ZGZX SOLID STATE RELAYS

VSA Series Single Phase Solid State Relays

Features

Electromagnetic valve, light controlling of stage, electric motor revolution and connter revolution ,heater, medical care equipment, elevator, etc.

- 5A @24-280VAC
- RIAC output for economical type loads
- Zero voltage turn-on outputs
- DC control
- High reliability plastic process

Ordering Options

VSA	05	D	A28	Z
VSA Series	**Load Current**	**Control Voltage**	**Output Voltage**	**Switching Type**
Single Phase Solid State Relay	05: 5Amp	D: 3-32VDC	A28: 24-280VAC	Z:Zero Cross Turn-on

Intput Specifications

Description	VSA05DA28Z
Control current Range [mA]	≤7
Minimum Turn-on Voltage [V]	1.13
Must Turn-off Voltage [V]	1.0
Type Input Current [mA]	5
Maximum Input Current [mA]	7
Maximum Turn-on Time [ms]	1/2Cycle
Maximum Turn-off Time [ms]	1/2Cycle

Output Specifications

Description	VSA05DA28Z
Operating Voltage [47-440Hz] [V_{RSM}]	24-280VAC
Transient Overvoltage [V_{PK}]	800
Maximum off-state Leakage Current @Rated Voltage [mA]	1
Minimum Off-state dv/dt @ Maximum Rated Voltage[V/μs]	500
Maximum Load Current [A]	20
Minimum Load Current [mA]	150
Maximum 1 Cycle Surge Current [50/60Hz] [A]	200
Maximum On-state Voltage Drop@Rated Current [V_{RMS}]	1.5
Maximum 1/2 Cycle I^2t For Fusing [50/60Hz][A^2sec]	200
Minimum Power Factor [At Maximum Load]	0.5

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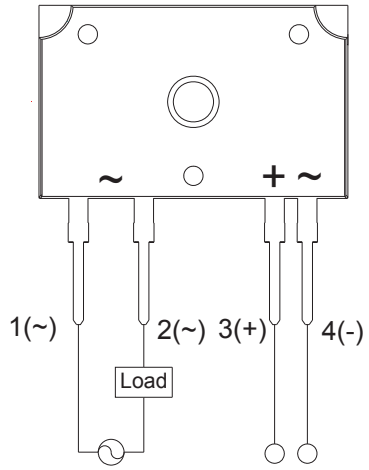
VSA Series Single Phase Solid State Relays

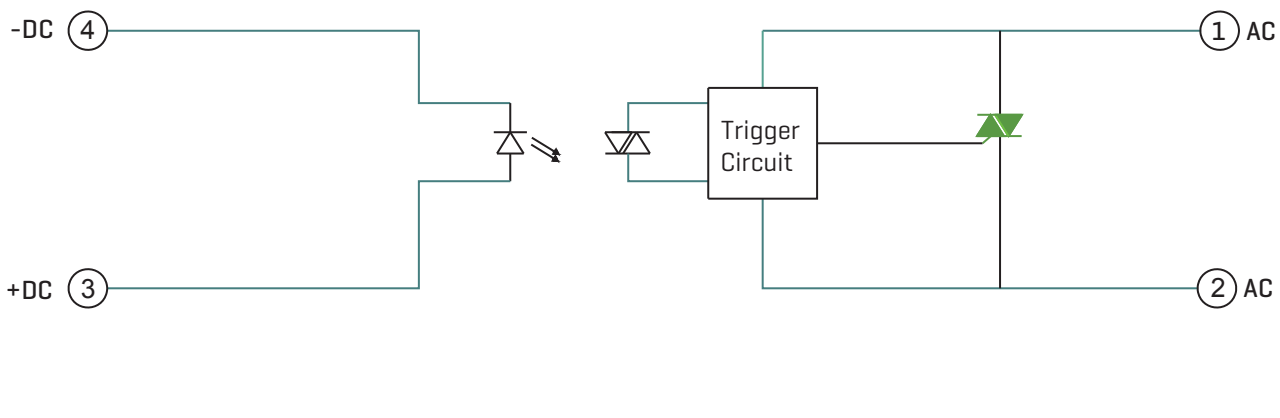
General Specifications

Description	Value
Dielectric Strength, Input to Output (50/60Hz) (V)	2000 VDC (1min)
Minimum Insulation Resistance (@500VDC)	1000MΩ
Maximum Capacitance, Input/Output	10pF
Ambient Operating Temperature Range	-40 to 80°C
Ambient Storage Temperature Range	-40 to 125 °C
Weight (typical)	3.8g
MTBF(Mean Time Between Failures) at 40°C Ambient Temperature	11,641,553 hours (1,328 years)
MTBF(Mean Time Between Failures) at 60°C Ambient Temperature	7,210,376 hours (823 years)
LED Input Status Indicator	No
Humidity per IEC60068-2-78	93% non-condensing

Connection Diagram



Equivalent Circuit Block



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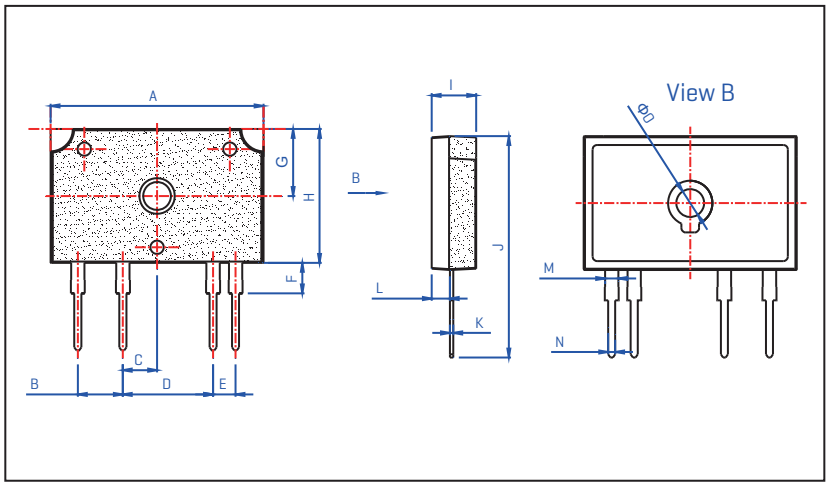
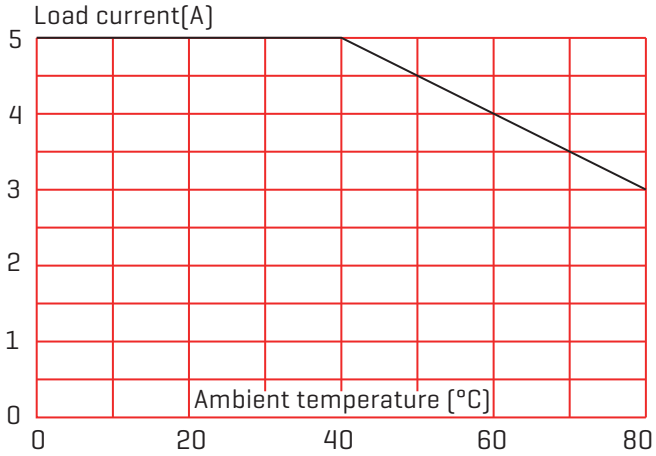
VSA Series Single Phase Solid State Relays

Dimensions



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A		24	24.3		0.945	0.957
B	4.98	5.08	5.18	0.196	0.200	0.204
C	3.75	3.85	3.95	0.148	0.152	0.156
D	10.06	10.16	10.26	0.396	0.400	0.404
E	2.44	2.54	2.64	0.096	0.100	0.104
F	3.2	3.4	3.6	0.126	0.134	0.142
G	7.35	7.5	7.65	0.289	0.295	0.301
H		15	15.3		0.591	0.602
I		5	5.2		0.197	0.205
J		24.8	25.2		0.976	0.992
K	0.33	0.38	0.43	0.013	0.015	0.017
L	1.9	2.05	2.2	0.075	0.081	0.087
M		1.5			0.059	
N	0.75	0.8	0.8	0.03	0.03	0.033
O	3	3.13	3.3	0.118	0.12	0.130

Thermal Derate Information



Instructions and Precautions

1.The heat produced by power dissipation of relay should be radiated by case, if the heat dissipation condition around relay is bad, the output load current will be reduced by half. If continue to use, it is necessary to install matching radiator, the temperature of baseplate of radiator should no more than 80℃ when working. If the ambient temperature is too high, it is necessary to use air patenting to accelerate air flow to ensure better heat dissipation effect.

2. To ensure the solid state relay closely contacts with radiator during installing process to get better heat dissipation effect, please parallel place thermal conductive film between solid state relay and radiator and fix it with screw; please equably daub appropriate amount of thermal grease on the baseplate of solid state relay when installing, if the product is equipped with thermal grease, and fix it with screw.

3. Fix the screws by using less than 4NM moment of force, and fix output and input at the same time, please do not fix one end after dealing with another end.

4. To prevent breakdown of solid state relay caused by overload short circuit, overcurrent or voltage overload working, installing quick-fuse specified for relay is recommended. For inductive load, it is necessary to install voltage-dependent resistor, and RC absorbing circuit at solid output, if the direct current solid state relay is inductive load, fly-wheel diode is necessary.

5. No protecting circuit of input circuit, it is easy to damage when circuit is reverse connected; Please ensure wire connecting is right when using.

6. The storage of solid state relay should anti-moisture, anti-wet, protected from rain, fall and severe collision. It should be stored in ambient, which is well-ventilated, dry and non-corrosive gases, and the humidity should less than 80%.

7. Please do not use the parameter exceeding this datasheet

VSC Series Single Phase Solid State Relays

Features

- Rating of 10A, 15A and 25A@24-280VAC.
- Zero voltage or instantaneous turen-on outputs.
- Easy-to-use:Fast-on connection.
- LED input status indicator.

Ordering Options

VSC	25	D05	A	Z
VSC Series	**Load Current**	**Control Voltage**	**Output Voltage**	**Switching Type**
Single Phase Solid State Relay	10: 10Amps 15: 15Amps 25: 25Amps	D05:4-8VDC D12:10-14VDC D24:21-27VDC	A: 24-280VAC	Z: Zero Cross Turn-on R: Random Turn-on

Product Selection

Control voltage	Output voltage	Rated operational current		
		10Amps	15Amps	25Amps
4-8VDC	280VAC"Z"	VSC10D05AZ	VSC15D05AZ	VSC25D05AZ
4-8VDC	280VAC"R"	VSC10D05AR	VSC15D05AR	VSC25D05AR
10-14VDC	280VAC"Z"	VSC10D12AZ	VSC15D12AZ	VSC25D12AZ
10-14VDC	280VAC"R"	VSC10D12AR	VSC15D12AR	VSC25D12AR
21-27VDC	280VAC"Z"	VSC10D24AZ	VSC15D24AZ	VSC25D24AZ
21-27VDC	280VAC"R"	VSC10D24AR	VSC15D24AR	VSC25D24AR

Input Specifications

Description	D05	D12	D24
Control Voltage Range	4-8VDC	10-14VDC	21-27VDC
Minimum Turn-On Voltage	4VDC	10DC	21VDC
Must Turn-Off Voltage	1VDC	1VDC	1VDC
Minimum Input Current	6mA	10mA	8mA
Maximum Input Current	21mA	17.5mA	19mA
Maximum Turn-On Time [msec]	1/2Cycle	1/2Cycle	1/2Cycle
Maximum Turn-Off Time [msec]	1/2Cycle	1/2Cycle	1/2Cycle

VSC Series Single Phase Solid State Relays

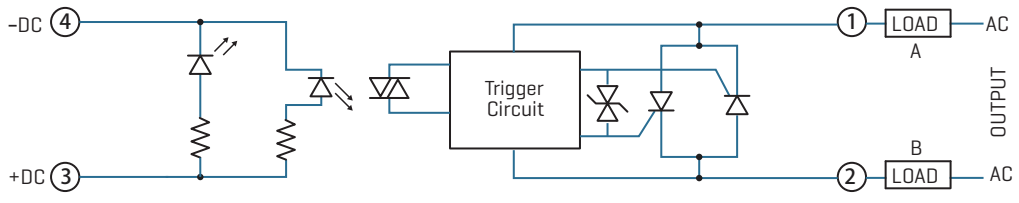
Output Specifications

Description	10Amps	15Amps	25Amps
Operating voltage (47-63Hz)(Vrms)	24-280	24-280	24-280
Maximum load current (Adc)	10A	15A	25A
Minimum load current (mArms)	150	150	250
Transient overvoltage (Vpk)	600	600	600
Maximum surge current (50/60Hz,1Cycle) (Apk)	145/150	185/220	260/280
Maximum I^2t for fusing (50/60Hz,1/2Cycle) (A^2sce)	100/95	165/160	338/326
Minimum off-state dv/dt @Maximum rated voltage (V/μsec)	500	500	500
Maximum off-state leakage current @rated voltage(mArms)	0.1	0.1	0.1
Thermal resistance junction to case (Rjc)(°C/W)	3.0	2.2	0.9
Maximum on-state voltage drop @rated current (Volts)	1.3	1.3	1.3
Minimum power factor (at maximum load)	0.7	0.7	0.7

General Specifications

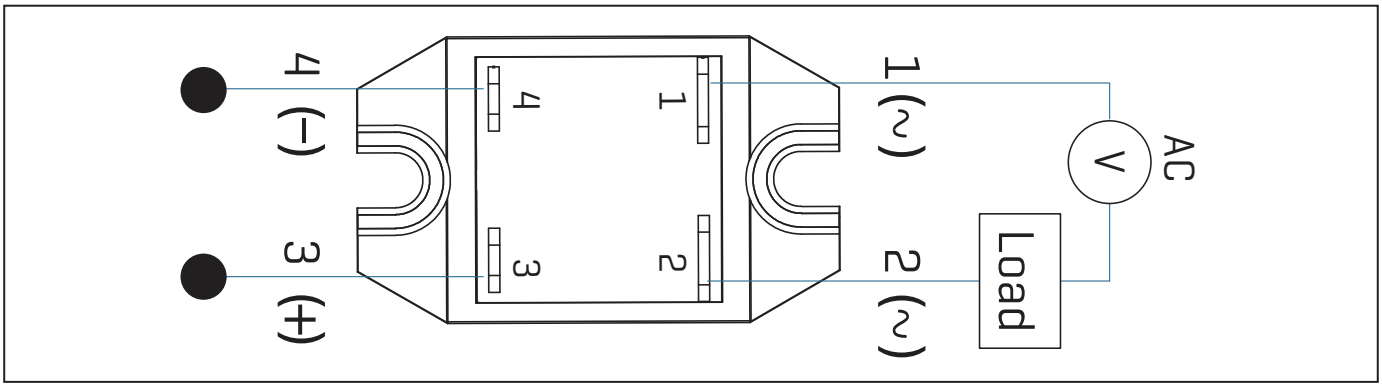
Description	Parameters
Dielectric Strength, Input to Output (50/60Hz)	2500 Vrms
Dielectric Strength, Output to Baseplate (50/60Hz)	2500 Vrms
Maximum Capacitance, Input/Output	8 pF
Ambient Operating Temperature Range	-30 to 80°C
Ambient Storage Temperature Range	-30 to 125 °C
Weight (typical)	16g
Terminals	3/16"x 0.032" input, 1/4"x 0.032" output QC
SSR Mounting Screw Torque Range	9.0-10.0 in-lb (1.0-1.13 Nm)
LED Input Status Indicator	Red
Humidity per IEC60068-2-78	93% non-condensing

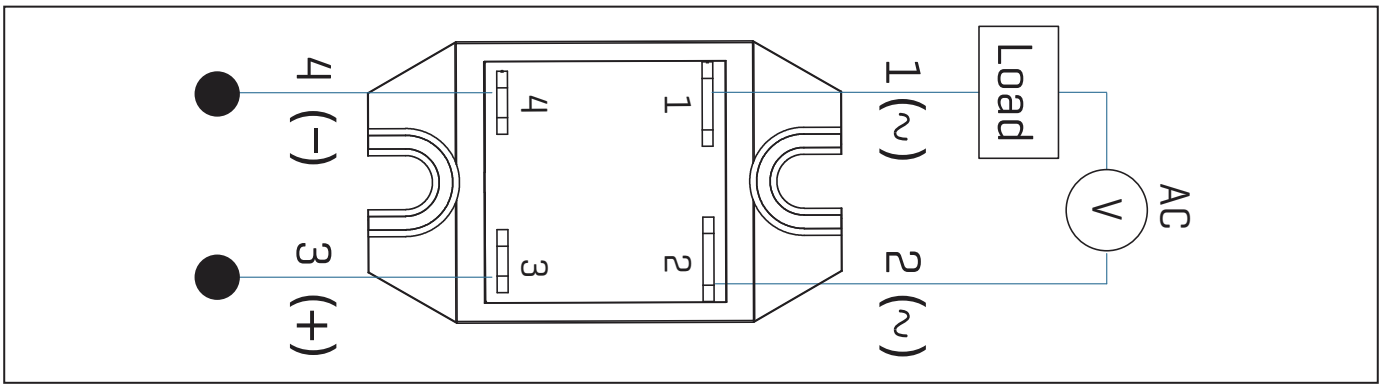
Equivalent Circuit Block



LOAD CAN BE WIRED IN POSITION A or B

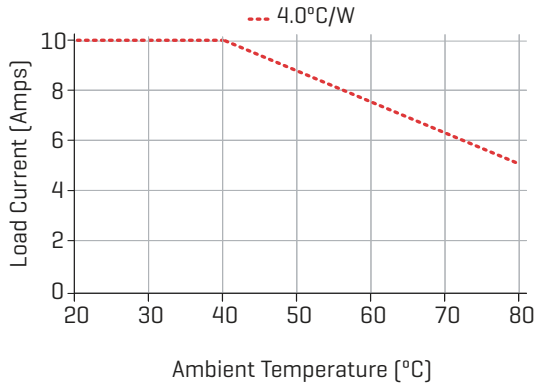
Wiring Diagrams



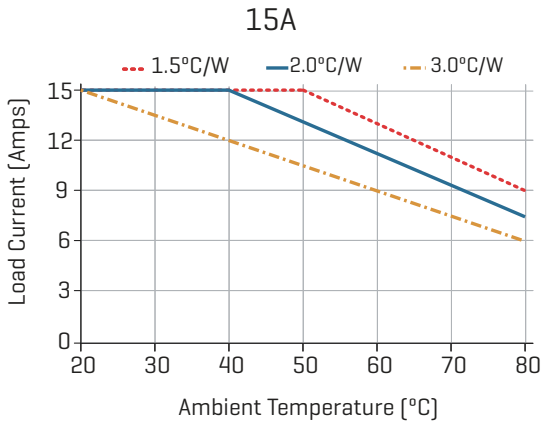


Thermal Derate information

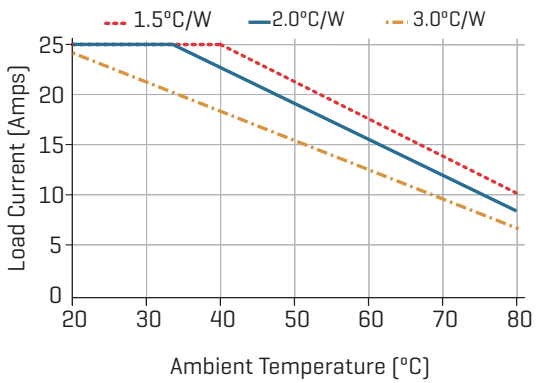
10A



15A



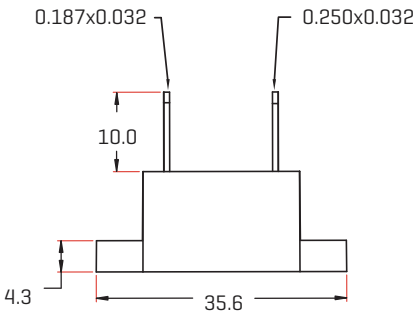
25A

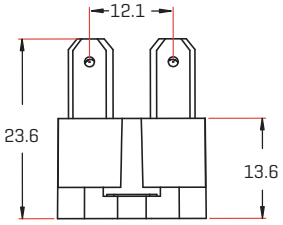


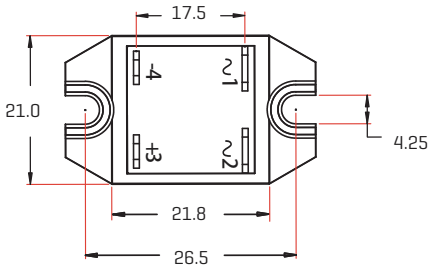
Mechanical specifications

All dimensions are in: inches [millimeters]

Standard Quick Connect terminals

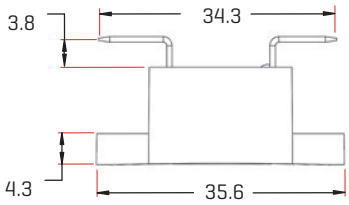


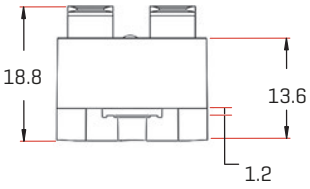


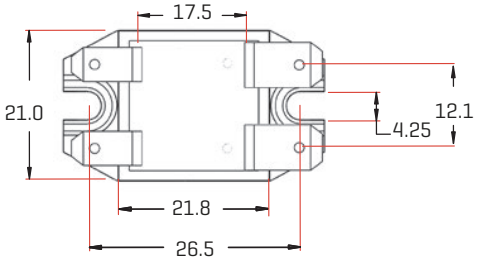


Pinout
Terminal 1: AC load
Terminal 2: AC load
Terminal 3: +DC control
Terminal 4: -DC control

90° bent Quick Connect terminals







ZGZX SOLID STATE RELAYS

VSR Series Single Phase Solid State Relays

Features

- Rating of 15A,25A, 40A,60A,80A,100A and 120A.
- Output voltage of 24-280VAC, 24-480VAC and 48-660VAC
- Control voltage of 3-32VDC, 18-36VAC/DC,20-265VAC/DC and 90-280VAC.
- Zero Crossing or Random-on Switching.
- Integrated IP20 touch-safe removable covers.
- Dielectric Strength 4000VACrms.
- LED input status indicator.

