WORD1006S Single Phase DC Output

60V 1A Opto-MOS

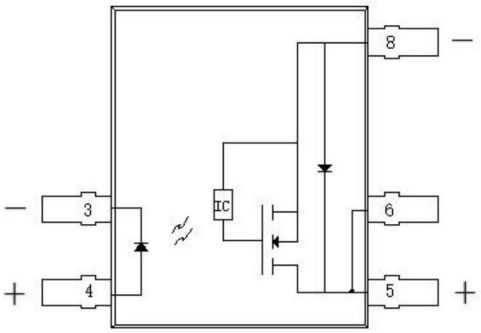
Description

WORD1006S is a 60V/1A DC output Opto-MOS solid-state relay, isolated through optoelectronics, with a dielectric withstand voltage of 2500V. The maximum load current is 1A, and the breakdown voltage at the output can reach 60V. Mainly used in high-speed detection equipment, program-controlled switching equipment, computers and other fields. Its characteristics are as follows:

Features

- DC output
- Maximum load current is 1A
- Breakdown voltage 60V
- Maximum isolation voltage is up to 2500V
- UL508- E548370
- Package form: SOP8
- HF & Pb free & RoHS

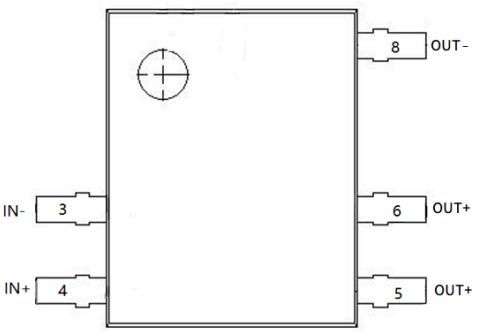
Functional Diagram



Function Description

As shown in the figure above, the indirect diode of PIN3 and PIN4; The output terminal ands between PIN5&PIN6 and PIN8 is one MOSFET. When the input diode is powered on, the output port will be closed.

Pin Arrangement Diagram



Pin Configuration

Pin Number	Symbol	Function
1/2/7	NC	NC
3	IN-	Input diode N terminal
4	IN+	Input diode P terminal
5&6	OUT+	Output P terminal
8	OUT−	Output N terminal

Absolute Maximum Ratings Temp=25℃

Parameter		Symbol	Condition	MIN	TYP	MAX	Unit
Input	Reverse voltage	V_R				6	V
	Forward current	I_F				50	mA
	Power dissipation	P_{IN}				50	mW
Output	Breakdown voltage	BV_{DSS}				60	V
	Power dissipation	P_{IN}				500	mW
	On-state current	I_L				1	A
	Peak current	I_{PEAK}	100mS（1 shot）,VL=DC		1.8		A
Isolation Voltage*		V_{ISO}	I_{ISO}≤0.3mA	2500			Vrms
Operating temperature		T_{OPT}		-30		85	℃
Storage temperature		T_{STG}		-40		125	℃

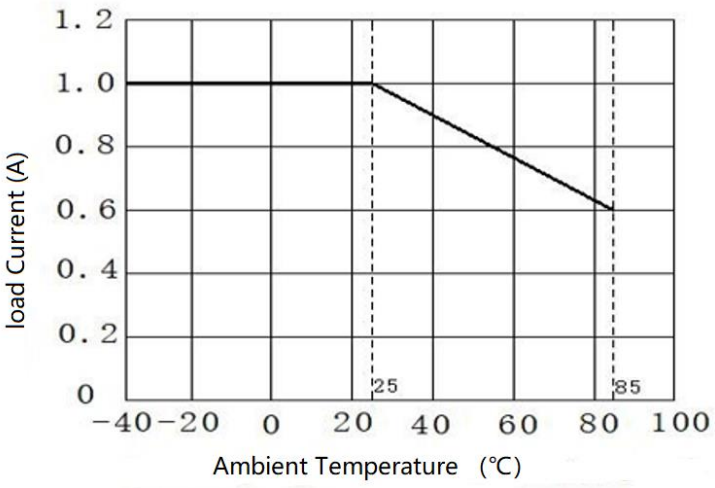
“*”: RH=40 to 60%, T=20~30℃,AC for 1 minute.

