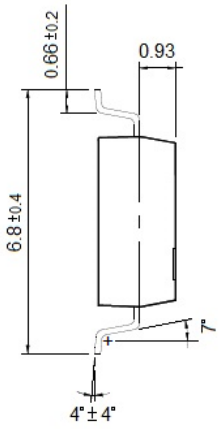
Electrical Specifications (Ambient Temperature: 25℃)

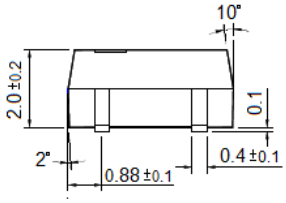
Item		Symbol	MIN.	TYP.	MAX.	Units	Note
Input	LED Forward Voltage	V_F		1.2	1.4	V	I_F=10mA
	Operation LED Current	$I_{F\ On}$		0.5	2.0	mA	
	Recovery LED Current	$I_{F\ Off}$		0.35	0.5	mA	
	Recovery LED Voltage	$V_{F\ Off}$	0.5			V	
Output	On-Resistance	R_{On}		0.2	0.5	Ω	I_F=5mA, I_L=100mA, Time to flow is within 1 sec.
	Off-State Leakage Current	I_{Leak}			1	μA	V_L=Rating
	Output Capacitance	C_{Out}		500		pF	V_L=0, f=1MHz
Transmission	Turn-On Time	T_{On}		0.5	1.5	ms	I_F=5mA, I_L=100mA,
	Turn-Off Time	T_{Off}		0.03	0.1	ms	
Coupled	I/O Isolation Resistance	$R_{I/O}$	10^9			Ω	DC500V
	I/O Capacitance	$C_{I/O}$		0.8	1.5	pF	f=1MHz

Dimensions (UNIT: mm)

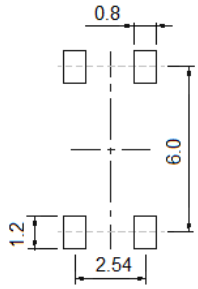
Outline Dimensions



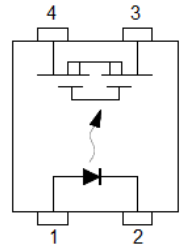




Recommended Mounting Pad



Wiring Diagram



1: Anode (LED)

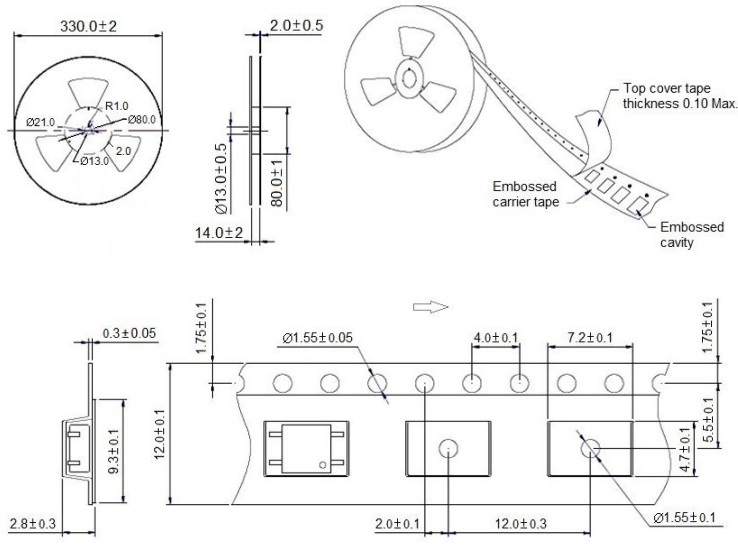
2: Cathode (LED)

3: Source (-)

4: Drain (+)

Tape Packing

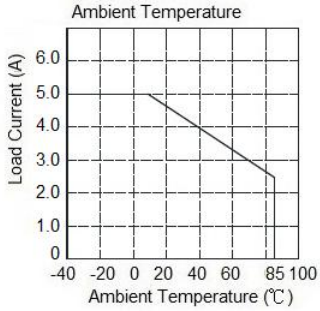
Direction of Relay Insertion



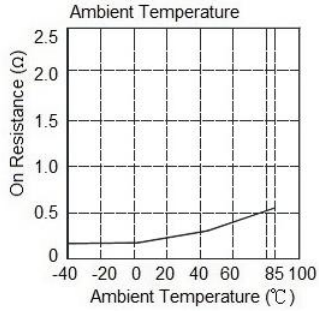
2,000pcs per reel, 2 reel per box, 5boxes per carton.