Ordering Options

VSR	25	D	A66	Z
VSR Series	**Load Current**	**Control Voltage**	**Output Voltage**	**Switching Type**
Single Phase Solid State Relay	15: 15Amps 25: 25Amps 40: 40Amps 60: 60Amps 80: 80Amps 100:100Amps 120:120Amps	D: 3-32VDC A: 90-280VAC U: 18-36VAC/DC G: 20-265VAC/DC	A28: 24-280VAC A48: 24-480VAC A66: 48-660VAC	Z: Zero Cross Turn-on R: Random Turn-on

Product Selection

Control Voltage	Output Voltage	Rated operational current						
		15Amps	25Amps	40Amps	60Amps	80Amps	100Amps	120Amps
3-32VDC	280VAC"Z"	VSR15DA28Z	VSR25DA28Z	VSR40DA28Z	VSR60DA28Z	VSR80DA28Z	VSR100DA28Z	VSR120DA28Z
3-32VDC	280VAC"R"	VSR15DA28R	VSR25DA28R	VSR40DA28R	VSR60DA28R	VSR80DA28R	VSR100DA28R	VSR120DA28R
90-280VAC	280VAC"Z"	VSR15AA28Z	VSR25AA28Z	VSR40AA28Z	VSR60AA28Z	VSR80AA28Z	VSR100AA28Z	VSR120AA28Z
90-280VAC	280VAC"R"	VSR15AA28R	VSR25AA28R	VSR40AA28R	VSR60AA28R	VSR80AA28R	VSR100AA28R	VSR120AA28R
18-36VAC/DC	280VAC"Z"	VSR15UA28Z	VSR25UA28Z	VSR40UA28Z	VSR60UA28Z	VSR80UA28Z	VSR100UA28Z	VSR120UA28Z
18-36VAC/DC	280VAC"R"	VSR15UA28R	VSR25UA28R	VSR40UA28R	VSR60UA28R	VSR80UA28R	VSR100UA28R	VSR120UA28R
20-265VAC/DC	280VAC"Z"	VSR15GA28Z	VSR25GA28Z	VSR40GA28Z	VSR60GA28Z	VSR80GA28Z	VSR100GA28Z	VSR120GA28Z
20-265VAC/DC	280VAC"R"	VSR15GA28R	VSR25GA28R	VSR40GA28R	VSR60GA28R	VSR80GA28R	VSR100GA28R	VSR120GA28R
3-32VDC	480VAC"Z"	VSR15DA48Z	VSR25DA48Z	VSR40DA48Z	VSR60DA48Z	VSR80DA48Z	VSR100DA48Z	VSR120DA48Z
3-32VDC	480VAC"R"	VSR15DA48R	VSR25DA48R	VSR40DA48R	VSR60DA48R	VSR80DA48R	VSR100DA48R	VSR120DA48R
90-280VAC	480VAC"Z"	VSR15AA48Z	VSR25AA48Z	VSR40AA48Z	VSR60AA48Z	VSR80AA48Z	VSR100AA48Z	VSR120AA48Z
90-280VAC	480VAC"R"	VSR15AA48R	VSR25AA48R	VSR40AA48R	VSR60AA48R	VSR80AA48R	VSR100AA48R	VSR120AA48R
18-36VAC/DC	480VAC"Z"	VSR15UA48Z	VSR25UA48Z	VSR40UA48Z	VSR60UA48Z	VSR80UA48Z	VSR100UA48Z	VSR120UA48Z
18-36VAC/DC	480VAC"R"	VSR15UA48R	VSR25UA48R	VSR40UA48R	VSR60UA48R	VSR80UA48R	VSR100UA48R	VSR120UA48R
20-265VAC/DC	480VAC"Z"	VSR15GA48Z	VSR25GA48Z	VSR40GA48Z	VSR60GA48Z	VSR80GA48Z	VSR100GA48Z	VSR120GA48Z
20-265VAC/DC	480VAC"R"	VSR15GA48R	VSR25GA48R	VSR40GA48R	VSR60GA48R	VSR80GA48R	VSR100GA48R	VSR120GA48R
4-32VDC	660VAC"Z"	VSR15DA66Z	VSR25DA66Z	VSR40DA66Z	VSR60DA66Z	VSR80DA66Z	VSR100DA66Z	VSR120DA66Z
4-32VDC	660VAC"R"	VSR15DA66R	VSR25DA66R	VSR40DA66R	VSR60DA66R	VSR80DA66R	VSR100DA66R	VSR120DA66R
90-280VAC	660VAC"Z"	VSR15AA66Z	VSR25AA66Z	VSR40AA66Z	VSR60AA66Z	VSR80AA66Z	VSR100AA66Z	VSR120AA66Z
90-280VAC	660VAC"R"	VSR15AA66R	VSR25AA66R	VSR40AA66R	VSR60AA66R	VSR80AA66R	VSR100AA66R	VSR120AA66R
18-36VAC/DC	660VAC"Z"	VSR15UA66Z	VSR25UA66Z	VSR40UA66Z	VSR60UA66Z	VSR80UA66Z	VSR100UA66Z	VSR120UA66Z
18-36VAC/DC	660VAC"R"	VSR15UA66R	VSR25UA66R	VSR40UA66R	VSR60UA66R	VSR80UA66R	VSR100UA66R	VSR120UA66R
20-265VAC/DC	660VAC"Z"	VSR15GA66Z	VSR25GA66Z	VSR40GA66Z	VSR60GA66Z	VSR80GA66Z	VSR100GA66Z	VSR120GA66Z
20-265VAC/DC	660VAC"R"	VSR15GA66R	VSR25GA66R	VSR40GA66R	VSR60GA66R	VSR80GA66R	VSR100GA66R	VSR120GA66R

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VSR Series Single Phase Solid State Relays

Input Specifications

Description	Specification Limits			
Control Voltage Range	3-32VDC	90-280VAC	18-36VAC/DC	20-265VAC/DC
Maximum Reverse Voltage	-6VDC	/	/	/
Minimum Turn-On Voltage	3VDC	90VAC	18VAC/DC	20VAC
Must Turn-Off Voltage	1V	10VAC	5VAC/DC	5VAC
Minimum Input Current (for on-state)	10mA	6.5mA	5mA AC/4mA DC	5mA
Maximum Input Current (mA)	20mA	18mA	10mA	10mA
Maximum Turn-On Time (msec)	1/2 Cycle	1/2 Cycle	1/2 Cycle	1/2 Cycle
Maximum Turn-Off Time (msec)	1/2 Cycle	1/2 Cycle	1/2 Cycle	1/2 Cycle

Output Specifications

Description	Units	Specification Limits						
Model No.:VSR	Amp	15	25	40	60	80	100	120
Load Current Range	Arms	0.05-15	0.05-25	0.05-40	0.1-60	0.1-80	0.1-100	0.1-125
Surge Current 10mSec(Max.)	Arms	150	250	400	600	800	1000	1200
Load Voltage Range (280V)	Vrms	24-280						
Transient Overvoltage (280V)	Vpk	800						
Load Voltage Range (480V)	Vrms	24-480						
Transient Overvoltage (480V)	Vpk	1200						
Load Voltage Range (660V)	Vrms	48-660						
Transient Overvoltage (660V)	Vpk	1600						
Operating Frequency Range	Hz	47~63						
Off State dv/dt (min.)	V/μs	200	200	200	500	500	500	500
Off State Leakage Current (Max.)	mA	≤8						
On State Voltage Drop (Max.)	Vrms	1.5	1.5	1.5	1.6	1.6	1.8	1.8
Turn On Time (Max.) "Zero-crossing"	Cycle	1/2						
Turn On Time (Max.) "Random-on"	mSec	1						
Turn-off Time (DC input)	Cycle	1/2						
Turn-off Time (AC input)	mSec	10						
Thermal Resistance,(Rthjc)	°C/W	2.5	2.5	1.3	0.65	0.5	0.3	0.3

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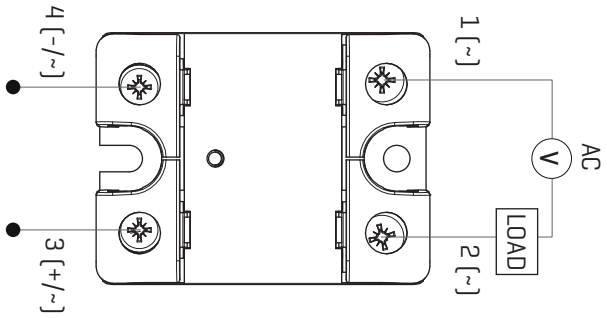
ZGZX | SOLID STATE RELAYS

VSR Series Single Phase Solid State Relays

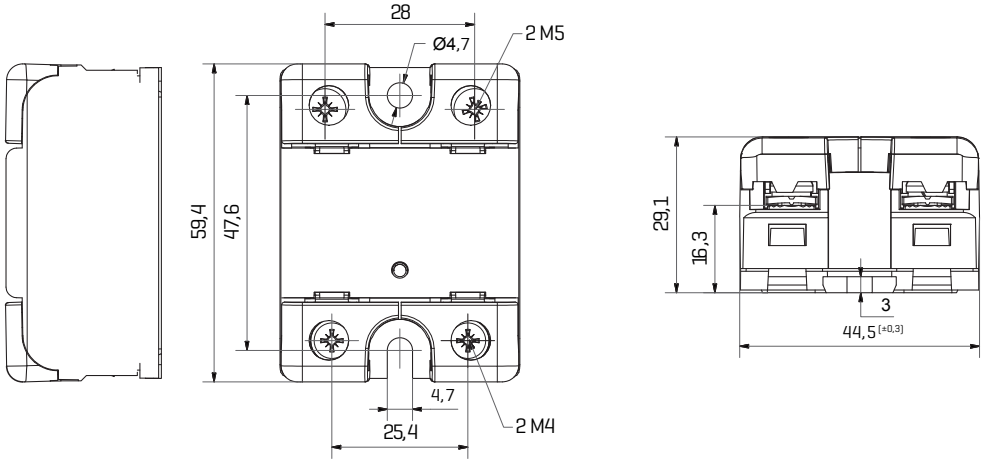
General Specifications (Ta=25°C)

Description	15A	25A	40A	60A	80A	100A	120A
Dielectric Strength, Input to Output (50/60 Hz)	4000 Vrms						
Dielectric Strength, Input/Output to Base (50/60 Hz)	2500 Vrms						
Minimum Insulation Resistance (@ 500 VDC)	$10^9\Omega$						
Maximum Capacitance, Input/Output	0.8 pF						
Ambient Operating Temperature Range	-30 to 80 °C						
Ambient Storage Temperature Range	-30 to 100 °C						
Input Terminal Screw Torque Range (in-lb/Nm)	11-18 /1.2-2.0						
Load Terminal Screw Torque Range (in-lb/Nm)	18-26 / 2-3						
SSR Mounting Screw Torque Range (in-lb/Nm)	11-16 /1.2-1.8						
Humidity per IEC60068-2-78	95 %						
LED Input Status Indicator	Red						
Housing Material	PBT+30%GF						
Baseplate Material	Pure copper						
Weight	120g						

Wiring Diagram



Dimensions (mm)



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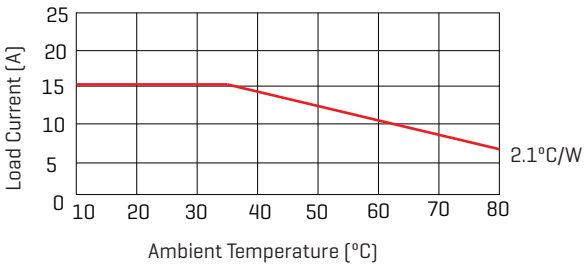
Thermal Derating Curve

15A



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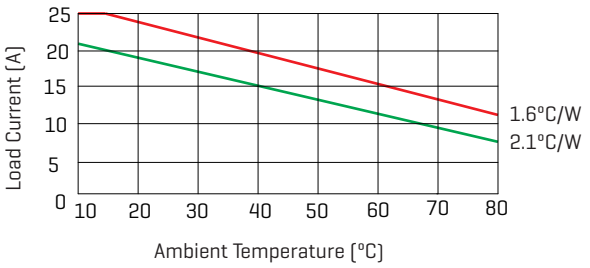

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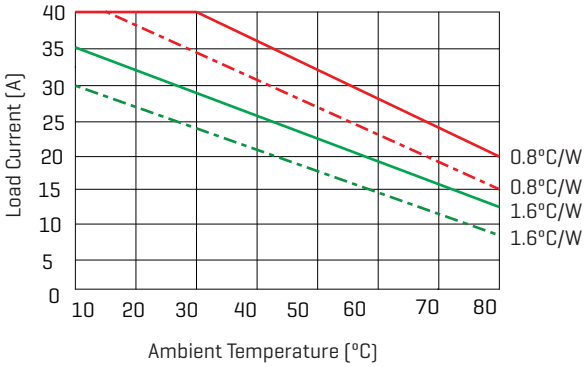

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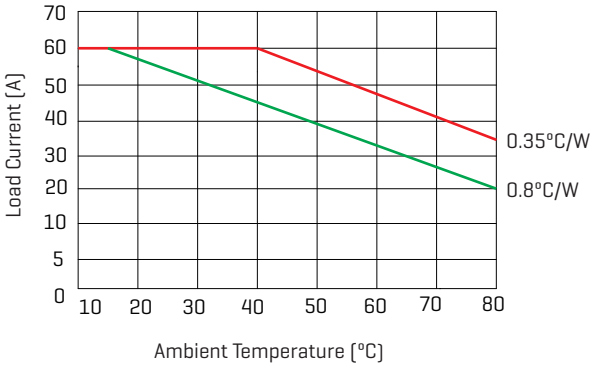

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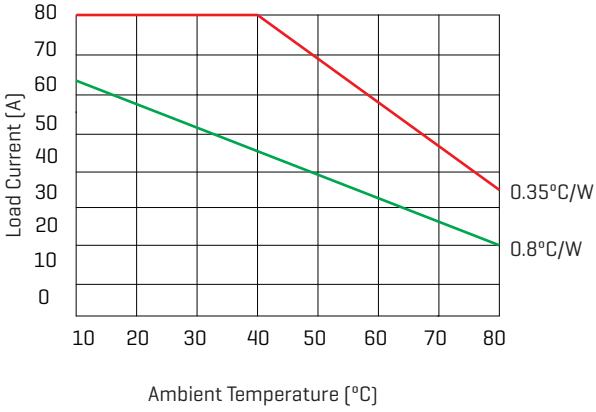

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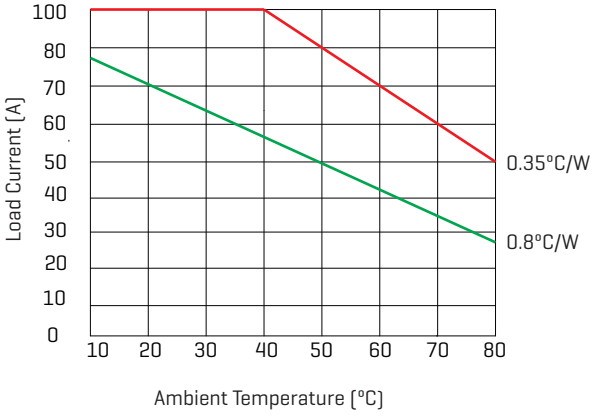

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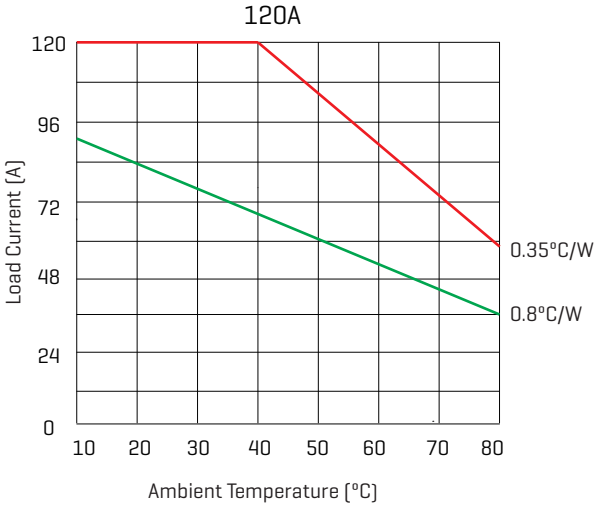

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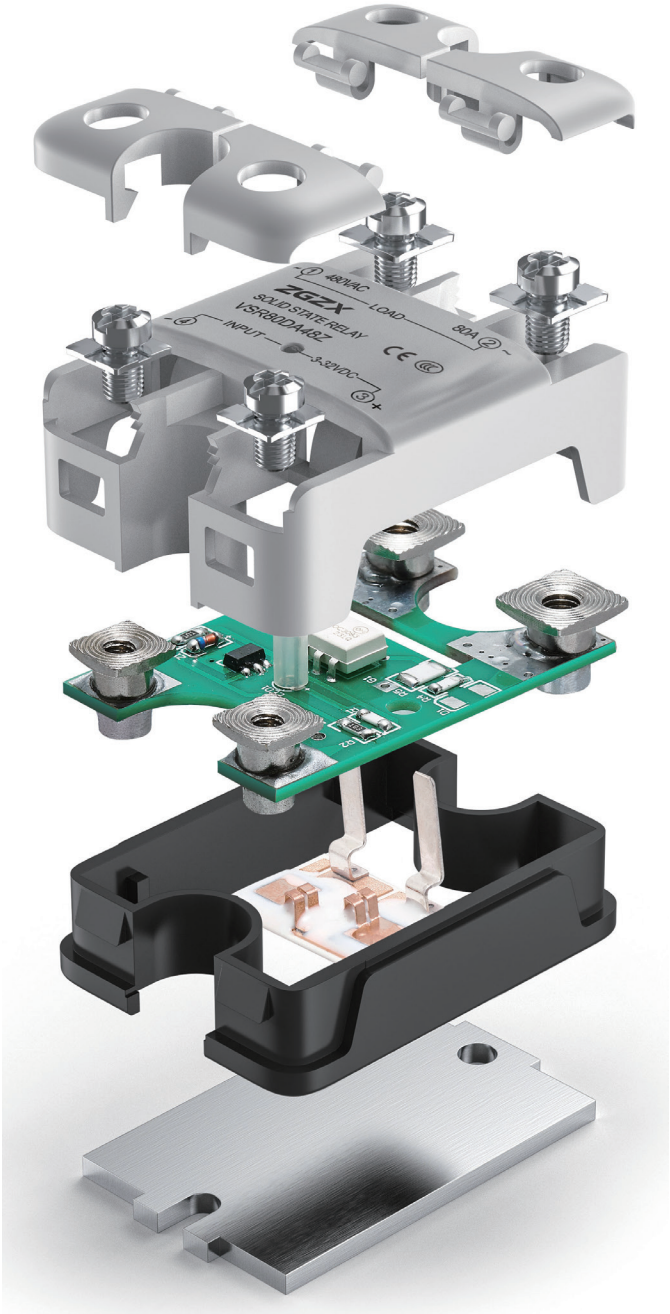
VSR Series Single Phase Solid State Relays

General Notes

1. Relay must be mounted to proper sized heat sink based on thermal curves. Thermal grease or a thermal pad must be used between relay and heat sink and be torqued down to 11-16 /1.2-1.8in-lb/Nm.
2. When connection wiring to SSR, please ensure screws are torqued down properly (input 11-18 /1.2-2.0in/lb/Nm, output18-26 / 2-3 in-lb/Nm).
3. SSR's carrying load capacity is related to the operation ambient temperature and heat dissipation condition, please refer to the Thermal Derating Curve for derating.