Electro-optical Characteristics

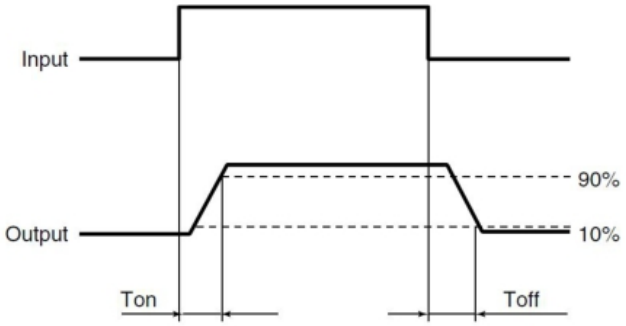
Parameter		Symbol	Condition	MIN	TYP	MAX	Unit
Input	Forward voltage	V_F	I_F=10mA		1.2	1.3	V
	Reverse current	I_R	V_R=5V			10	μA
Output	Output off-sate leakage current	I_{LEAK}	V_O=60V			10	μA
Transfer characteristics	LED trigger current	I_{FT}				10	mA
	Recommend operating current	I_{IN}		10		18	mA
	Output on-state resistance	R_{on}	I_{IN}=10mA，I_D=1A			0.17	Ω
	Turn on time	T_{on}	I_{IN}=10mA，I_D=1A			4	mS
	Turn off time	T_{off}	I_{IN}=10mA，I_D=1A			4	mS
	I/O capacitance	C				10	pF

Typical Curves

- **Load current （RMS）VS Ambient Temperature**

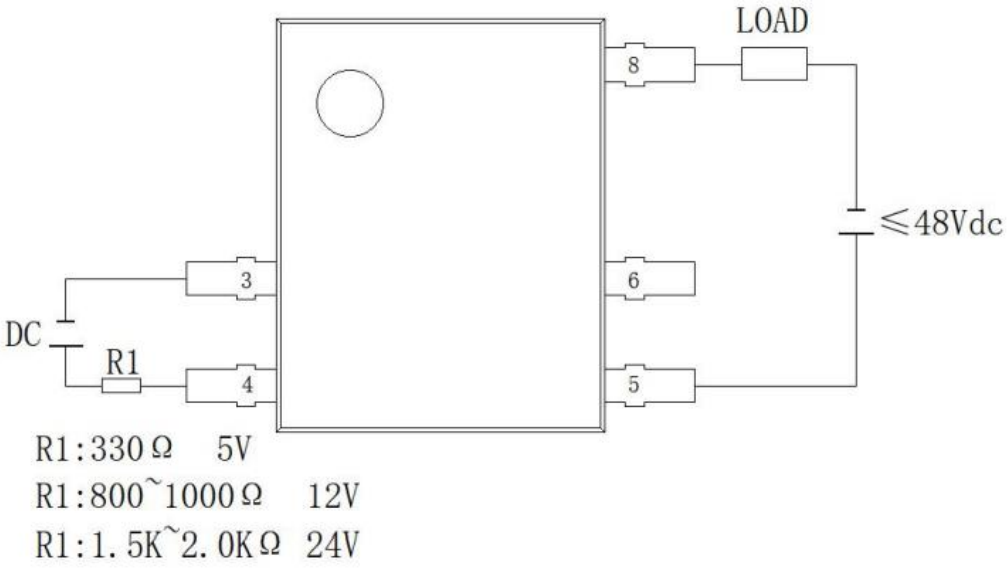


- **Turn-on and turn-off time**



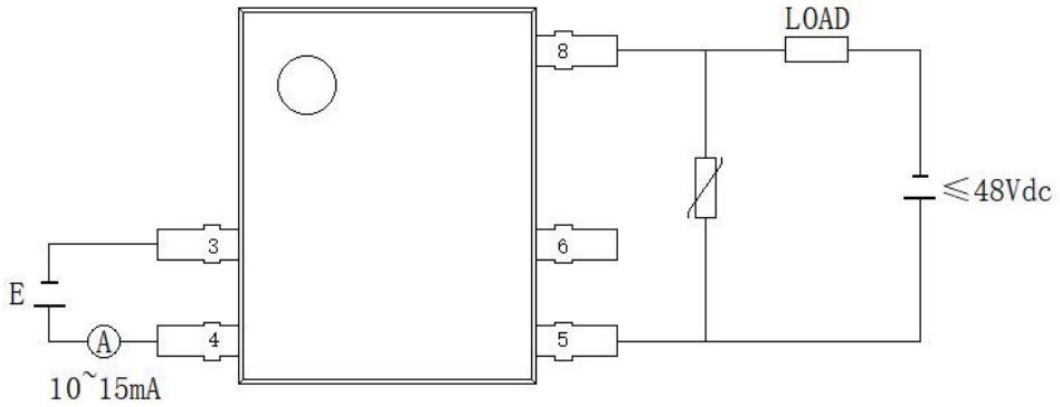
Typical Application and Description

- **Application circuit**



- **Recommended driving condition**

Please make sure the input current more 10mA ,Recommending input current 15mA.



