



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



# OV-24DC ...

## Solid-State Relays



## INTERFACE

Data Sheet  
103082\_01\_en

© PHOENIX CONTACT - 11/2006

## Description

**OV-24DC ...** solid-state relays for electrical isolation can be mounted directly on the PCB as interfaces or plugged in using the SIM-AMS socket, which can be soldered.

The solid-state relays are suitable for switching ohmic, capacitive or inductive loads. Relays for switching AC circuits have a zero point switch to switch on loads that are in the zero voltage crossing. They are switched off in the zero current crossing.

DC loads can switch up to 1 A at 350 V DC and up to 4 A at 60 V DC, while AC loads can switch up to 5 A at 480 V AC. Inductive loads must be provided with an appropriate protective circuit (e.g., free-wheeling diode or RC element).

The electronic load relays have the following advantages:

- No wear, even at high switching frequencies
- No contact bounce – no movable parts
- No electromagnetic interference
- Electrically insulated housing
- Compact dimensions
- High test voltage of up to 4 kV between control and load circuits



Make sure you always use the latest documentation.  
It can be downloaded at [www.download.phoenixcontact.com](http://www.download.phoenixcontact.com).

A conversion table is available on the Internet at  
[www.download.phoenixcontact.com/general/7000\\_en\\_00.pdf](http://www.download.phoenixcontact.com/general/7000_en_00.pdf).



This data sheet is valid for all products listed on the following page:

## Ordering Data

### Solid-State Relays With DC Voltage Output

Description	Type	Order No.	Pcs./Pck.
Solid-state relay, for signal amplification and electrical isolation of the control and load circuits, can be plugged into the SIM-AMS plug-in base, which can be soldered, or mounted directly on the PCB with PCB connection, input/output: DC voltage (350 V DC, maximum)	OV-24DC/350DC/1	2982634	10
Solid-state relay, for signal amplification and electrical isolation of the control and load circuits, can be plugged into the SIM-AMS plug-in base, which can be soldered, or mounted directly on the PCB with PCB connection, input/output: DC voltage (60 V DC, maximum)	OV-24DC/ 60DC/4	2982647	10

### Solid-State Relays With AC Voltage Output

Description	Type	Order No.	Pcs./Pck.
Solid-state relay, for signal amplification and electrical isolation of the control and load circuits, can be plugged into the SIM-AMS plug-in base, which can be soldered, or mounted directly on the PCB with PCB connection, input: DC voltage/output: AC voltage	OV-24DC/480AC/5	2982650	10

### Accessories

Description	Type	Order No.	Pcs./Pck.
Plug-in base	SIM-AMS ...	See INTERFACE catalog	

## Technical Data

Input Data	...350DC/1	...60DC/4	...480AC/5
Nominal input voltage $U_N$	24 V DC	24 V DC	24 V DC
Operating voltage range	4.25 V DC ... 32 V DC		4 V DC ... 32 V DC
Voltage switching threshold			
"0" signal	< 1 V DC	< 1 V DC	< 1.2 V DC
"1" signal	> 3.3 V DC	> 3.3 V DC	> 3.5 V DC
Typical input current at $U_N$	15 mA	15 mA	10 mA
Typical switch-on time	< 100 $\mu$ s	< 100 $\mu$ s	1/2 period, maximum
Typical switch-off time	< 250 $\mu$ s	< 250 $\mu$ s	1/2 period, maximum
Switching frequency for ohmic nominal load	100 Hz	100 Hz	25 Hz
Output Data	...350DC/1	...60DC/4	...480AC/5
Nominal output voltage range	1 V DC ... 350 V DC	1 V DC ... 60 V DC	12 V AC ... 530 V AC
Periodic peak reverse voltage	–	–	1000 V
Limiting continuous current (see derating curves)	1 A	4 A	5 A
Minimum load current	1 mA	1 mA	20 mA
Surge current	20 A (tp = 1 s)	25 A (tp = 1 s)	80 A (tp = 20 ms)
Voltage drop at maximum limiting continuous current (2-wire)	0.5 V	0.5 V	1.2 V
Maximum load value $I^2t$	–	–	50 A <sup>2</sup> s
Leakage current when switched off	100 $\mu$ A	100 $\mu$ A	1 mA
Maximum phase shift (inductive loads)	–	–	$\cos \varphi \geq 0.5$
Protective circuit	Diode for protection against polarity reversal	Diode for protection against polarity reversal	–

General Data	...350DC/1	...60DC/4	...480AC/5
Test voltage input/output	4 kV <sub>rms</sub>	4 kV <sub>rms</sub>	4 kV <sub>rms</sub>
Ambient temperature range	-20°C ... +80°C		-20°C ... +70°C
Operating mode	100% operating factor	100% operating factor	100% operating factor
Assembly	Directly on the PCB or can be plugged in with a SIM-AMS socket, which can be soldered		