Warnings !

1. The product's side panels may be hot, allow the product to cool before touching.
2. Disconnect all power before installing or working with this equipment.
3. Verify all connections and replace all covers before turning on power.



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ZGZX SOLID STATE RELAYS

VSG Series Single Phase Solid State Relays

Features

- Photoelectric isolation between control loop and load loop
- Zero-crossing output or random turn-on can be selected
- International Standardized Installation Dimensions
- LED indicates working status
- Built-in RC absorption circuit, strong anti-interference ability
- Epoxy resin potting, strong anti-corrosion and anti-explosion ability
- DC 3-32VDC or AC 90-280VAC input control

Ordering Options

VSG — VSG Series
Single Phase
Solid State Relay

40 — Load Current
10: 10Amps
25: 25Amps
40: 40Amps
60: 60Amps
80: 80Amps
100: 100Amps
120: 120Amps

D — Control Voltage
D: 3-32VDC
A: 90-280VAC

A28 — Output Voltage
A28: 24-280VAC
A48: 48-480VAC
A66: 48-660VAC

Z — Switching Type
Z: Zero Cross Turn-on
R: Random Turn-on

Product Selection

Control Voltage	Output Voltage	Rated Operational Current						
		10Amps	25Amps	40Amps	60Amps	80Amps	100Amps	120Amps
3 to 32VDC	280VAC "Z"	VSG10DA28Z	VSG25DA28Z	VSG40DA28Z	VSG60DA28Z	VSG80DA28Z	VSG100DA28Z	VSG120DA28Z
3 to 32VDC	280VAC "R"	VSG10DA28R	VSG25DA28R	VSG40DA28R	VSG60DA28R	VSG80DA28R	VSG100DA28R	VSG120DA28R
90 to 280VAC	280VAC "Z"	VSG10AA28Z	VSG25AA28Z	VSG40AA28Z	VSG60AA28Z	VSG80AA28Z	VSG100AA28Z	VSG120AA28Z
90 to 280VAC	280VAC "R"	VSG10AA28R	VSG25AA28R	VSG40AA28R	VSG60AA28R	VSG80AA28R	VSG100AA28R	VSG120AA28R
3 to 32VDC	480VAC "Z"	VSG10DA48Z	VSG25DA48Z	VSG40DA48Z	VSG60DA48Z	VSG80DA48Z	VSG100DA48Z	VSG120DA48Z
3 to 32VDC	480VAC "R"	VSG10DA48R	VSG25DA48R	VSG40DA48R	VSG60DA48R	VSG80DA48R	VSG100DA48R	VSG120DA48R
90 to 280VAC	480VAC "Z"	VSG10AA48Z	VSG25AA48Z	VSG40AA48Z	VSG60AA48Z	VSG80AA48Z	VSG100AA48Z	VSG120AA48Z
90 to 280VAC	480VAC "R"	VSG10AA48R	VSG25AA48R	VSG40AA48R	VSG60AA48R	VSG80AA48R	VSG100AA48R	VSG120AA48R

Input Specifications

Parameter-list	Specification Limits	
Input Parameter	D	A
Control Voltage Range	3 to 32VDC	90 to 280VAC
Input Current (Max.)	13/16mADC @=5V/12V	30mAAC @=220V
Must Turn-on Voltage	3VDC	90VAC
Must Turn-off Voltage	1VDC	10VAC
Reverse Voltage (Max.)	-6VDC	/

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VSG Series Single Phase Solid State Relays

Output Specifications

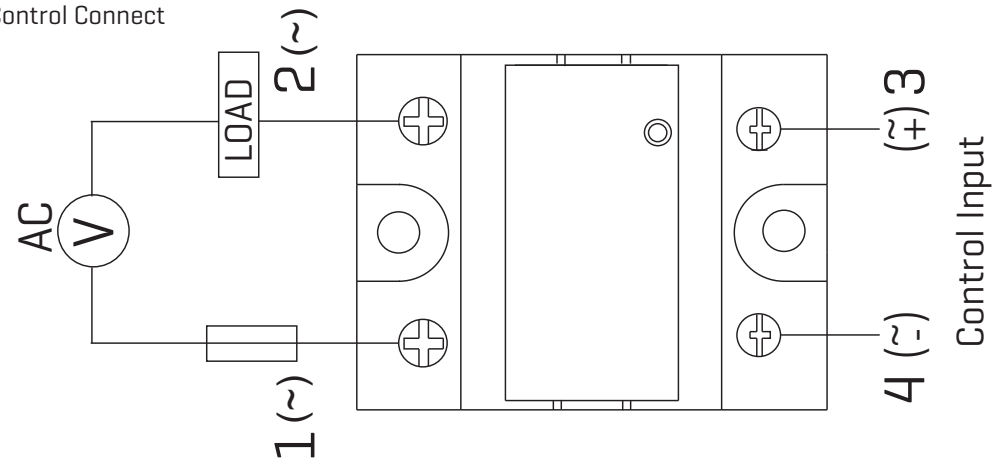
Output Parameter	Units	Specification Limits						
Model No.: VSG	Amps	10	25	40	60	80	100	120
Load Current Range	Arms	0.05 to 10	0.05 to 25	0.05 to 40	0.1 to 60	0.1 to 80	0.1 to 100	0.1 to 120
Surge Current 20mSec (Max.)	Arms	85	230	400	600	800	1000	1200
Load Voltage Range (280V)	Vrms	24 to 280						
Transient Overvoltage (280V)	Vpk	≥800						
Load Voltage Range (480V)	Vrms	48 to 480						
Transient Overvoltage (480V)	Vpk	≥1200						
Frequency Range	Hz	47 to 63						
Off State dv/dt (Min.)	V/μsec	200	200	200	500	500	500	500
Off State Leakage Current (Max.)	mArms	≤8						
On State Voltage Drop (Max.)	Vrms	1.6	1.6	1.6	1.8	1.8	1.8	1.8
Thermal Resistance, (Rthjc)	°C/W	2.5	2.5	1.3	0.65	0.5	0.3	0.3
Turn on Time (Max.) "Z"	Cycle	1/2						
Turn off Time (Max.) "D"	Cycle	1/2						
Turn on Time (Max.) "R"	mSec	1						
Turn off Time (Max.) "A"	mSec	10						

General Specifications (Ta=25°C)

Description	10A	25A	40A	60A	80A	100A	120A
Dielectric Strength, Input to Output (50/60 Hz)	4000Vrms						
Dielectric Strength, Input/Output to Base (50/60 Hz)	2500Vrms						
Minimum Insulation Resistance (@ 500 VDC)	$10^9\Omega$						
Maximum Capacitance, Input/Output	0.8pF						
Ambient Operating Temperature Range	-30 to 80°C						
Ambient Storage Temperature Range	-30 to 100°C						
Humidity per IEC60068-2-78	95%						
LED Input Status Indicator	Red						
Baseplate Material	Pure copper						
Weight	150g						

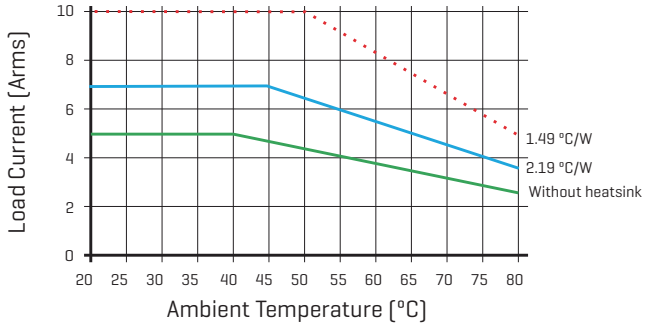
Connection Diagram

1 Phase Load Control Connect



Thermal Derating Curve

10A



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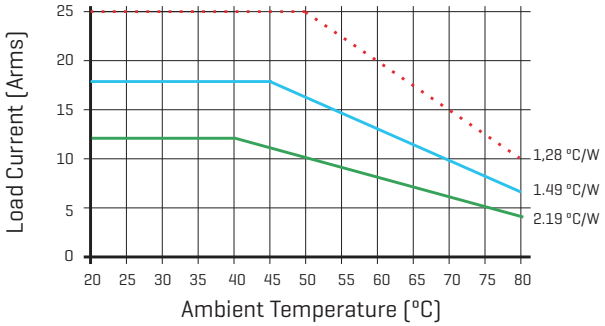

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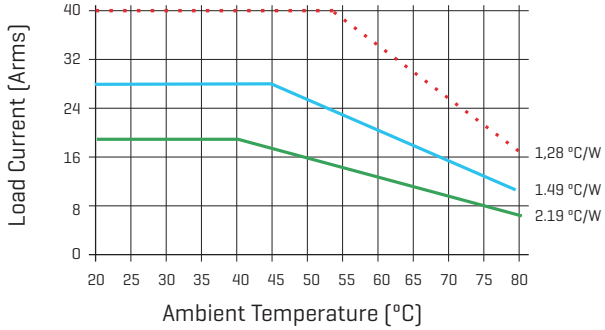

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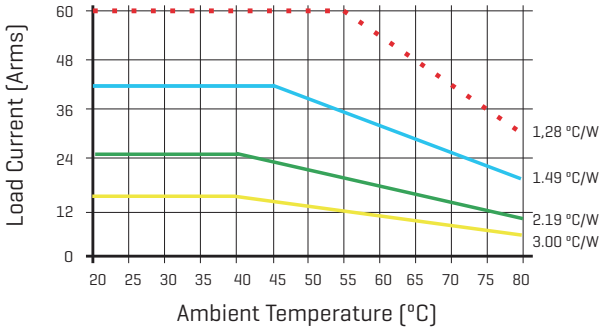

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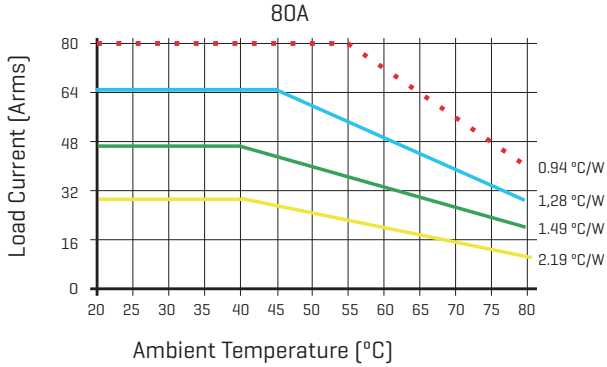

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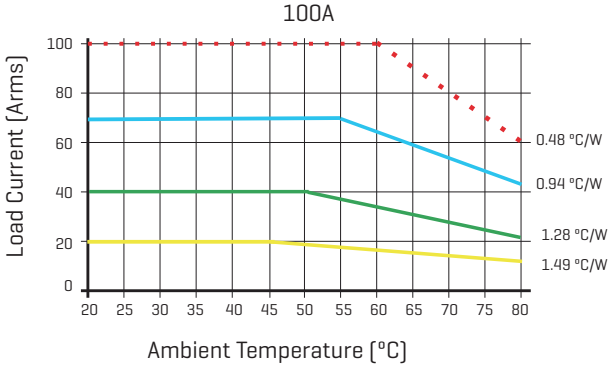

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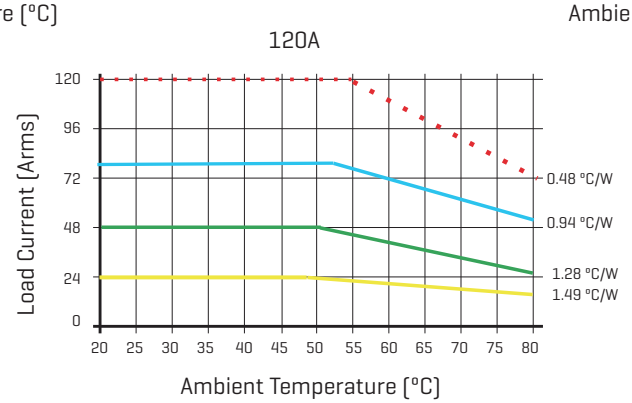


Important Notice

Enter working conditions:

◆Pay attention to the range of working voltage and the positive and negative poles.

◆In order to ensure the normal operation of the solid state relay, the input current should be increased when the ambient temperature is low, and the input current should be reduced when the temperature is high.

◆When using the integrated circuit to directly drive the SSR, it should have sufficient load capacity and output as low as possible "0" level.

Output working conditions:

◆In order to ensure the reliable operation of the SSR, the limit parameters of the SSR must be correctly used and necessary protective measures must be taken.

◆ Peak voltage selection: inductive load; take the line voltage (effective value) indeed 1-3. Pure resistance load: take 1-2 times the line voltage (RMS).

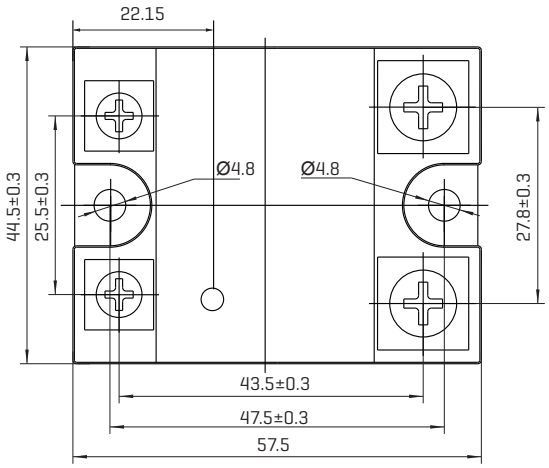
◆Selection of varistor: The nominal working voltage value of varistor is selected according to the effective 1.8-2 times of SSR working voltage.

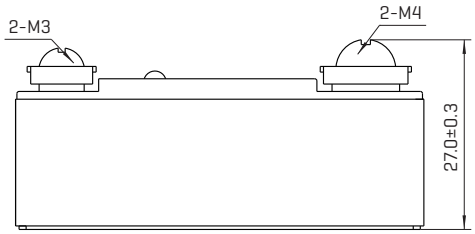
◆Products with a working current of less than 5A should be installed next to a well-ventilated heat-dissipating window, or where natural wind can blow.

◆Products with a working current above 10A must be installed with a radiator, and thermal grease can be added between the relay and the radiator for good heat dissipation. When the surface temperature of the radiator is close to 60°C, forced air cooling should be used.

◆In order to prevent the temperature rise of the solid state relay from exceeding the allowable value, the heat dissipation effect and installation position should be fully considered in the design and application. When two or more solid state relays are installed side by side, an appropriate gap should be left.