- Engineering Data

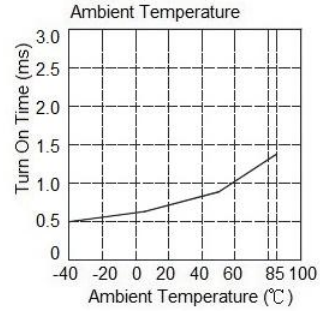
Load Current Vs. Ambient Temperature



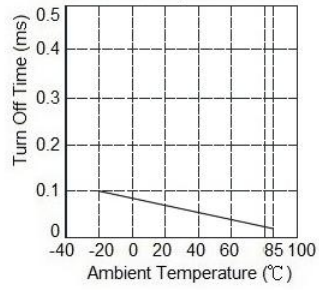
On Resistance Vs. Ambient Temperature



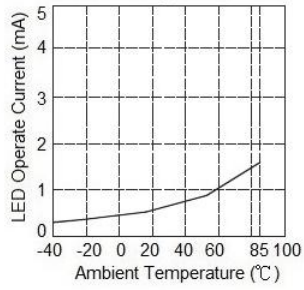
Turn On Time Vs. Ambient Temperature



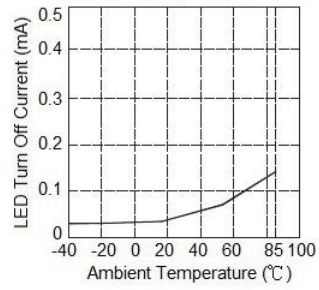
Turn Off Time Vs. Ambient Temperature



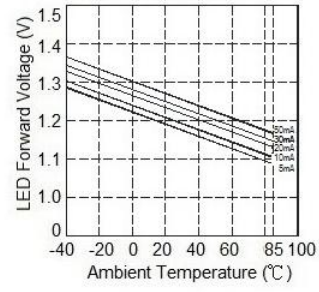
LED Operate Curren Vs. Ambient Temperature



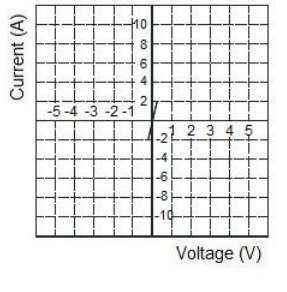
LED Turn Off Current Vs. Ambient Temperature



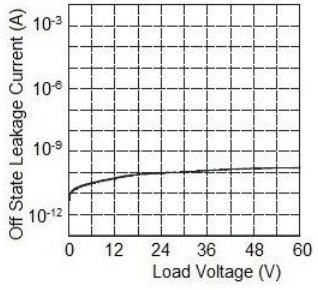
LED Forward Voltage Vs. Ambient Temperature



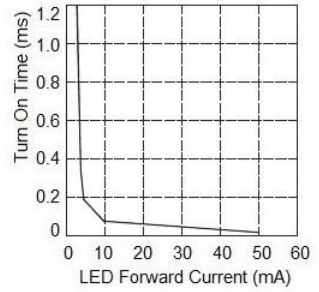
Voltage Vs. Current Characteristics of Output at MOS Portion



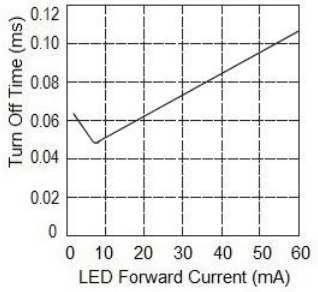
Off State Leakage Current Vs. Load Voltage Characteristics



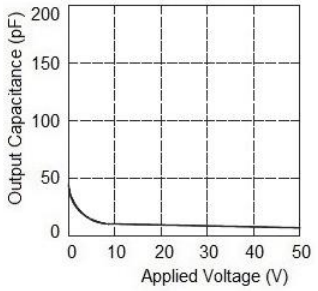
LED Forward Current Vs. Turn On Time Characteristics



LED Forward Current Vs. Turn Off Time Characteristics



Applied Voltage Vs. Ouput Capacitance Characteristics



Note: 1. There shall be leader of 230 mm minimum which may consist of carrier and or cover tape follower by a minimum of 160 mm of carrier tape sealed with cover tape.
2. There shall be a minimum of 160 mm of empty component pockets sealed with cover tape.
3. Devices are pockets in accordance with EIA standard EIA-481-A and specifications given above.

Remark: 1) In case of no tolerance shown in outline dimension: outline dimension ≦1mm, tolerance should be ±0.2mm; outline dimension >1mm and ≦5mm, tolerance should be ±0.3mm; outline dimension >5mm, tolerance should be ±0.5mm.
2) The tolerance without indicating for PCB layout is always ±0.1mm.

Disclaimer

The specification is for reference only. See to"Terminology and Guidelines" for more information. Specifications subject to change without notice. We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact IOEC for the technical service. However, it is the user's responsibility to determine which product should be used only.