- **Application description**

Notes:

A. When the operating temperature exceeds 25 ° C, the load current must be Reduced.(Based on the Load current VS Ambient Temperature typical curves)

B. Relay wiring, be sure to ensure that the input polarity is correct, so as not to damage the relay;

- **ESD protection measures**

A. Operators, please wear anti-static work clothes and implement human grounding through a protective resistor of about 500k Ω~1M Ω.

B. Please install conductive metal plates or specialized plates with anti-static properties on the workbench, and ground the measuring instruments and fixtures.

C. When using an electric soldering iron, ground the front end of the iron. (It is recommended to use a low voltage soldering iron.)

D. The equipment used in assembly should also be correctly grounded.

E. When packaging PCB and machines, please avoid using charged polymer materials such as foamed styrene and polyethylene.

F. When storing and handling Opto-MOS relays, please protect them with conductive packaging materials in an environment that is not prone to static electricity (such as humidity of 45-60%).

- **Soldering**

Flow soldering should be completed at 260℃ and within 10s.

Flow soldering should be completed at 350℃ and within 5s.

Order Code

W OR D 10 06 S
① ② ③ ④ ⑤ ⑥

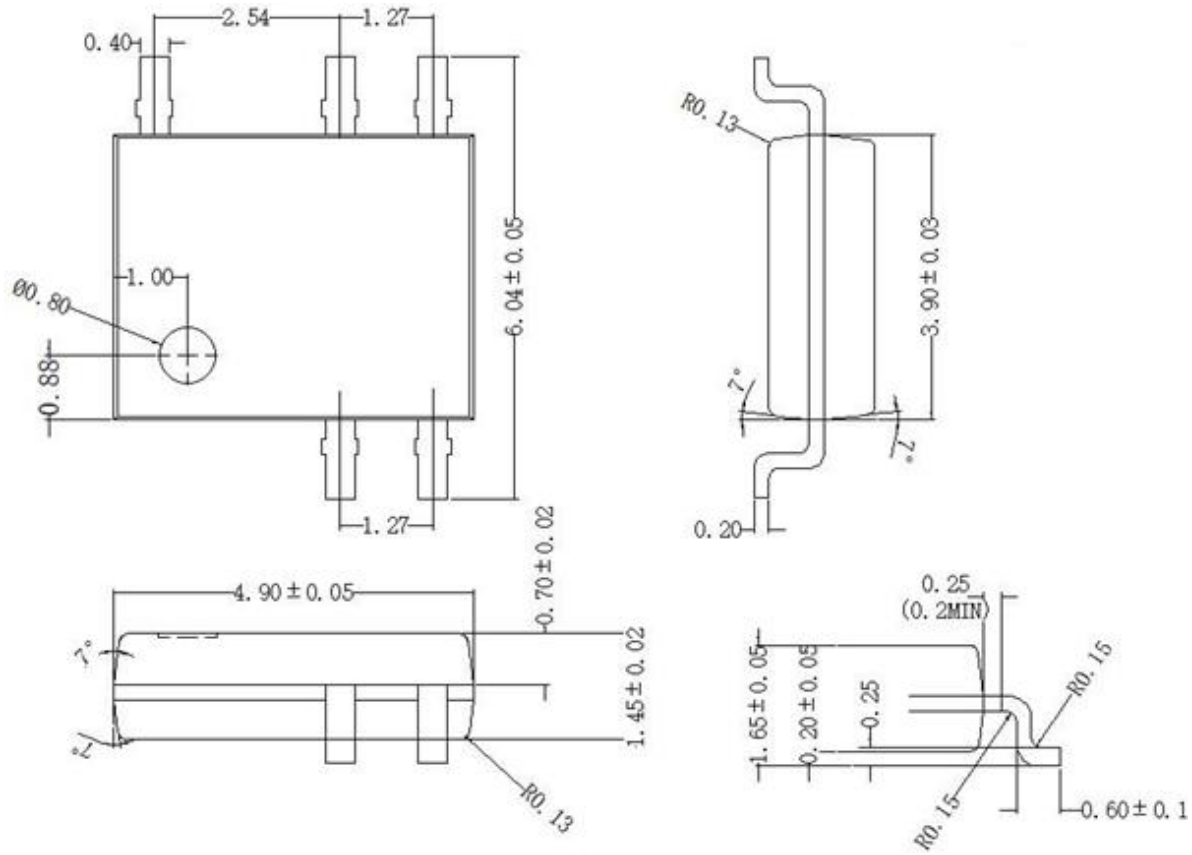
① Company Code(W：WAYON)
② Product Series(OR)
③ D:DC OUT
④ Load current:1A
⑤ Breakdown voltage 60V
⑥ Package (S:SOP8)