Dimensions





▪ Unit:mm

ZGZX SOLID STATE RELAYS

VSH Series Single Phase Solid State Relays

Features

- Photoelectric isolation between control loop and load loop
- Zero-crossing output or random turn-on can be selected
- International Standardized Installation Dimensions
- LED indicates working status
- Built-in RC absorption circuit, strong anti-interference ability
- Epoxy resin potting, strong anti-corrosion and anti-explosion ability
- DC 3-32VDC or AC 90-280VAC input control

Ordering Options

VSH	40	D	A28	Z
VSH Series	**Load Current**	**Control Voltage**	**Output Voltage**	**Switching Type**
Single Phase Solid State Relay	10: 10Amps 25: 25Amps 40: 40Amps 60: 60Amps 80: 80Amps 100: 100Amps 120: 120Amps	D: 3-32VDC A: 90-280VAC	A28: 24-280VAC A48: 48-480VAC A66: 48-660VAC	Z: Zero Cross Turn-on R: Random Turn-on

Product Selection

Control Voltage	Output Voltage	Rated Operational Current						
		10Amps	25Amps	40Amps	60Amps	80Amps	100Amps	120Amps
3 to 32VDC	280VAC "Z"	VSH10DA28Z	VSH25DA28Z	VSH40DA28Z	VSH60DA28Z	VSH80DA28Z	VSH100DA28Z	VSH120DA28Z
3 to 32VDC	280VAC "R"	VSH10DA28R	VSH25DA28R	VSH40DA28R	VSH60DA28R	VSH80DA28R	VSH100DA28R	VSH120DA28R
90 to 280VAC	280VAC "Z"	VSH10AA28Z	VSH25AA28Z	VSH40AA28Z	VSH60AA28Z	VSH80AA28Z	VSH100AA28Z	VSH120AA28Z
90 to 280VAC	280VAC "R"	VSH10AA28R	VSH25AA28R	VSH40AA28R	VSH60AA28R	VSH80AA28R	VSH100AA28R	VSH120AA28R
3 to 32VDC	480VAC "Z"	VSH10DA48Z	VSH25DA48Z	VSH40DA48Z	VSH60DA48Z	VSH80DA48Z	VSH100DA48Z	VSH120DA48Z
3 to 32VDC	480VAC "R"	VSH10DA48R	VSH25DA48R	VSH40DA48R	VSH60DA48R	VSH80DA48R	VSH100DA48R	VSH120DA48R
90 to 280VAC	480VAC "Z"	VSH10AA48Z	VSH25AA48Z	VSH40AA48Z	VSH60AA48Z	VSH80AA48Z	VSH100AA48Z	VSH120AA48Z
90 to 280VAC	480VAC "R"	VSH10AA48R	VSH25AA48R	VSH40AA48R	VSH60AA48R	VSH80AA48R	VSH100AA48R	VSH120AA48R

Input Specifications

Parameter-list	Specification Limits	
Input Parameter	D	A
Control Voltage Range	3 to 32VDC	90 to 280VAC
Input Current (Max.)	13/16mADC @=5V/12V	30mAAC @=220V
Must Turn-on Voltage	3VDC	90VAC
Must Turn-off Voltage	1VDC	10VAC
Reverse Voltage (Max.)	-6VDC	/

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VSH Series Single Phase Solid State Relays

Output Specifications

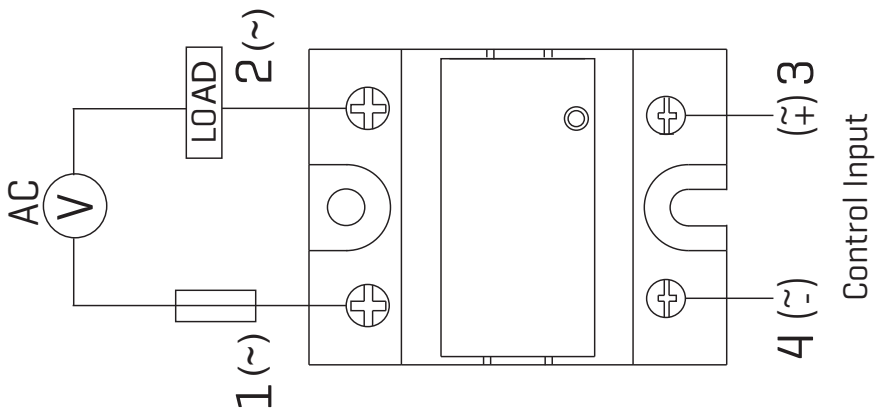
Output Parameter	Units	Specification Limits						
Model No.: VSH	Amps	10	25	40	60	80	100	120
Load Current Range	Arms	0.05 to 10	0.05 to 25	0.05 to 40	0.1 to 60	0.1 to 80	0.1 to 100	0.1 to 120
Surge Current 20mSec (Max.)	Arms	85	230	400	600	800	1000	1200
Load Voltage Range (280V)	Vrms	24 to 280						
Transient Overvoltage (280V)	Vpk	≥800						
Load Voltage Range (480V)	Vrms	48 to 480						
Transient Overvoltage (480V)	Vpk	≥1200						
Frequency Range	Hz	47 to 63						
Off State dv/dt (Min.)	V/μsec	200	200	200	500	500	500	500
Off State Leakage Current (Max.)	mArms	≤8						
On State Voltage Drop (Max.)	Vrms	1.6	1.6	1.6	1.8	1.8	1.8	1.8
Thermal Resistance, (Rthjc)	°C/W	2.5	2.5	1.3	0.65	0.5	0.3	0.3
Turn on Time (Max.) "Z"	Cycle	1/2						
Turn off Time (Max.) "D"	Cycle	1/2						
Turn on Time (Max.) "R"	mSec	1						
Turn off Time (Max.) "A"	mSec	10						

General Specifications (Ta=25°C)

Description	10A	25A	40A	60A	80A	100A	120A
Dielectric Strength, Input to Output (50/60 Hz)	2500Vrms						
Dielectric Strength, Input/Output to Base (50/60 Hz)	2500Vrms						
Minimum Insulation Resistance (@ 500 VDC)	$10^9\Omega$						
Maximum Capacitance, Input/Output	0.8pF						
Ambient Operating Temperature Range	-30 to 80°C						
Ambient Storage Temperature Range	-30 to 100°C						
Humidity per IEC60068-2-78	95%						
LED Input Status Indicator	Red						
Baseplate Material	Aluminum/Pure copper						
Weight	90/120g						

Connection Diagram

1 Phase Load Control Connect



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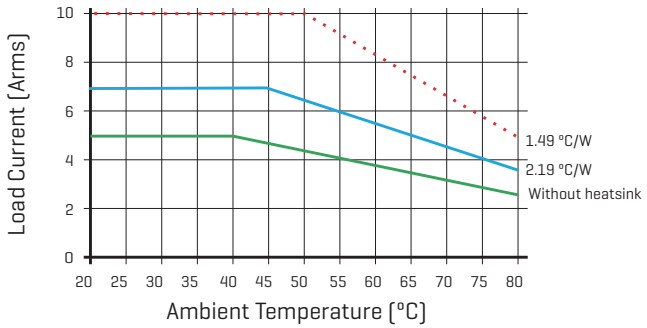
VSH Series Single Phase Solid State Relays

Thermal Derating Curve

10A



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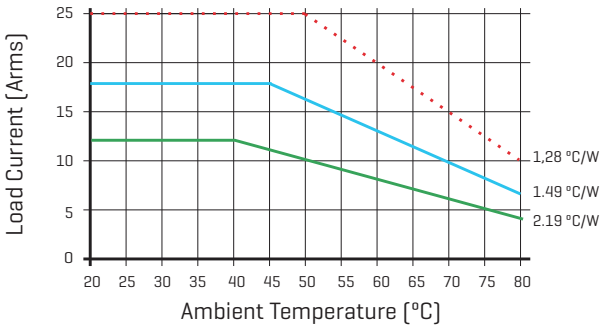

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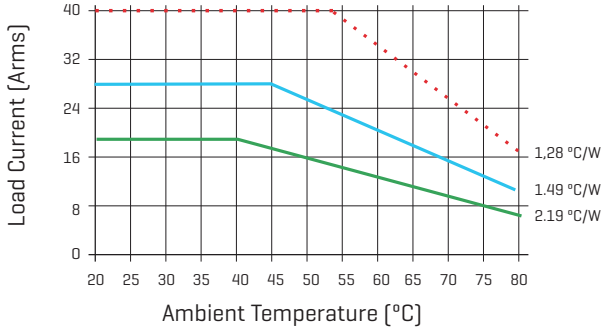

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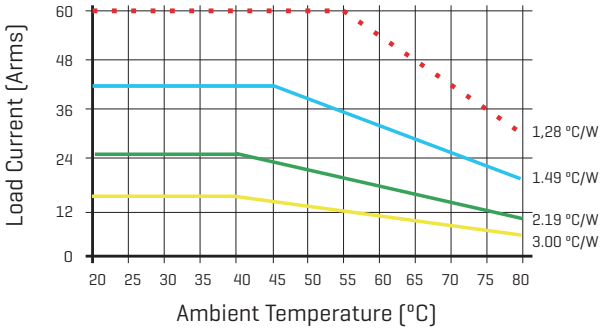

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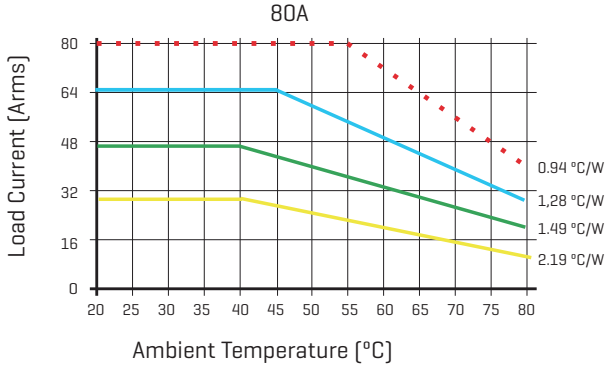

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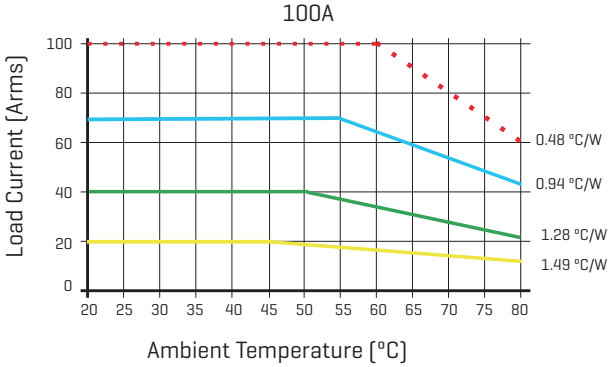

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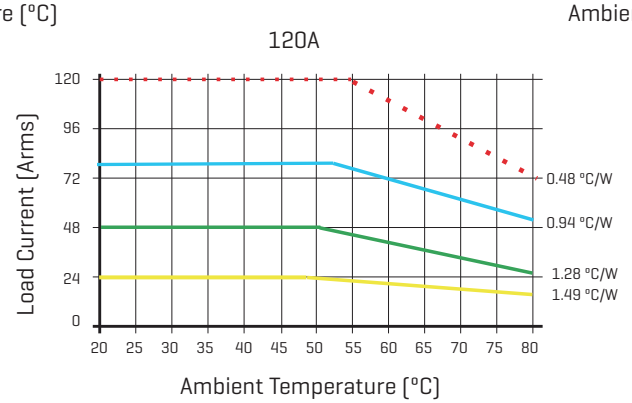


Important Notice

Enter working conditions:

◆Pay attention to the range of working voltage and the positive and negative poles.

◆In order to ensure the normal operation of the solid state relay, the input current should be increased when the ambient temperature is low, and the input current should be reduced when the temperature is high.

◆When using the integrated circuit to directly drive the SSR, it should have sufficient load capacity and output as low as possible "0" level.

Output working conditions:

◆In order to ensure the reliable operation of the SSR, the limit parameters of the SSR must be correctly used and necessary protective measures must be taken.

◆ Peak voltage selection: inductive load; take the line voltage (effective value) indeed 1-3. Pure resistance load: take 1-2 times the line voltage (RMS).

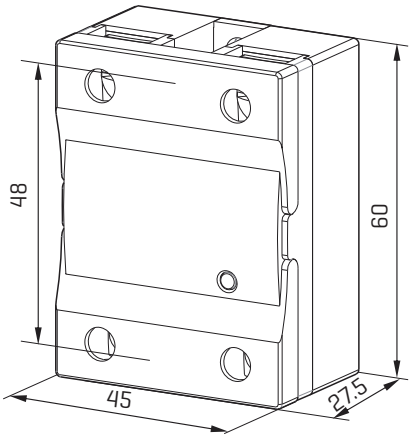
◆Selection of varistor: The nominal working voltage value of varistor is selected according to the effective 1.8-2 times of SSR working voltage.

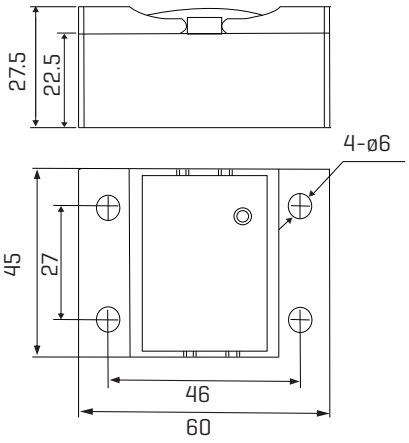
◆Products with a working current of less than 5A should be installed next to a well-ventilated heat-dissipating window, or where natural wind can blow.

◆Products with a working current above 10A must be installed with a radiator, and thermal grease can be added between the relay and the radiator for good heat dissipation. When the surface temperature of the radiator is close to 60°C, forced air cooling should be used.

◆In order to prevent the temperature rise of the solid state relay from exceeding the allowable value, the heat dissipation effect and installation position should be fully considered in the design and application. When two or more solid state relays are installed side by side, an appropriate gap should be left.

Dimensions





▪ Unit:mm

ZGZX SOLID STATE RELAYS

VSE Series Single Phase Solid State Relays

Features

- Photoelectric isolation between control loop and load loop
- Zero-crossing output or random turn-on can be selected
- International Standardized Installation Dimensions
- LED indicates working status
- Built-in RC absorption circuit, strong anti-interference ability
- Epoxy resin potting, strong anti-corrosion and anti-explosion ability
- DC 3-32VDC or AC 90-280VAC input control

Ordering Options

VSE — VSE Series
Single Phase
Solid State Relay

40 — Load Current
10: 10Amps
25: 25Amps
40: 40Amps
60: 60Amps
80: 80Amps
100: 100Amps
120: 120Amps

D — Control Voltage
D: 3-32VDC
A: 90-280VAC

A28 — Output Voltage
A28: 24-280VAC
A48: 48-480VAC
A66: 48-660VAC

Z — Switching Type
Z: Zero Cross Turn-on
R: Random Turn-on

Product Selection

Control Voltage	Output Voltage	Rated Operational Current						
		10Amps	25Amps	40Amps	60Amps	80Amps	100Amps	120Amps
3 to 32VDC	280VAC "Z"	VSE10DA28Z	VSE25DA28Z	VSE40DA28Z	VSE60DA28Z	VSE80DA28Z	VSE100DA28Z	VSE120DA28Z
3 to 32VDC	280VAC "R"	VSE10DA28R	VSE25DA28R	VSE40DA28R	VSE60DA28R	VSE80DA28R	VSE100DA28R	VSE120DA28R
90 to 280VAC	280VAC "Z"	VSE10AA28Z	VSE25AA28Z	VSE40AA28Z	VSE60AA28Z	VSE80AA28Z	VSE100AA28Z	VSE120AA28Z
90 to 280VAC	280VAC "R"	VSE10AA28R	VSE25AA28R	VSE40AA28R	VSE60AA28R	VSE80AA28R	VSE100AA28R	VSE120AA28R
3 to 32VDC	480VAC "Z"	VSE10DA48Z	VSE25DA48Z	VSE40DA48Z	VSE60DA48Z	VSE80DA48Z	VSE100DA48Z	VSE120DA48Z
3 to 32VDC	480VAC "R"	VSE10DA48R	VSE25DA48R	VSE40DA48R	VSE60DA48R	VSE80DA48R	VSE100DA48R	VSE120DA48R
90 to 280VAC	480VAC "Z"	VSE10AA48Z	VSE25AA48Z	VSE40AA48Z	VSE60AA48Z	VSE80AA48Z	VSE100AA48Z	VSE120AA48Z
90 to 280VAC	480VAC "R"	VSE10AA48R	VSE25AA48R	VSE40AA48R	VSE60AA48R	VSE80AA48R	VSE100AA48R	VSE120AA48R

Input Specifications

Parameter-list	Specification Limits	
Input Parameter	D	A
Control Voltage Range	3 to 32VDC	90 to 280VAC
Input Current (Max.)	13/16mADC @=5V/12V	30mAAC @=220V
Must Turn-on Voltage	3VDC	90VAC
Must Turn-off Voltage	1VDC	10VAC
Reverse Voltage (Max.)	32VDC	/

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VSE Series Single Phase Solid State Relays

Output Specifications

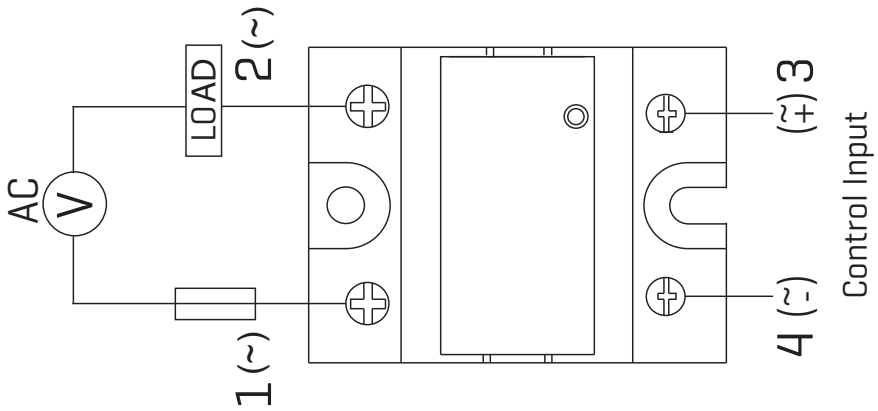
Output Parameter	Units	Specification Limits						
Model No.: VSE	Amps	10	25	40	60	80	100	120
Load Current Range	Arms	0.05 to 10	0.05 to 25	0.05 to 40	0.1 to 60	0.1 to 80	0.1 to 100	0.1 to 120
Surge Current 20mSec (Max.)	Arms	85	230	400	600	800	1000	1200
Load Voltage Range (280V)	Vrms	24 to 280						
Transient Overvoltage (280V)	Vpk	≥800						
Load Voltage Range (480V)	Vrms	48 to 480						
Transient Overvoltage (480V)	Vpk	≥1200						
Frequency Range	Hz	47 to 63						
Off State dv/dt (Min.)	V/μsec	200	200	200	500	500	500	500
Off State Leakage Current (Max.)	mArms	≤8						
On State Voltage Drop (Max.)	Vrms	1.6	1.6	1.6	1.8	1.8	1.8	1.8
Thermal Resistance, (Rthjc)	°C/W	2.5	2.5	1.3	0.65	0.5	0.3	0.3
Turn on Time (Max.) "Z"	Cycle	1/2						
Turn off Time (Max.) "D"	Cycle	1/2						
Turn on Time (Max.) "R"	mSec	1						
Turn off Time (Max.) "A"	mSec	10						

General Specifications (Ta=25°C)

Description	10A	25A	40A	60A	80A	100A	120A
Dielectric Strength, Input to Output (50/60 Hz)	2500Vrms						
Dielectric Strength, Input/Output to Base (50/60 Hz)	2500Vrms						
Minimum Insulation Resistance (@ 500 VDC)	$10^9\Omega$						
Maximum Capacitance, Input/Output	0.8pF						
Ambient Operating Temperature Range	-30 to 80°C						
Ambient Storage Temperature Range	-30 to 100°C						
Humidity per IEC60068-2-78	95%						
LED Input Status Indicator	Red						
Baseplate Material	Aluminum/Pure copper						
Weight	90/120g						

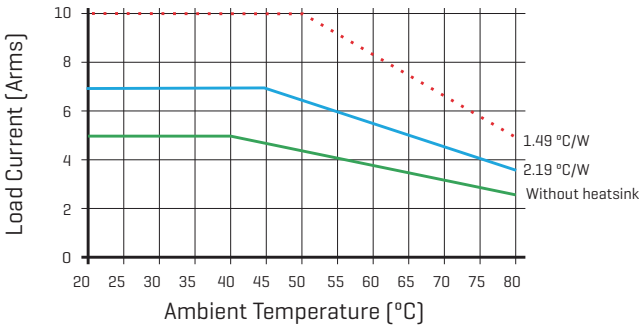
Connection Diagram

1 Phase Load Control Connect



Thermal Derating Curve

10A



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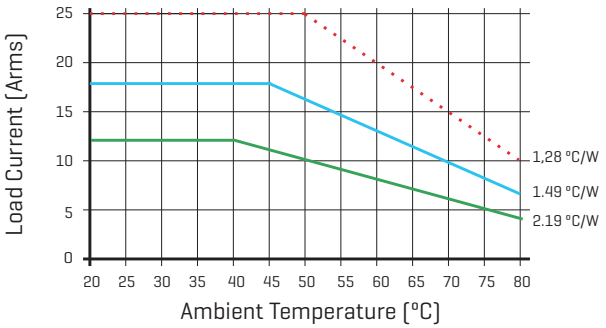