**Conformance With EMC Directive 89/336/EEC and Low Voltage Directive 73/23/EEC**

**Noise Immunity Test According to EN 61000-6-2<sup>1</sup>**

Electrostatic discharge (ESD)	EN 61000-4-2
Electromagnetic HF field	EN 61000-4-3
Fast transients (burst)	EN 61000-4-4

**Noise Emission Test According to EN 61000-6-4**

Noise emission of housing	EN 55011 <sup>2</sup>
---------------------------	-----------------------

<sup>1</sup> EN 61000 corresponds to IEC 61000

<sup>2</sup> EN 55011 corresponds to CISPR11

**Approvals**

UL



**Dimensions**

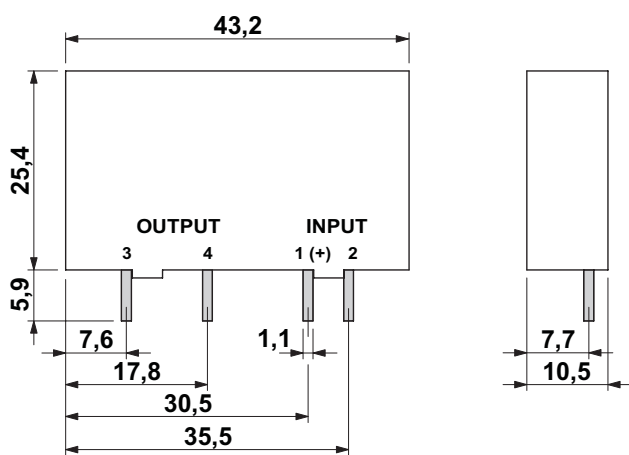


Figure 1 Dimensions (in mm)

**Block Diagrams**

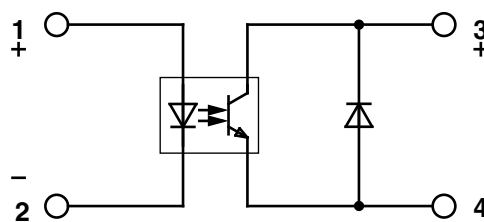


Figure 2 Block diagram for OV-24DC/350DC/1 and OV-24DC/60DC/4

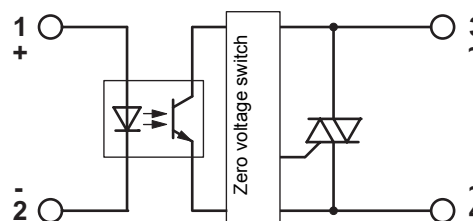


Figure 3 Block diagram for OV-24DC/480AC/5

### Derating Curves

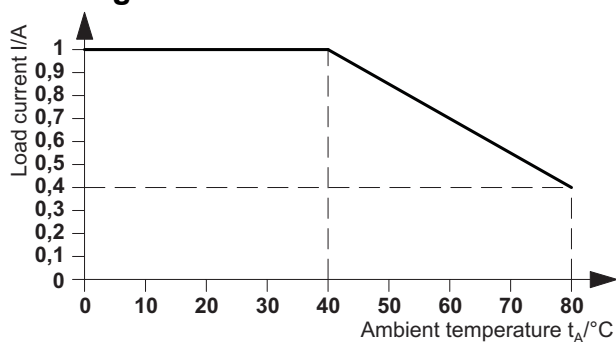


Figure 4 Derating curve for OV-24DC/350DC/1

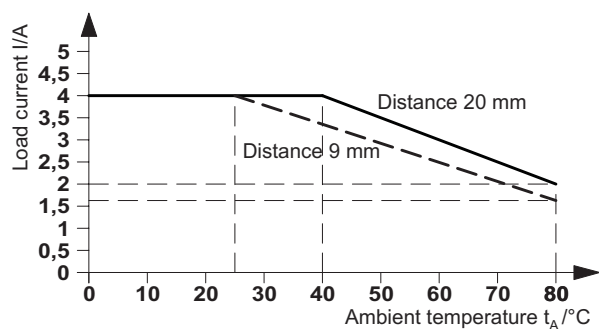


Figure 5 Derating curve for OV-24DC/ 60DC/4

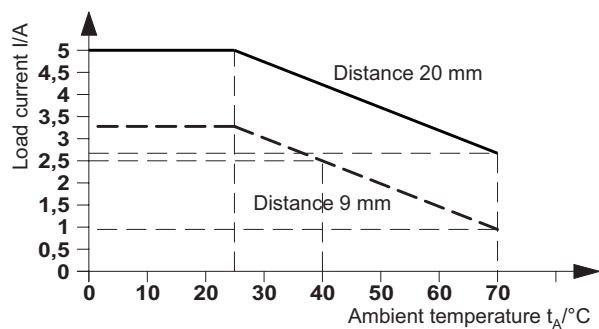


Figure 6 Derating curve for OV-24DC/480AC/5

© PHOENIX CONTACT 11/2006