Model & Package

Model	Package	Marking	Packing	QTY
WORD1006S	SOP8	1006D	Tape and reel	TBD

Outline Dimensions

- **Package SOP8** Unit：mm



Note: No tolerance is marked as ±0.05mm.

Name of hazardous substance

Part name	Name of hazardous substance					
	Pb	Hg	Cd	Cr^{+6}	PBB	PBDE
Lead frame	○	○	○	○	○	○
Epoxy Resin Molding Compound	○	○	○	○	○	○
Chip	○	○	○	○	○	○
Wire	○	○	○	○	○	○
Adhesive	○	○	○	○	○	○
Instructions	○： Indicates that the content of the toxic and harmful substances is below the limit requirements of GBT26572 -2011 standard. ×： Indicates that the content of the toxic and harmful substances exceeds the limit requirements of the GBT26572 -2011 standard.					

CONTACT INFORMATION

No.1001, Shiwan (7) Road, Pudong District, Shanghai, P.R.China.201207
Tel: 86-21-50310888 Fax: 86-21-50757680 Email: market@way-on.com
WAYON website: **http://www.way-on.com**
For additional information, please contact your local Sales Representative.

Product Specification Statement

1. The product specification aims to provide users with a reference regarding various product parameters, performance, and usage. It presents certain aspects of the product's performance in graphical form and is intended solely for users to select product and make product comparisons, enabling users to better understand and evaluate the characteristics and advantages of the product. It does not constitute any commitment, warranty, or guarantee.

2. The product parameters described in the product specification are numerical values, characteristics, and functions obtained through actual testing or theoretical calculations of the product in an independent or ideal state. Due to the complexity of product applications and variations in test conditions and equipment, there may be slight fluctuations in parameter test values. WAYON shall not guarantee that the actual performance of the product when installed in the customer's system or equipment will be entirely consistent with the product specification, especially concerning dynamic parameters. It is recommended that users consult with professionals for product selection and system design. Users should also thoroughly validate and assess whether the actual parameters and performance when installed in their respective systems or equipment meet their requirements or expectations. Additionally, users should exercise caution in verifying product compatibility issues, and WAYON assumes no responsibility for the application of the product.

3. WAYON strives to provide accurate and up-to-date information to the best of our ability. However, due to technical, human, or other reasons, WAYON cannot guarantee that the information provided in the product specification is entirely accurate and error-free. WAYON shall not be held responsible for any losses or damages resulting from the use or reliance on any information in these product specifications. WAYON reserves the right to revise or update the product specification and the products at any time without prior notice, and the user's continued use of the product specification is considered an acceptance of these revisions and updates. Prior to purchasing and using the product, users should verify the above information with WAYON to ensure that the product specification is the most current, effective, and complete. If users are particularly concerned about product parameters, please consult WAYON in detail or request relevant product test reports. Any data not explicitly mentioned in the product specification shall be subject to separate agreement.

4. Users are advised to pay attention to the parameter limit values specified in the product specification and maintain a certain margin in design or application to ensure that the product does not exceed the parameter limit values defined in the product specification. This precaution should be taken to avoid exceeding one or more of the limit values, which may result in permanent irreversible damage to the product, ultimately affecting the quality and reliability of the system or equipment.

5. The design of the product is intended to meet civilian needs and is not guaranteed for use in harsh environments or precision equipment. It is not recommended for use in systems or equipment such as medical devices, aircraft, nuclear power, and similar systems, where failures in these systems or equipment could reasonably be expected to result in personal injury. WAYON shall assume no responsibility for any consequences resulting from such usage.

6. Users should also comply with relevant laws, regulations, policies, and standards when using the product specification. Users are responsible for the risks and liabilities arising from the use of the product specification and must ensure that it is not used for illegal purposes. Additionally, users should respect the intellectual property rights related to the product specification and refrain from infringing upon any third-party legal rights. WAYON shall assume no responsibility for any disputes or controversies arising from the above-mentioned issues in any form.