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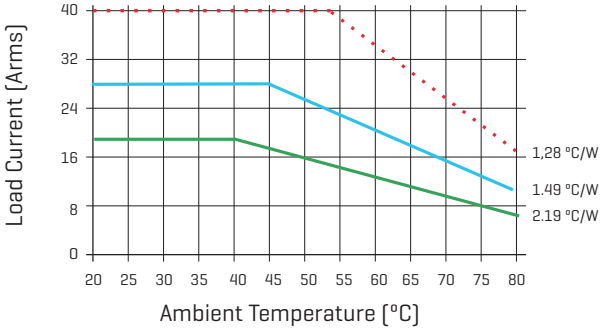

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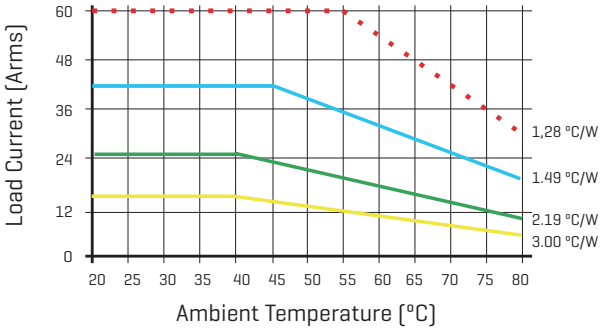

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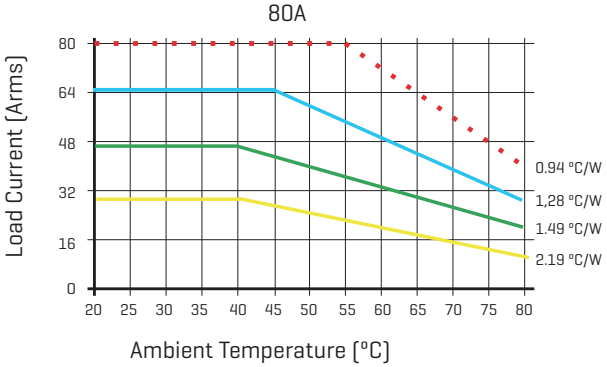

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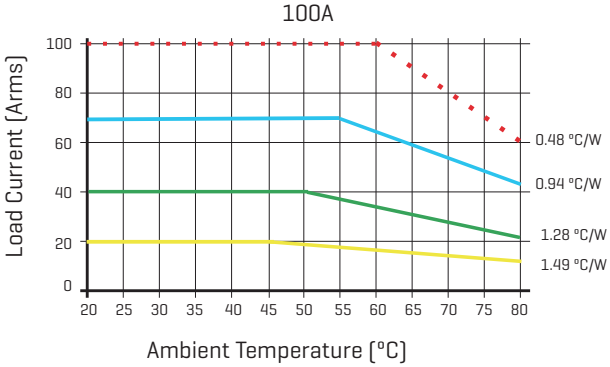

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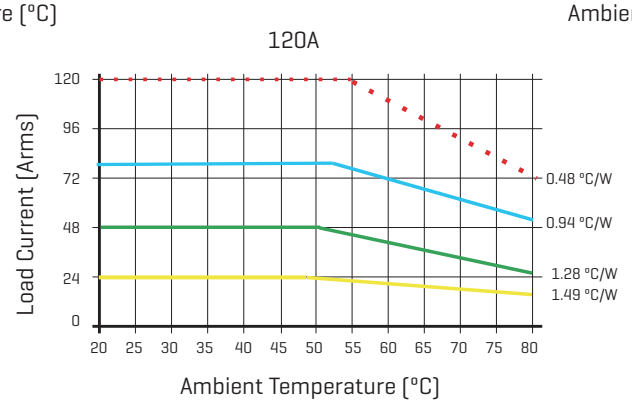


Important Notice

Enter working conditions:

◆Pay attention to the range of working voltage and the positive and negative poles.

◆In order to ensure the normal operation of the solid state relay, the input current should be increased when the ambient temperature is low, and the input current should be reduced when the temperature is high.

◆When using the integrated circuit to directly drive the SSR, it should have sufficient load capacity and output as low as possible "0" level.

Output working conditions:

◆In order to ensure the reliable operation of the SSR, the limit parameters of the SSR must be correctly used and necessary protective measures must be taken.

◆ Peak voltage selection: inductive load; take the line voltage (effective value) indeed 1-3. Pure resistance load: take 1-2 times the line voltage (RMS).

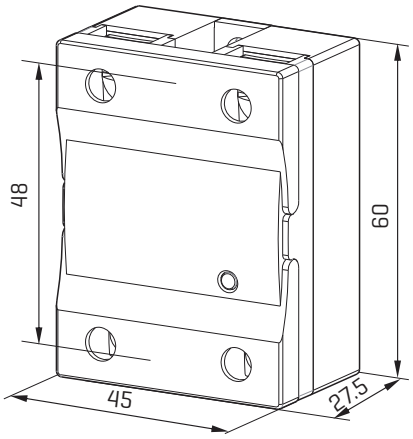
◆Selection of varistor: The nominal working voltage value of varistor is selected according to the effective 1.8-2 times of SSR working voltage.

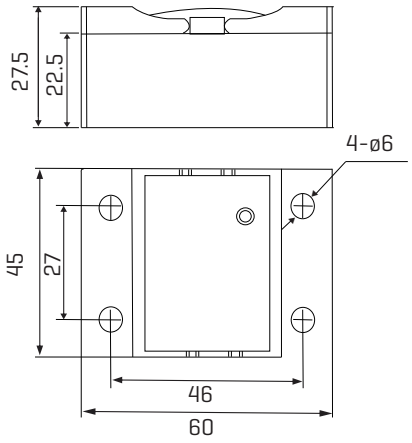
◆Products with a working current of less than 5A should be installed next to a well-ventilated heat-dissipating window, or where natural wind can blow.

◆Products with a working current above 10A must be installed with a radiator, and thermal grease can be added between the relay and the radiator for good heat dissipation. When the surface temperature of the radiator is close to 60°C, forced air cooling should be used.

◆In order to prevent the temperature rise of the solid state relay from exceeding the allowable value, the heat dissipation effect and installation position should be fully considered in the design and application. When two or more solid state relays are installed side by side, an appropriate gap should be left.

Dimensions





▪ Unit:mm

ZGZX SOLID STATE RELAYS

SSR Series Single Phase Solid State Relays

Features

- Photoelectric isolation between control loop and load loop
- Zero-crossing output or random turn-on can be selected
- International Standardized Installation Dimensions
- LED indicates working status
- Built-in RC absorption circuit, strong anti-interference ability
- Epoxy resin potting, strong anti-corrosion and anti-explosion ability
- DC 3-32VDC or AC 90-280VAC input control

Ordering Options

SSR	40	D	A28	Z
SSR Series	**Load Current**	**Control Voltage**	**Output Voltage**	**Switching Type**
Single Phase Solid State Relay	10: 10Amps 25: 25Amps 40: 40Amps 60: 60Amps 80: 80Amps 100: 100Amps 120: 120Amps	D: 3-32VDC A: 90-280VAC	A28: 24-280VAC A48: 48-480VAC	Z: Zero Cross Turn-on R: Random Turn-on

Product Selection

Control Voltage	Output Voltage	Rated Operational Current						
		10Amps	25Amps	40Amps	60Amps	80Amps	100Amps	120Amps
3 to 32VDC	280VAC "Z"	SSR10DA28Z	SSR25DA28Z	SSR40DA28Z	SSR60DA28Z	SSR80DA28Z	SSR100DA28Z	SSR120DA28Z
3 to 32VDC	280VAC "R"	SSR10DA28R	SSR25DA28R	SSR40DA28R	SSR60DA28R	SSR80DA28R	SSR100DA28R	SSR120DA28R
90 to 280VAC	280VAC "Z"	SSR10AA28Z	SSR25AA28Z	SSR40AA28Z	SSR60AA28Z	SSR80AA28Z	SSR100AA28Z	SSR120AA28Z
90 to 280VAC	280VAC "R"	SSR10AA28R	SSR25AA28R	SSR40AA28R	SSR60AA28R	SSR80AA28R	SSR100AA28R	SSR120AA28R
3 to 32VDC	480VAC "Z"	SSR10DA48Z	SSR25DA48Z	SSR40DA48Z	SSR60DA48Z	SSR80DA48Z	SSR100DA48Z	SSR120DA48Z
3 to 32VDC	480VAC "R"	SSR10DA48R	SSR25DA48R	SSR40DA48R	SSR60DA48R	SSR80DA48R	SSR100DA48R	SSR120DA48R
90 to 280VAC	480VAC "Z"	SSR10AA48Z	SSR25AA48Z	SSR40AA48Z	SSR60AA48Z	SSR80AA48Z	SSR100AA48Z	SSR120AA48Z
90 to 280VAC	480VAC "R"	SSR10AA48R	SSR25AA48R	SSR40AA48R	SSR60AA48R	SSR80AA48R	SSR100AA48R	SSR120AA48R

Input Specifications

Parameter-list	Specification Limits	
Input Parameter	D	A
Control Voltage Range	3 to 32VDC	90 to 280VAC
Input Current (Max.)	13/16mADC @=5V/12V	30mAAC @=220V
Must Turn-on Voltage	3VDC	90VAC
Must Turn-off Voltage	1VDC	10VAC
Reverse Voltage (Max.)	-6VDC	/

SSR Series Single Phase Solid State Relays

Output Specifications

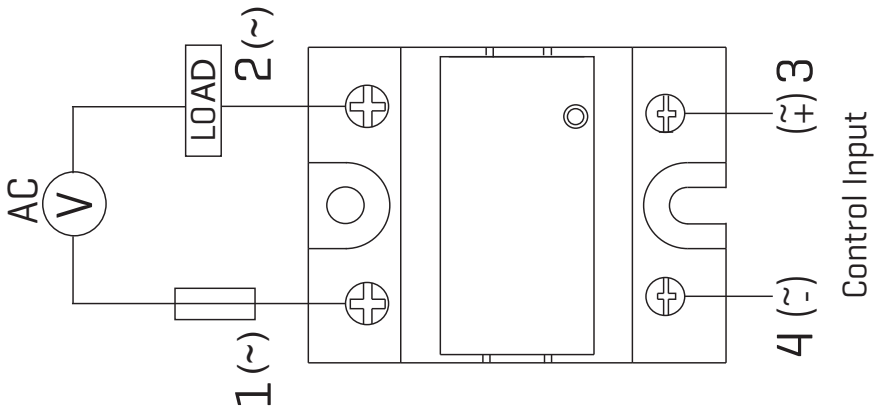
Output Parameter	Units	Specification Limits						
Model No.: SSR	Amps	10	25	40	60	80	100	120
Load Current Range	Arms	0.05 to 10	0.05 to 25	0.05 to 40	0.1 to 60	0.1 to 80	0.1 to 100	0.1 to 120
Surge Current 20mSec (Max.)	Arms	85	230	400	600	800	1000	1200
Load Voltage Range (280V)	Vrms	24 to 280						
Transient Overvoltage (280V)	Vpk	≥800						
Load Voltage Range (480V)	Vrms	48 to 480						
Transient Overvoltage (480V)	Vpk	≥1200						
Frequency Range	Hz	47 to 63						
Off State dv/dt (Min.)	V/μsec	200	200	200	500	500	500	500
Off State Leakage Current (Max.)	mArms	≤8						
On State Voltage Drop (Max.)	Vrms	1.6	1.6	1.6	1.8	1.8	1.8	1.8
Thermal Resistance, (Rthjc)	°C/W	2.5	2.5	1.3	0.65	0.5	0.3	0.3
Turn on Time (Max.) "Z"	Cycle	1/2						
Turn off Time (Max.) "D"	Cycle	1/2						
Turn on Time (Max.) "R"	mSec	1						
Turn off Time (Max.) "A"	mSec	10						

General Specifications (Ta=25°C)

Description	10A	25A	40A	60A	80A	100A	120A
Dielectric Strength, Input to Output (50/60 Hz)	2500Vrms						
Dielectric Strength, Input/Output to Base (50/60 Hz)	2500Vrms						
Minimum Insulation Resistance (@ 500 VDC)	$10^9\Omega$						
Maximum Capacitance, Input/Output	0.8pF						
Ambient Operating Temperature Range	-30 to 80°C						
Ambient Storage Temperature Range	-30 to 100°C						
Humidity per IEC60068-2-78	95%						
LED Input Status Indicator	Red						
Baseplate Material	Aluminum						
Weight	90g						

Connection Diagram

1 Phase Load Control Connect



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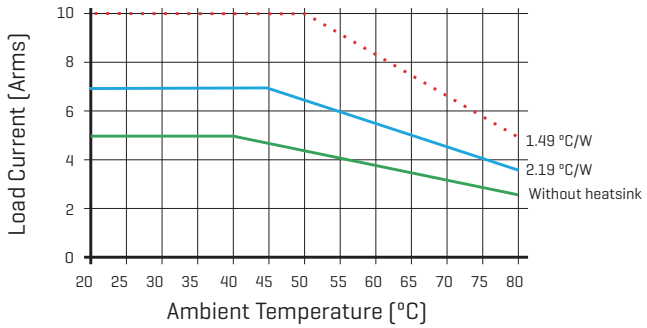
Thermal Derating Curve

10A



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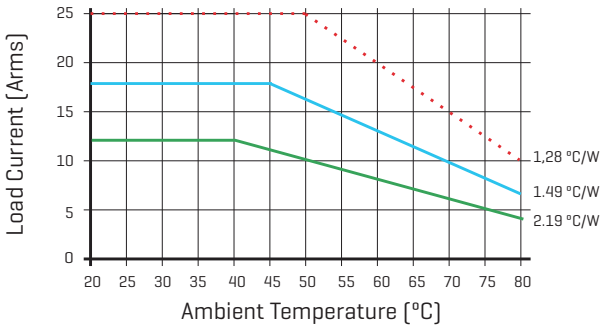

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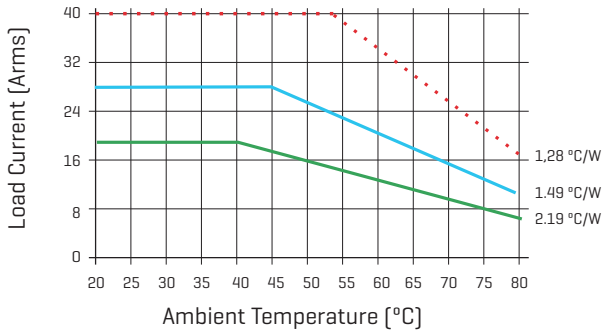

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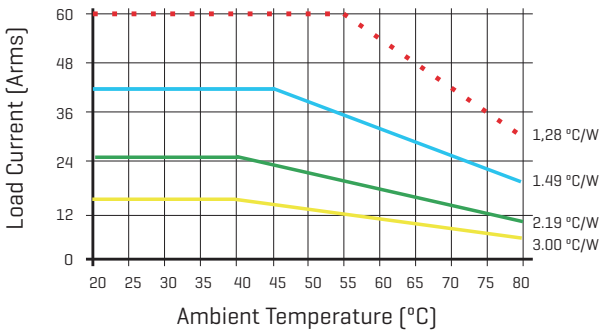

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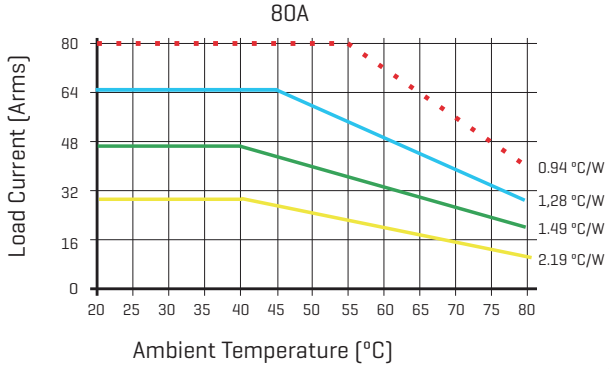

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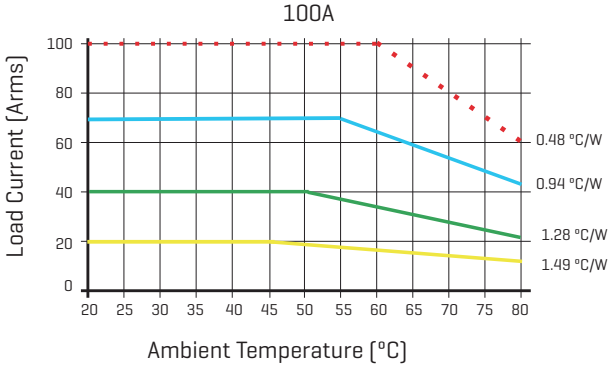

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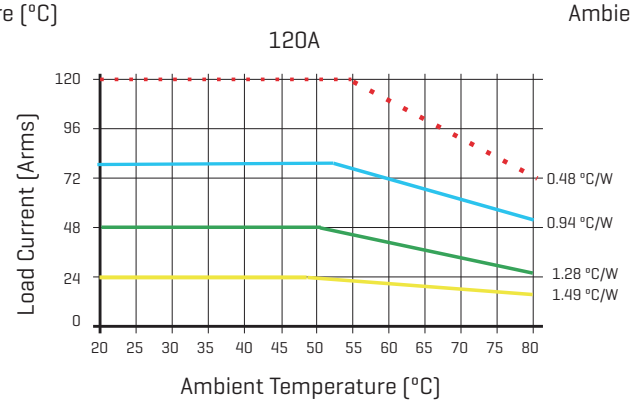


Important Notice

Enter working conditions:

◆Pay attention to the range of working voltage and the positive and negative poles.

◆In order to ensure the normal operation of the solid state relay, the input current should be increased when the ambient temperature is low, and the input current should be reduced when the temperature is high.

◆When using the integrated circuit to directly drive the SSR, it should have sufficient load capacity and output as low as possible "0" level.

Output working conditions:

◆In order to ensure the reliable operation of the SSR, the limit parameters of the SSR must be correctly used and necessary protective measures must be taken.

◆ Peak voltage selection: inductive load; take the line voltage (effective value) indeed 1-3. Pure resistance load: take 1-2 times the line voltage (RMS).

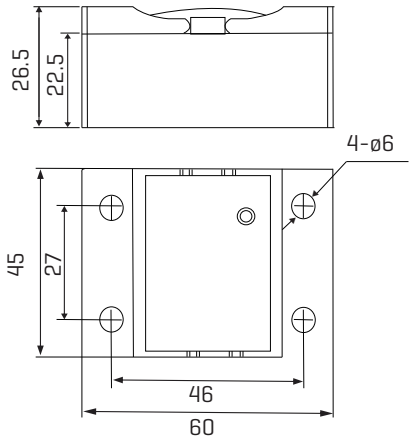
◆Selection of varistor: The nominal working voltage value of varistor is selected according to the effective 1.8-2 times of SSR working voltage.

◆Products with a working current of less than 5A should be installed next to a well-ventilated heat-dissipating window, or where natural wind can blow.

◆Products with a working current above 10A must be installed with a radiator, and thermal grease can be added between the relay and the radiator for good heat dissipation. When the surface temperature of the radiator is close to 60°C, forced air cooling should be used.

◆In order to prevent the temperature rise of the solid state relay from exceeding the allowable value, the heat dissipation effect and installation position should be fully considered in the design and application. When two or more solid state relays are installed side by side, an appropriate gap should be left.

