OV-24DC …

Solid-State Relays



INTERFACE

Data Sheet
103082_01_en

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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.

A conversion table is available on the Internet at
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 µs	< 100 µs	1/2 period, maximum
Typical switch-off time	< 250 µs	< 250 µs	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^2s
Leakage current when switched off	100 µA	100 µA	1 mA
Maximum phase shift (inductive loads)	–	–	cos φ = ≥ 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_{rms}	4 kV_{rms}	4 kV_{rms}
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[1]

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[2]

[1] EN 61000 corresponds to IEC 61000

[2] EN 55011 corresponds to CISPR11

Approvals

UL

Dimensions

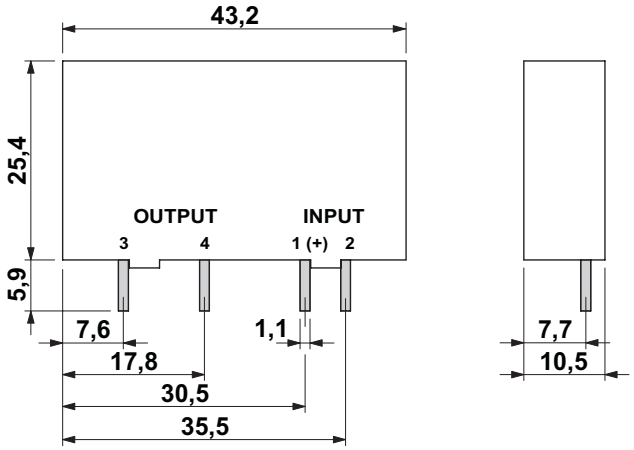


Figure 1 Dimensions (in mm)

Block Diagrams

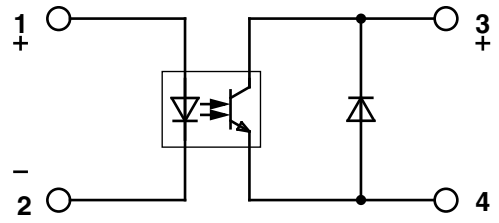


Figure 2 Block diagram for OV-24DC/350DC/1 and OV-24DC/ 60DC/4

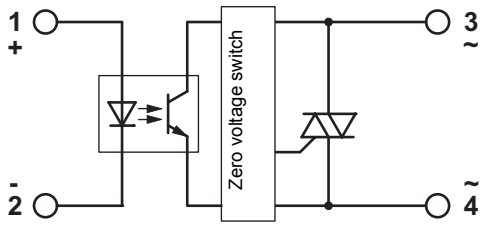


Figure 3 Block diagram for OV-24DC/480AC/5

Derating Curves

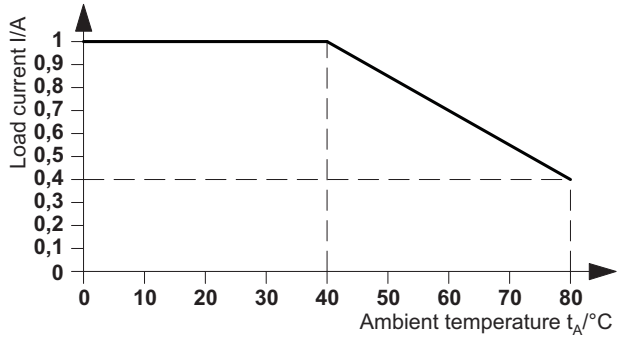


Figure 4 Derating curve for OV-24DC/350DC/1

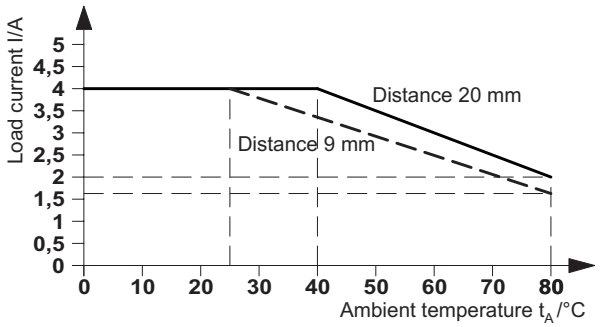


Figure 5 Derating curve for OV-24DC/ 60DC/4

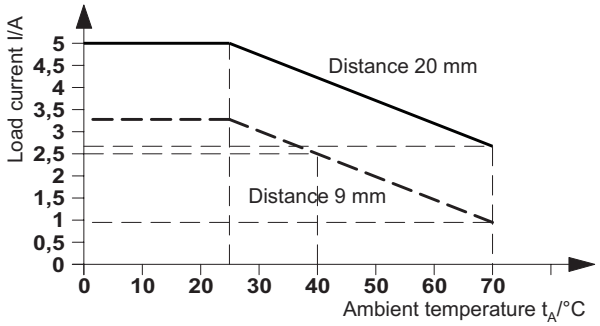


Figure 6 Derating curve for OV-24DC/480AC/5

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