Dimensions



▪ Unit:mm

VDR Series DC Solid State Relays

Features

- Optical isolation between input and output circuits.
- Control signal and TTL logic interface.
- Transistor output, small on-state voltage drop, fast switching speed.
- LEDs indicate the working status.
- Epoxy resin encapsulation integrated, anti-corrosion and shock-proof, reliable work.
- The products are mainly used in industrial automation, isolated control of weak current and strong current and various high-power DC electrical equipment. Such as DC motors, solenoid valves, electromagnetic vibrators, batteries Charge and discharge switch, etc.

Ordering Options

VDR

VDR Series

DC Solid State Relay

40

Load Current

10: 10Amps
25: 25Amps
40: 40Amps
60: 60Amps
80: 80Amps
100: 100Amps
120: 120Amps

D

Control Voltage

D: 3-32VDC

D60

Output Voltage

D06: 12-60VDC
D08:12-80VDC
D12: 12-120VDC
D24: 12-240VDC
D40: 12-400VDC
D60: 12-600VDC
D90: 12-900VDC
D120:12-1200VDC

Product Selection

Control Voltage	Output Voltage	Rated Operational Current						
		10Amps	25Amps	40Amps	60Amps	80Amps	100Amps	120Amps
3 to 32VDC	60VDC	VDR10DD06	VDR25DD06	VDR40DD06	VDR60DD06	VDR80DD06	VDR100DD06	VDR120DD06
3 to 32VDC	80VDC	VDR10DD08	VDR25DD08	VDR40DD08	VDR60DD08	VDR80DD08	VDR100DD08	VDR120DD08
3 to 32VDC	120VDC	VDR10DD12	VDR25DD12	VDR40DD12	VDR60DD12	VDR80DD12	VDR100DD12	VDR120DD12
3 to 32VDC	250VDC	VDR10DD25	VDR25DD25	VDR40DD25	VDR60DD25	VDR80DD25	VDR100DD25	VDR120DD25
3 to 32VDC	400VDC	VDR10DD40	VDR25DD40	VDR40DD40	VDR60DD40	VDR80DD40	VDR100DD40	VDR120DD40
3 to 32VDC	600VDC	VDR10DD60	VDR25DD60	VDR40DD60	VDR60DD60	VDR80DD60	VDR100DD60	VDR120DD60
3 to 32VDC	900VDC	VDR10DD90	VDR25DD90	VDR40DD90	VDR60DD90	VDR80DD90	VDR100DD90	VDR120DD90
3 to 32VDC	1200VDC	VDR10DD120	VDR25DD120	VDR40DD120	VDR60DD120	VDR80DD120	VDR100DD120	VDR120DD120

Input Specifications

Parameter-list	Specification Limits
Input Parameter	D
Control Voltage Range	3 to 32VDC
Input Current (Max.)	4-30mA
Must Turn-on Voltage	3VDC
Must Turn-off Voltage	1VDC
Reverse Voltage (Max.)	-6VDC

VDR Series DC Solid State Relays

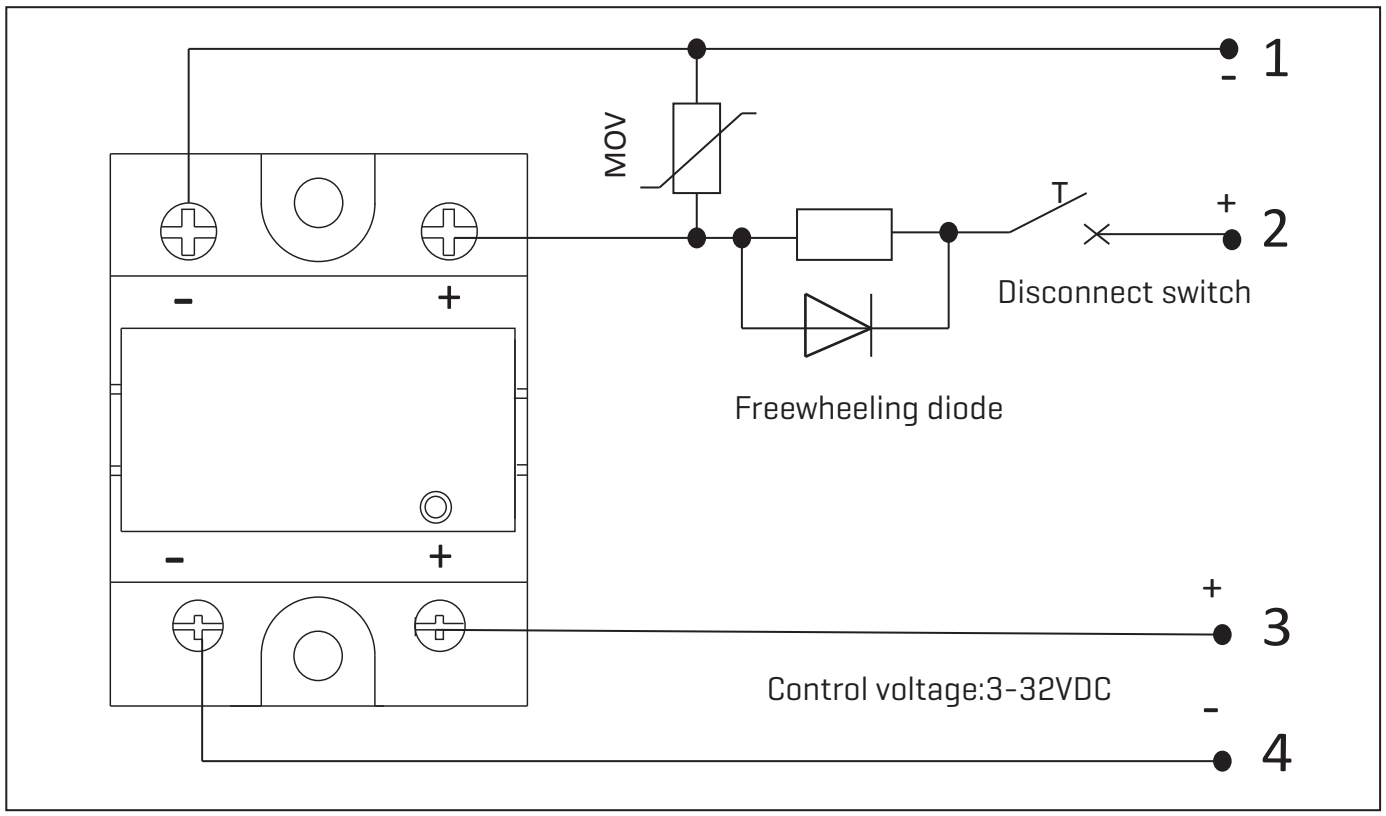
Output Specifications

Output Parameter	Units	Specification Limits						
Model No.: VDR	Amps	10	25	40	60	80	100	120
Load Current Range	Arms	0.05 to 10	0.05 to 25	0.05 to 40	0.1 to 60	0.1 to 80	0.1 to 100	0.1 to 120
Surge Current 10mSec (Max.)	Arms	≥200%						
Load Voltage Range	Vrms	60VDC~1200VDC						
On-state Voltage drop	Vrms	≤0.5~4.6						
Off-state Voltage	Vrms	≥60V,≥80V,≥250V,≥400V,≥600V,≥900V,≥1200V						
Overvoltage Protection	Transient protection voltage are :80V, 180V, 470V,1000V							
Switching Characteristics	Mos or IGBT-solid-state non-contact switching characteristics							

General Specifications (Ta=25°C)

Description	10A	25A	40A	60A	80A	100A	120A
Dielectric Strength, Input to Output (50/60 Hz)	2500Vrms						
Dielectric Strength, Input/Output to Base (50/60 Hz)	2500Vrms						
Minimum Insulation Resistance (@ 500 VDC)	$10^9\Omega$						
Safety Factor of Load Current	2.5-3 time for resistive load, 3-6 times for inductive load						
Ambient Operating Temperature Range	-30 to 80°C						
Ambient Storage Temperature Range	-30 to 100°C						
Humidity per IEC60068-2-78	95%						
LED Input Status Indicator	Red						
Baseplate Material	Pure copper						
Weight	150g						

Connection Diagram



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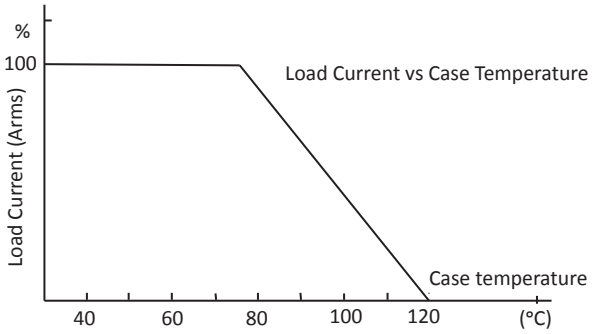
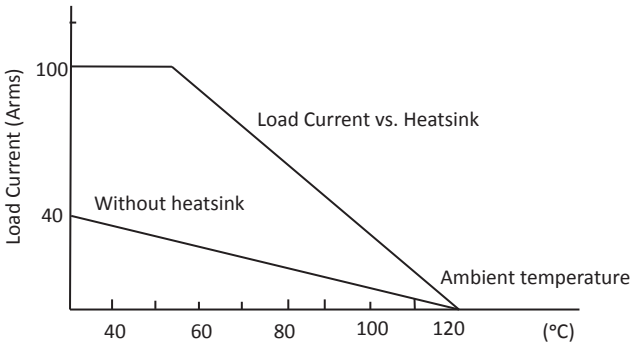
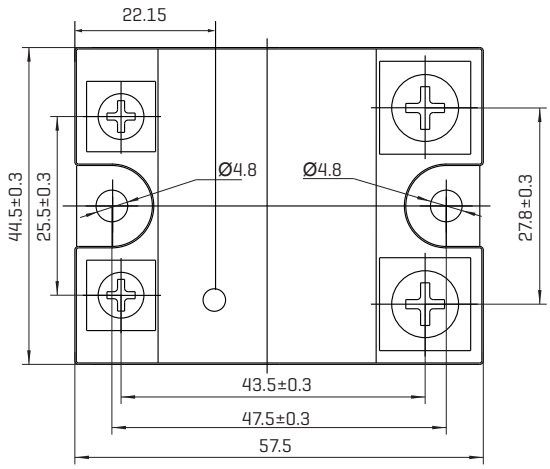
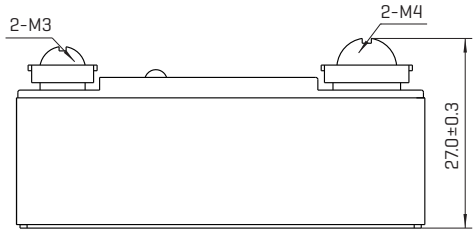
Thermal Derating Curve





Dimensions





▪ Unit:mm

Selection Guide:
A margin should be left when selecting the voltage and current of the product. For resistive load: the current is selected according to 2.5~4 times the load current, and the voltage is selected according to 2~2.5 times the load power. Inductive load: current is selected according to 3-7 times load current, voltage is selected according to 2.5-3 times load voltage.

According to the relationship between load current and ambient temperature, when the ambient temperature is high or heat dissipation conditions are not good, the current capacity of the solid state relay should be increased accordingly.

In order to prevent the product from short-circuiting during use, it is necessary to connect a fast circuit breaker or a fast fuse in series with the product in the load circuit.

For inductive loads, a freewheeling diode must be connected to both ends of the load, and a varistor must be connected to the output end (the varistor (MOV) is selected according to 1~1.5 times of the power supply voltage) to prevent the high voltage generated during switching from damaging the solid-state switch.

When the product is installed, it is required that the contact surface between the heatsink and the product must be flat and clean, and a layer of thermally conductive silicone grease is applied to its surface, and then finally the screws set with flat washers andSpring washersare tightened symmetrically to fix.

ZGZX SOLID STATE RELAYS

AVR Series AC Voltage Regulating Solid State Relays

AVR series is a non-isolated resistance regulating AC solid-state voltage regulator, which integrates a trigger circuit, a resistance-capacitance absorption circuit, and a bidirectional thyristor. Easy to use. When applied, only an external adjustable resistor (or wirewound potentiometer) is needed to realize the pure resistance load AC output through the potentiometer manual adjustment. section to change the voltage on the resistive load to adjust the output power. Mainly used in incandescent lamp dimming, industrial equipment temperature control, resistive heating element parts, conveyor belt speed control, and other automatic power adjustment occasions. Note that the input and output of this product are not isolated, please use absolute Well edged potentiometers and knobs to prevent electric shock

Features

- SCR phase-shifted output, wide adjustment range
- Built-in resistance-capacitance absorption circuit, surge absorption protection is more reliable
- International Standardized Installation Dimensions
- LED indicates working status
- Epoxy resin potting, strong anti-corrosion and anti-explosion ability
- Flame retardant housing with safety cover
- Simple to use, the output voltage can be adjusted by external potentiometer

Ordering Options

AVR

AVR Series

AC Voltage
Regulating SSR

40

Load Current

10: 10Amps
25: 25Amps
40: 40Amps
60: 60Amps
80: 80Amps

PW

Control Voltage

PE: 470KΩ/2W
PW: 680KΩ/2W

24

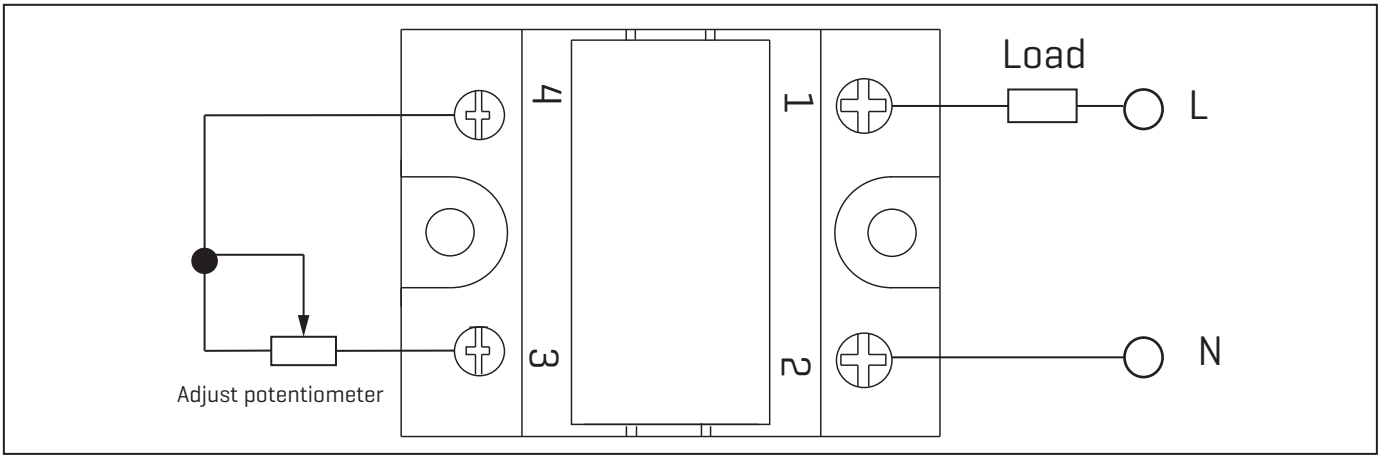
Output Voltage

24:0-240VAC
38:0-380VAC

Product Selection

Potentiometer Control	Output Voltage	Rated Operational Current				
		10Amps	25Amps	40Amps	60Amps	80Amps
470K	0-240VAC	AVR10PE24	AVR25PE24	AVR40PE24	AVR60PE24	AVR80PE24
470K	0-380VAC	AVR10PE38	AVR25PE38	AVR40PE38	AVR60PE38	AVR80PE38
680K	0-240VAC	AVR10PW24	AVR25PW24	AVR40PW24	AVR60PW24	AVR80PW24
680K	0-380VAC	AVR10PW38	AVR25PW38	AVR40PW38	AVR60PW38	AVR80PW38

Connection Diagram



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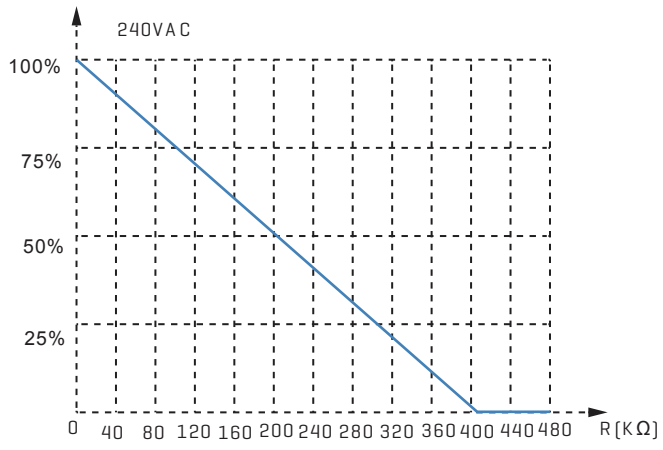
AVR Series AC Voltage Regulating Solid State Relays

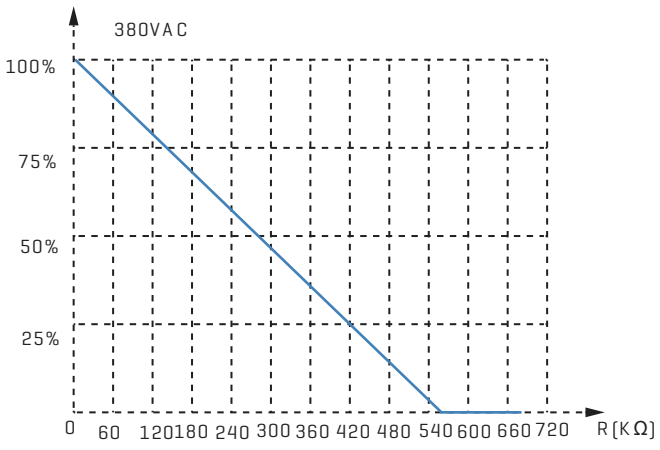
Specifications

Output Parameter	Units	Specification Limits				
Model No.: AVR	Amps	10	25	40	60	80
Load Current Range	Arms	0.05 to 10	0.05 to 25	0.1 to 40	0.1 to 60	0.1 to 80
Potentiometer Control	Ω	470kΩ/2W or 470kΩ/2W				
Load Voltage Regulation Range	V	0-240VAC or 0-380VAC				
Minimum On-current	mA	50mA				
Maximum On-state Voltage Drop	Vrms	1.5VAC				
Maximum Off-state Current	mA	5mA				
On-off Time	ms	≤10ms				
Working Frequency	Hz	≤45-65Hz				
Insulation resistance	MΩ	1000MΩ[500VDC]				
Dielectric Strength, Input to Output	Vrms	2500Vrms				
Dielectric Strength, Input/Output to Base	Vrms	2500Vrms				
Ambient Operating Temperature Range	°C	-30 to 80°C				

Adjusting potentiometer resistance and voltage output RMS curve



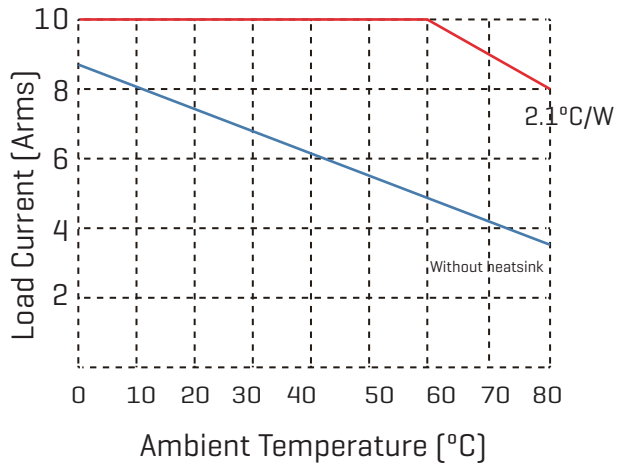
470K



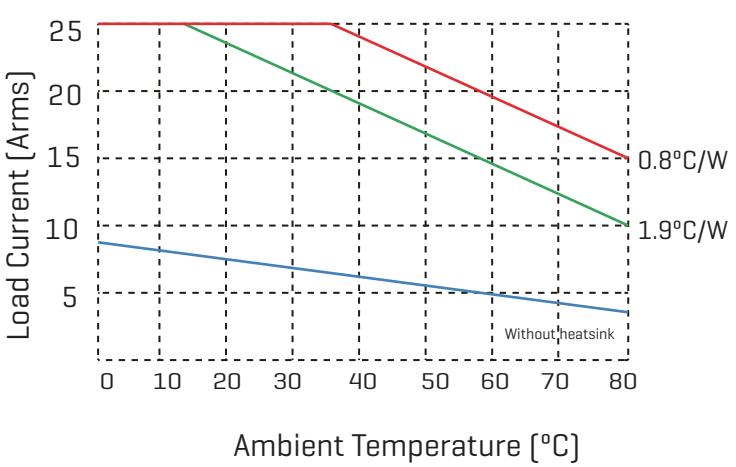
680K

Thermal Derating Curve

10A



25A



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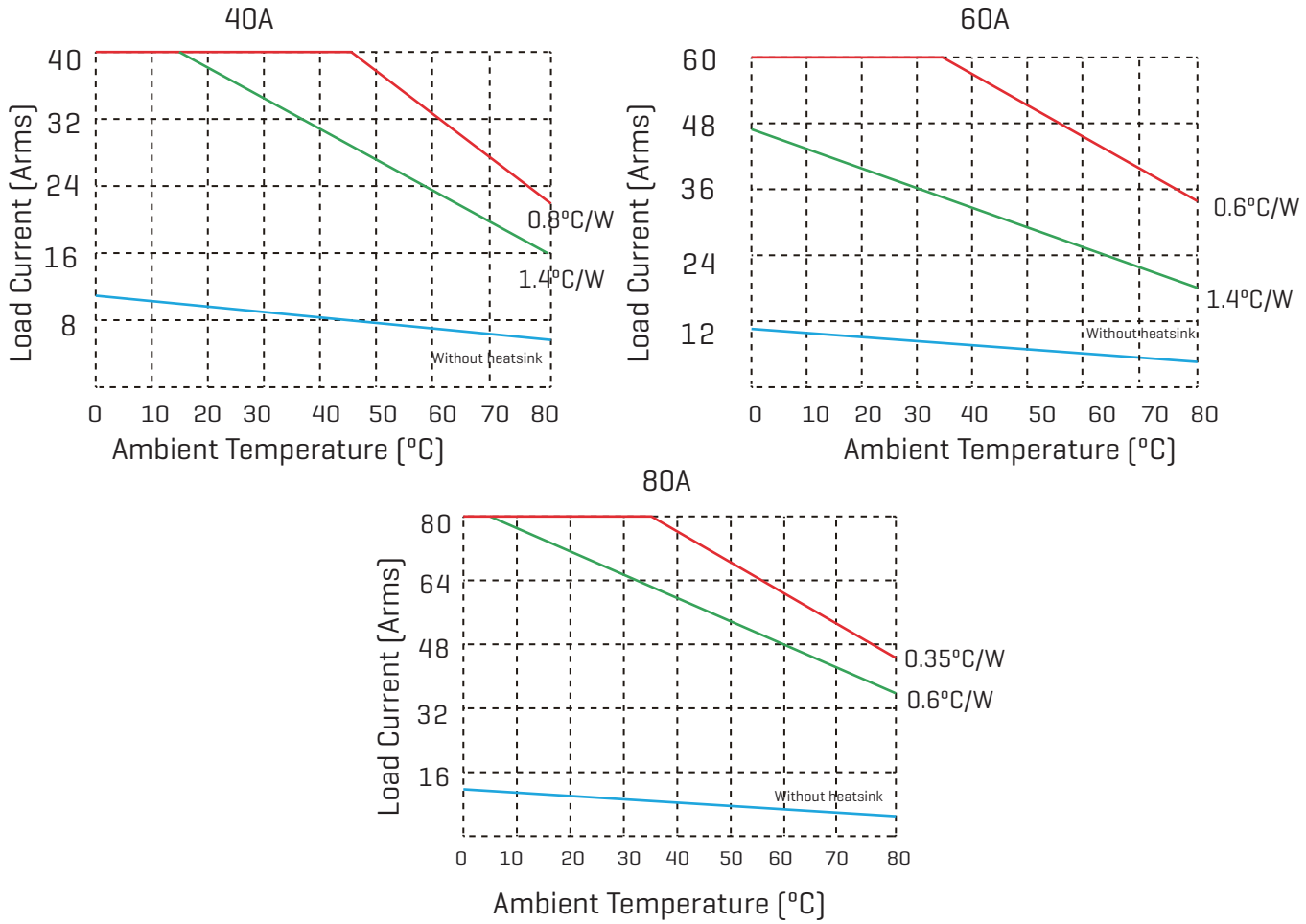
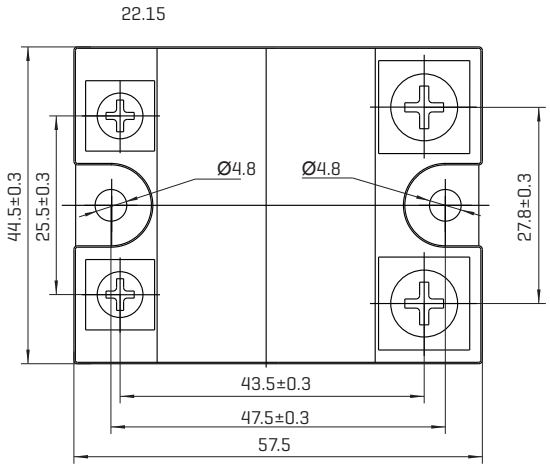


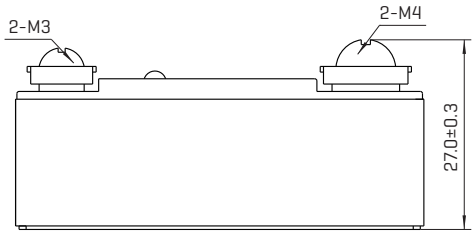
Important Notice

1. Product manufacturers have made great efforts on product quality and reliability, but the semiconductors used in solid state relays
Improper selection or use of power devices can lead to irreversible damage. Also due to grid voltage fluctuations (usually ±10%) and the difference in inductive and capacitive reactance, a certain safety factor must be considered when selecting models. For example: electric heating long Period operating current should not exceed 60% of SSR current rated nominal value, motor operating current should not exceed 1/7 SSR current Rated nominal value.
2. When the long-term working current is greater than or equal to 5A, a matching radiator must be installed, and the temperature of the radiator bottom plate shall not exceed 80°C during operation. If the ambient temperature is too high, air cooling must be adopted to accelerate the air flow for better heat dissipation.
3. In order to ensure that the solid state relay is in close contact with the surface of the radiator during the installation process to achieve a more ideal heat dissipation effect, our company Equipped with special thermal conductive film or special thermal conductive silicone grease according to different current levels, please place the thermal conductive film parallel to the solid during installation between the base plate of the state relay and the contact surface of the heat sink, and fasten the fixing screws; for those equipped with thermal grease, please install Evenly apply an appropriate amount of thermal grease on the whole solid state relay base plate, and fasten the fixing screws.
4. When the module is fastened to the surface of the radiator, use M4 screws and spring washers with a torque of 4-6Nm. After 3 hours of use, use M4 screws and spring washers. Tighten once with the same torque.
5. The recommended tightening torque of M3 screws at the control end is 0.8-1Nm, and the recommended tightening torque of M5 screws at the load end is 1.9-2.1Nm.
6. When the wiring of the control potentiometer is long, please use a shielded wire or shield with a metal tube;
7. The product is non-isolated (input and output), the selection of the potentiometer should pay attention to the isolation from the line voltage, installation and use Safety must be paid attention to during the process;
8. The storage requirements of solid-state relays should be moisture-proof, moisture-proof, and avoid rain, drops and violent falls. should be stored in a ventilated, dry, non-corrosive gas environment, the humidity requirements of the environment must be less than 80%.

AVR Series AC Voltage Regulating Solid State Relays

Dimensions





▪ Unit:mm

ZGZX SOLID STATE RELAYS

VGV SERIES POTENTIOMETER CONTROL SSR

Features

- Standard structure and convenient mounting
- Photoelectric isolation between input and output; the isolation voltage up to 2500V
- Insulation voltage: 2500V
- Adopting "vacuum + hydric protection" soldering SCR wafer technology for copper bottom plate
- Input control voltage: DC5V
- Control signal: automatic: 0~5Vdc or 4~20mA, manual: 10K potentiometer

Ordering Options

VGV

VGV Series
4-20mA or 0-5V
or 10K potentiometer
control SSR relay

10

Load Current
10: 10Amps 80: 80Amps
25: 25Amps 100: 100Amps
40: 40Amps 120: 120Amps
60: 60Amps

P

Control Voltage
P:4-20mA or 0-5V
or 10K

A48

Output Voltage
A28: 24-280VAC
A48: 48-480VAC

Product Selection

Control Voltage	Output Voltage	Rated Operational Current						
		10Amps	25Amps	40Amps	60Amps	80Amps	100Amps	120Amps
4-20mA or 0-5V or 10K	280VAC	VGV10PA28	VGV25PA28	VGV40PA28	VGV60PA28	VGV80PA28	VGV100PA28	VGV120PA28
	480VAC	VGV10PA48	VGV25PA48	VGV40PA48	VGV60PA48	VGV80PA48	VGV100PA48	VGV120PA48

Input Specifications

Parameter-list	Units	Value
Control Voltage	VDC	5
Signal Voltage Range	VDC	0-5
Input Current (Max.)	mADC	<2
Pontesiometer	KΩ	10

Output Specifications

Output Parameter	Units	Specification Limits						
Model No.: VGV	Amps	10	25	40	60	80	100	120
Load Current Range	Arms	0.05 to 10	0.05 to 25	0.05 to 40	0.1 to 60	0.1 to 80	0.1 to 100	0.1 to 120
Surge Current 20mSec (Max.)	Arms	85	230	400	600	800	1000	1200
Load Voltage Range (280V)	Vrms	24 to 280						
Transient Overvoltage (280V)	Vpk	≥600						
Load Voltage Range (480V)	Vrms	48 to 480						
Transient Overvoltage (480V)	Vpk	≥1000						
Frequency Range	Hz	47 to 63						
Off State dv/dt (Min.)	V/μsec	500						
Off State Leakage Current (Max.)	mArms	≤8			≤10			
On State Voltage Drop (Max.)	Vrms	1.6	1.6	1.6	1.8	1.8	1.8	1.8
Thermal Resistance, (Rthjc)	°C/W	2.5	2.5	1.3	0.65	0.5	0.3	0.3

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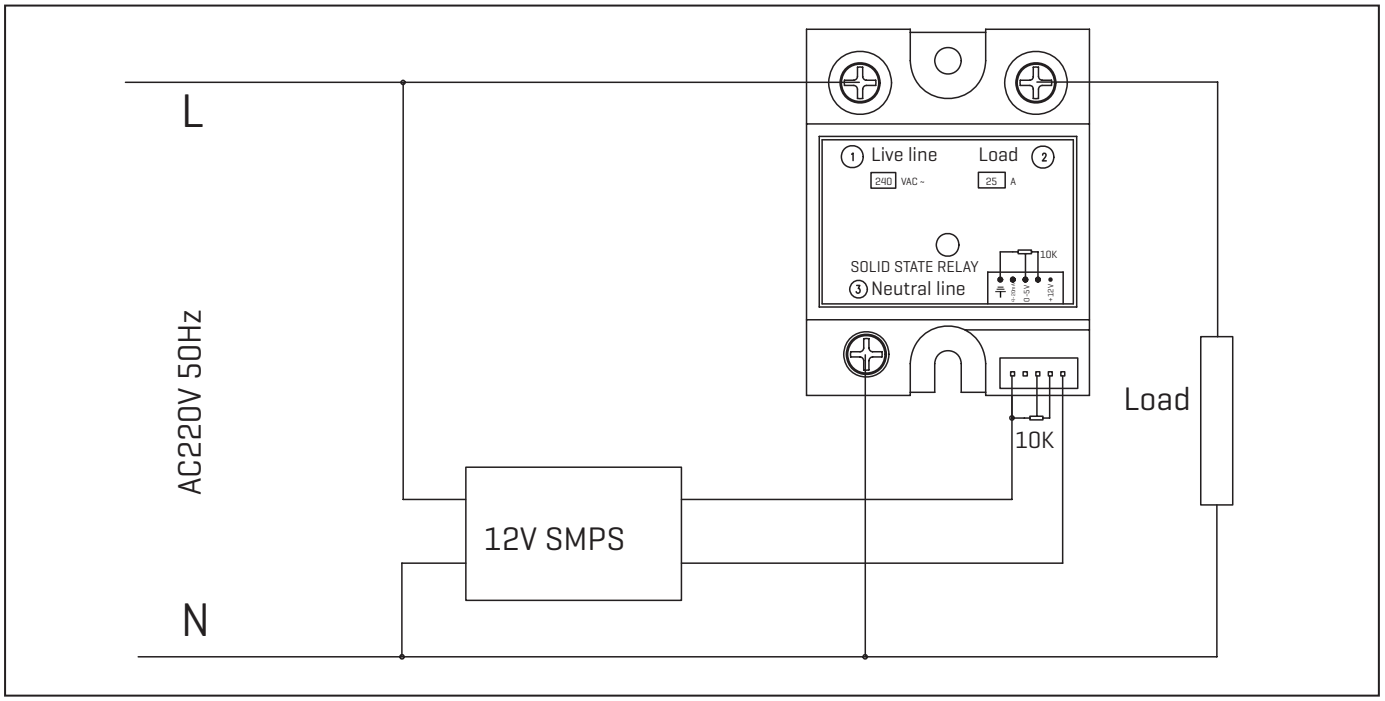
VGV SERIES POTENTIOMETER CONTROL SSR

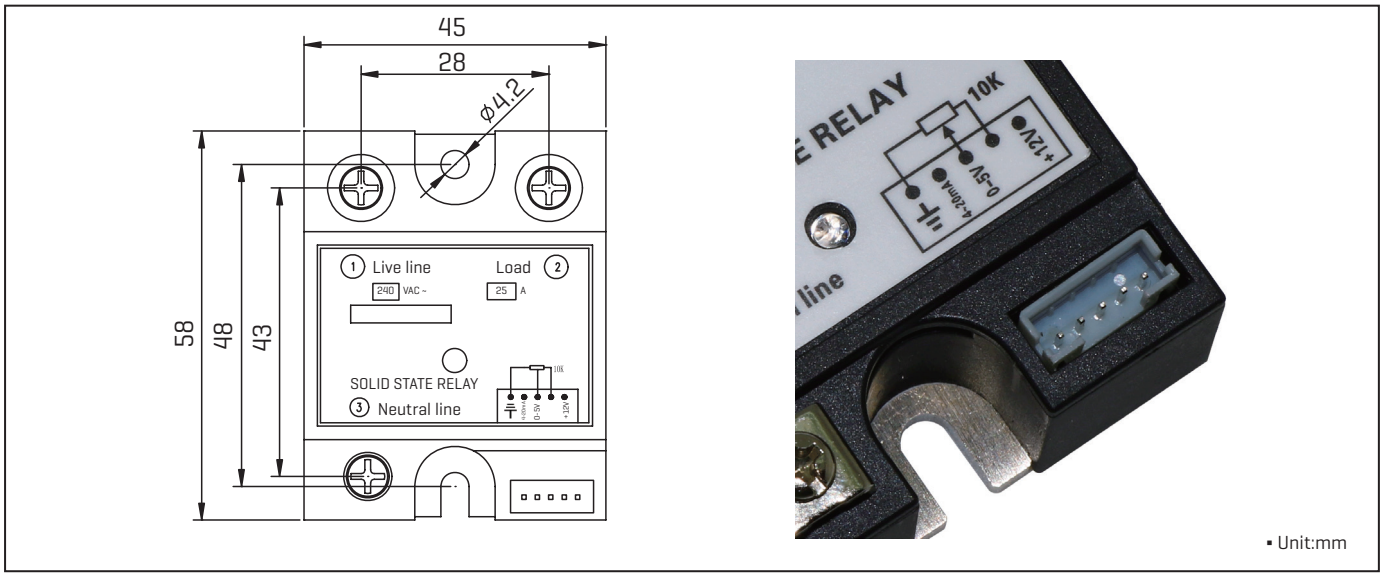
General Specifications (Ta=25°C)

Description	10A	25A	40A	60A	80A	100A	120A
Dielectric Strength, Input to Output (50/60 Hz)	2500Vrms						
Dielectric Strength, Input/Output to Base (50/60 Hz)	2500Vrms						
Minimum Insulation Resistance (@ 500 VDC)	$10^9\Omega$						
Maximum Capacitance, Input/Output	10pF						
Ambient Operating Temperature Range	-30 to 80°C						
Ambient Storage Temperature Range	-30 to 100°C						
Humidity per IEC60068-2-78	95%						
LED Input Status Indicator	Red						
Baseplate Material	Pure copper						
Weight	150g						

Connection Diagram



Dimensions



▪ Unit:mm

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ZGZX | SOLID STATE RELAYS

VGM SERIES DUAL SOLID STATE RELAYS

Features

- Rated operational current 10+10 to 60+60 Amps.
- Rated operational voltage 480V
- Input Voltage Range 3 to 32 Vdc.
- 2500 Vrms Optical Isolation.(input/output)
- Both "Zero Voltage" & phase controllable "Random Switching" versions

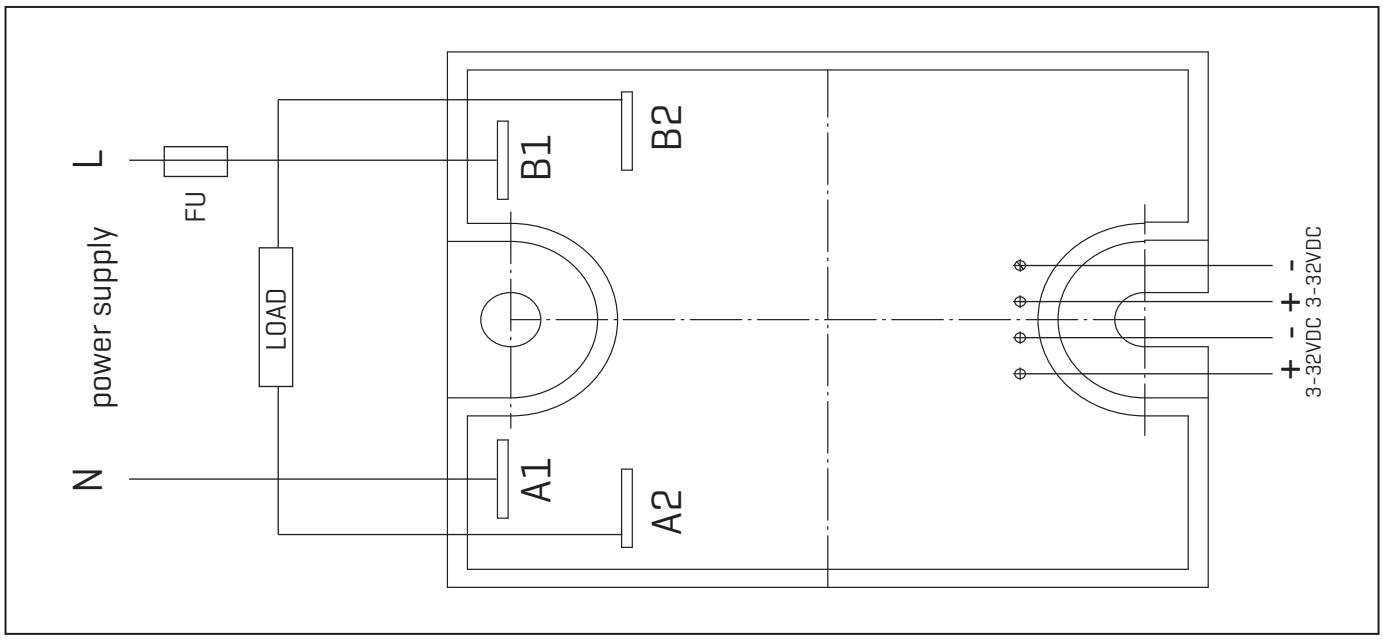
Ordering Options

VGM	40	D	A28	Z
VGM Series	**Load Current**	**Control Voltage**	**Output Voltage**	**Switching Type**
Dual Solid State Relay	10: 10Amps 15: 15Amps 25: 25Amps 40: 40Amps 60: 60Amps	D: 3-32VDC	A28: 24-280VAC A48: 48-480VAC	Z: Zero Cross Turn-on R: Random Turn-on

Product Selection

Potentiometer Control	Output Voltage	Rated Operational Current				
		10Amps	15Amps	25Amps	40Amps	60Amps
3 to 32VDC	280VAC"Z"	VGM10DA28Z	VGM15DA28Z	VGM25DA28Z	VGM40DA28Z	VGM60DA28Z
3 to 32VDC	280VAC"R"	VGM10DA28R	VGM15DA28R	VGM25DA28R	VGM40DA28R	VGM60DA28R
3 to 32VDC	480VAC"Z"	VGM10DA48Z	VGM15DA48Z	VGM25DAR8Z	VGM40DA48Z	VGM60DA48Z
3 to 32VDC	480VAC"R"	VGM10DA48R	VGM15DA48R	VGM25DAR8R	VGM40DA48R	VGM60DA48R

Connection Diagram



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VGM SERIES DUAL SOLID STATE RELAYS

Input Specifications

Parameter-list	Specification Limits
Input Parameter	D
Control Voltage Range	3 to 32VDC
Input Current (Max.)	7/20mAdc @=5V/12V
Must Turn-on Voltage	3VDC
Must Turn-off Voltage	1VDC
Reverse Voltage (Max.)	-6VDC

Output Specifications

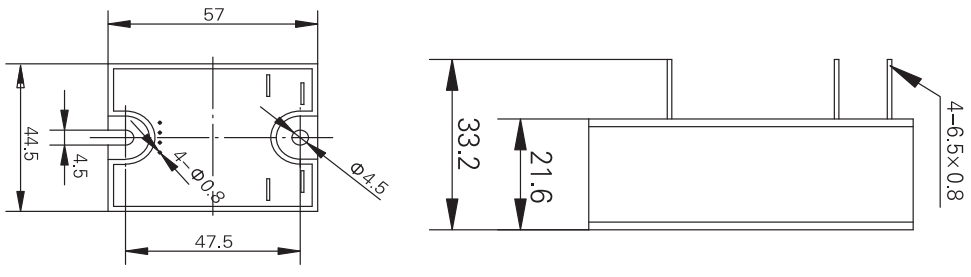
Output Parameter	Units	Specification Limits				
Model No.: VGM	Amps	10	15	25	40	60
Load Current Range	Arms	10+10	15+15	25+25	40+40	60+60
Surge Current 20mSec (Max.)	Arms	85	115	230	400	600
Load Voltage Range (280V)	Vrms	24 to 280				
Transient Overvoltage (280V)	Vpk	≥600				
Load Voltage Range (480V)	Vrms	48 to 480				
Transient Overvoltage (480V)	Vpk	≥800				
Frequency Range	Hz	47 to 63				
Off State dv/dt (Min.)	V/μsec	500				
Off State Leakage Current (Max.)	mArms	≤8				
On State Voltage Drop (Max.)	Vrms	1.6				
Thermal Resistance, (Rthjc)	°C/W	2.5	2.5	1.3	1.3	1.3
Turn on Time (Max.) "Z"	Cycle	1/2				
Turn off Time (Max.) "D"	Cycle	1/2				
Turn on Time (Max.) "R"	mSec	1				

General Specifications (Ta=25°C)

Description	10A	15A	25A	40A	60A
Dielectric Strength, Input to Output (50/60 Hz)	2500Vrms				
Dielectric Strength, Input/Output to Base (50/60 Hz)	2500Vrms				
Minimum Insulation Resistance (@ 500 VDC)	$10^9\Omega$				
Maximum Capacitance, Input/Output	0.8pF				
Ambient Operating Temperature Range	-30 to 80°C				
Ambient Storage Temperature Range	-30 to 100°C				
Humidity per IEC60068-2-78	95%				
LED Input Status Indicator	NO				
Baseplate Material	Pure copper				
Weight	150g				

Dimensions

▪ Unit:mm



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ZGZX SOLID STATE RELAYS

VSM Series Single Phase Solid State Relays (Module Type)

Features

- High power and high current.
- High performance/low cost circuit design.
- Logic compatible current regulated input.
- 4000 Vrms optical isolation.
- Both "Zero Voltage" & phase controllable "Random Switching" versions.
- High voltage (1200 Vpk) versions for 480 Vrms service.
- LED-indication for control input.
- Control voltage range: 3 to 32 Vdc or 90 to 280Vac
- Industy standard "SCR Modules" package.l

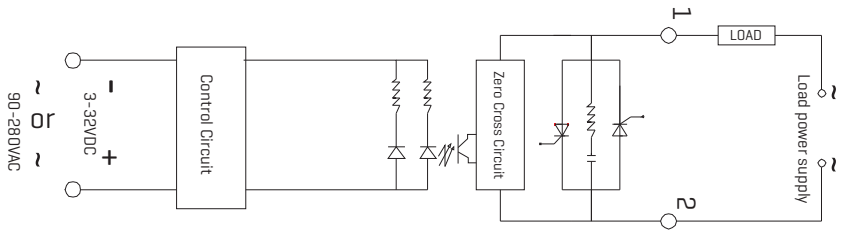
Ordering Options

VSM	120	D	A48	Z
VSM Series	**Load Current**	**Control Voltage**	**Output Voltage**	**Switching Type**
Single Phase Solid State Relay	60: 60Amps 80: 80Amps 100: 100Amps 120: 120Amps 150: 150Amps	D: 3-32VDC A: 90-280VAC	A28: 24-280VAC A48: 48-480VAC A66: 48-660VAC	Z: Zero Cross Turn-on R: Random Turn-on

Product Selection

Control Voltage	Output Voltage	Rated Operational Current				
		60Amps	80Amps	100Amps	120Amps	150Amps
3 to 32VDC	280VAC "Z"	VSM60DA28Z	VSM80DA28Z	VSM100DA28Z	VSM120DA28Z	VSM150DA28Z
3 to 32VDC	280VAC "R"	VSM60DA28R	VSM80DA28R	VSM100DA28R	VSM120DA28R	VSM150DA28R
90 to 280VAC	280VAC "Z"	VSM60AA28Z	VSM80AA28Z	VSM100AA28Z	VSM120AA28Z	VSM150AA28Z
90 to 280VAC	280VAC "R"	VSM60AA28R	VSM80AA28R	VSM100AA28R	VSM120AA28R	VSM150AA28R
3 to 32VDC	480VAC "Z"	VSM60DA48Z	VSM80DA48Z	VSM100DA48Z	VSM120DA48Z	VSM150DA48Z
3 to 32VDC	480VAC "R"	VSM60DA48R	VSM80DA48R	VSM100DA48R	VSM120DA48R	VSM150DA48R
90 to 280VAC	480VAC "Z"	VSM60AA48Z	VSM80AA48Z	VSM100AA48Z	VSM120AA48Z	VSM150AA48Z
90 to 280VAC	480VAC "R"	VSM60AA48R	VSM80AA48R	VSM100AA48R	VSM120AA48R	VSM150AA48R

Connection Diagram



Input Specifications

Parameter-list	Specification Limits	
Input Parameter	D	A
Control Voltage Range	3 to 32VDC	90 to 280VAC
Input Current (Max.)	13/16mADC @=5V/12V	29mAAC@=220V
Must Turn-on Voltage	3VDC	90VAC
Must Turn-off Voltage	1VDC	10VAC
Reverse Voltage (Max.)	-6VDC	/

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VSM Series Single Phase Solid State Relays (Module Type)

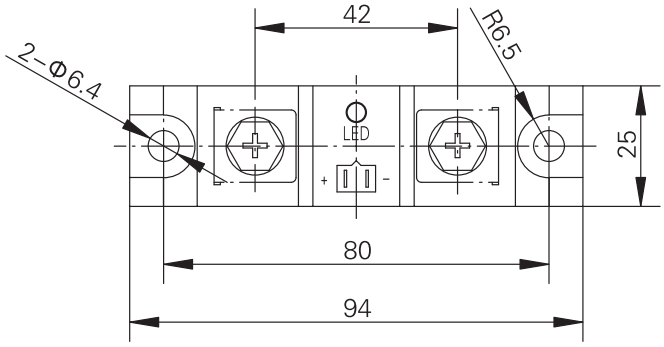
Output Specifications

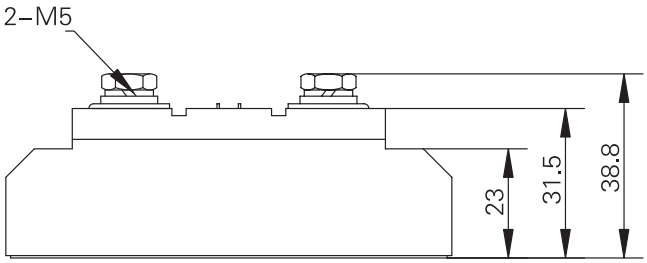
Output Parameter	Units	Specification Limits				
Model No.: VSM	Amps	60	80	100	120	150
Load Current Range	Arms	0.1 to 60	0.1 to 80	0.1 to 100	0.1 to 120	0.1 to 150
Surge Current 20mSec (Max.)	Arms	600	800	1000	1200	1500
Load Voltage Range (280V)	Vrms	24 to 280				
Transient Overvoltage (280V)	Vpk	≥800				
Load Voltage Range (480V)	Vrms	48 to 480				
Transient Overvoltage (480V)	Vpk	≥1200				
Frequency Range	Hz	47 to 63				
Off State dv/dt (Min.)	V/μsec	500				
Off State Leakage Current (Max.)	mArms	≤8				
On State Voltage Drop (Max.)	Vrms	1.6				
Thermal Resistance, (Rthjc)	°C/W	0.65	0.5	0.3	0.3	0.3
Turn on Time (Max.) "Z"	Cycle	1/2				
Turn off Time (Max.) "D"	Cycle	1/2				
Turn on Time (Max.) "R"	mSec	1				
Turn off Time (Max.) "A"	mSec	10				

General Specifications (Ta=25°C)

Description	60	80	100	120	150
Dielectric Strength, Input to Output (50/60 Hz)	2500Vrms				
Dielectric Strength, Input/Output to Base (50/60 Hz)	2500Vrms				
Minimum Insulation Resistance (@ 500 VDC)	$10^9\Omega$				
Maximum Capacitance, Input/Output	0.8pF				
Ambient Operating Temperature Range	-30 to 80°C				
Ambient Storage Temperature Range	-30 to 100°C				
Humidity per IEC60068-2-78	95%				
LED Input Status Indicator	Red				
Baseplate Material	Pure copper				
Weight	145g				

Dimensions





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ZGZX SOLID STATE RELAYS

VSM Series Single Phase Solid State Relays (Module Type)

Features

- High power and high current.
- High performance/low cost circuit design.
- Logic compatible current regulated input.
- 4000 Vrms optical isolation.
- Both "Zero Voltage" & phase controllable "Random Switching" versions.
- High voltage (1200 Vpk) versions for 480 Vrms service.
- LED-indication for control input.
- Control voltage range: 3 to 32 Vdc or 90 to 280Vac
- Industy standard "SCR Modules" package.l

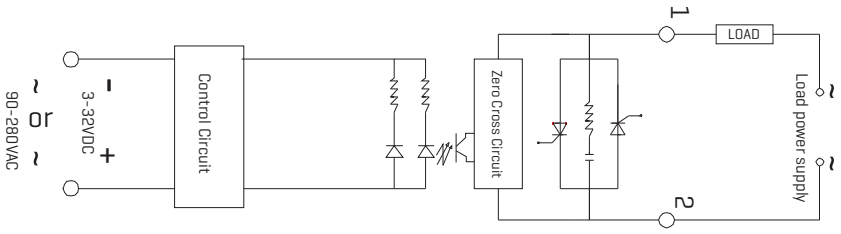
Ordering Options

VSM	200	D	A48	R
VSM Series	**Load Current**	**Control Voltage**	**Output Voltage**	**Switching Type**
Single Phase Solid State Relay	200: 200Amps 250: 250Amps 300: 300Amps 350: 350Amps 400: 400Amps	D: 3-32VDC A: 90-280VAC	A28: 24-280VAC A48: 48-480VAC A66: 48-660VAC	Z: Zero Cross Turn-on R: Random Turn-on

Product Selection

Control Voltage	Output Voltage	Rated Operational Current				
		200Amps	250Amps	300Amps	350Amps	400Amps
3 to 32VDC	280VAC "Z"	VSM200DA28Z	VSM250DA28Z	VSM300DA28Z	VSM350DA28Z	VSM400DA28Z
3 to 32VDC	280VAC "R"	VSM200DA28R	VSM250DA28R	VSM300DA28R	VSM350DA28R	VSM400DA28R
90 to 280VAC	280VAC "Z"	VSM200AA28Z	VSM250AA28Z	VSM300AA28Z	VSM350AA28Z	VSM400AA28Z
90 to 280VAC	280VAC "R"	VSM200AA28R	VSM250AA28R	VSM300AA28R	VSM350AA28R	VSM400AA28R
3 to 32VDC	480VAC "Z"	VSM200DA48Z	VSM250DA48Z	VSM300DA48Z	VSM350DA48Z	VSM400DA48Z
3 to 32VDC	480VAC "R"	VSM200DA48R	VSM250DA48R	VSM300DA48R	VSM350DA48R	VSM400DA48R
90 to 280VAC	480VAC "Z"	VSM200AA48Z	VSM250AA48Z	VSM300AA48Z	VSM350AA48Z	VSM400AA48Z
90 to 280VAC	480VAC "R"	VSM200AA48R	VSM250AA48R	VSM300AA48R	VSM350AA48R	VSM400AA48R

Connection Diagram



Input Specifications

Parameter-list	Specification Limits	
Input Parameter	D	A
Control Voltage Range	3 to 32VDC	90 to 280VAC
Input Current (Max.)	13/16mADC @=5V/12V	29mAAC@=220V
Must Turn-on Voltage	3VDC	90VAC
Must Turn-off Voltage	1VDC	10VAC
Reverse Voltage (Max.)	-6VDC	/

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VSM Series Single Phase Solid State Relays (Module Type)

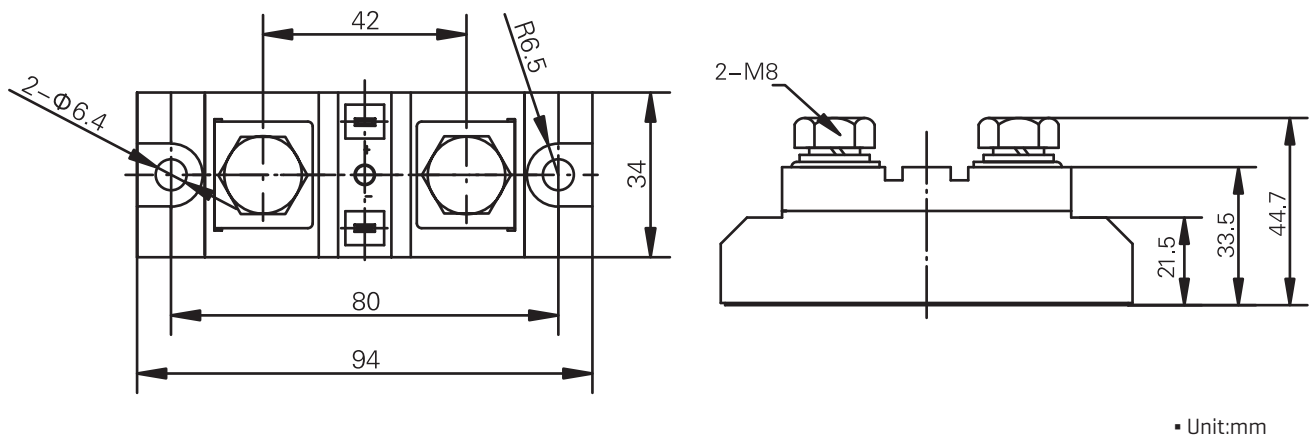
Output Specifications

Output Parameter	Units	Specification Limits				
Model No.: VSM	Amps	200	250	300	350	400
Load Current Range	Arms	0.1 to 200	0.1 to 250	0.1 to 300	0.1 to 350	0.1 to 400
Surge Current 20mSec (Max.)	Arms	2500	3400	4500	5000	6000
Load Voltage Range (280V)	Vrms	24 to 280				
Transient Overvoltage (280V)	Vpk	≥800				
Load Voltage Range (480V)	Vrms	48 to 480				
Transient Overvoltage (480V)	Vpk	≥1200				
Frequency Range	Hz	47 to 63				
Off State dv/dt (Min.)	V/μsec	500				
Off State Leakage Current (Max.)	mArms	≤8				
On State Voltage Drop (Max.)	Vrms	1.8				
Thermal Resistance, (Rthjc)	°C/W	0.22	0.15	0.14	0.13	0.12
Turn on Time (Max.) "Z"	Cycle	1/2				
Turn off Time (Max.) "D"	Cycle	1/2				
Turn on Time (Max.) "R"	mSec	1				
Turn off Time (Max.) "A"	mSec	10				

General Specifications (Ta=25°C)

Description	200	250	300	350	400
Dielectric Strength, Input to Output (50/60 Hz)	2500Vrms				
Dielectric Strength, Input/Output to Base (50/60 Hz)	2500Vrms				
Minimum Insulation Resistance (@ 500 VDC)	$10^9\Omega$				
Maximum Capacitance, Input/Output	0.8pF				
Ambient Operating Temperature Range	-30 to 80°C				
Ambient Storage Temperature Range	-30 to 100°C				
Humidity per IEC60068-2-78	95%				
LED Input Status Indicator	Red				
Baseplate Material	Pure copper				
Weight	280g				

Dimensions



▪ Unit:mm

ZGZX SOLID STATE RELAYS

VSM Series Single Phase Solid State Relays (Module Type)

Features

- High power and high current.
- High performance/low cost circuit design.
- Logic compatible current regulated input.
- 4000 Vrms optical isolation.
- Both "Zero Voltage" & phase controllable "Random Switching" versions.
- High voltage (1200 Vpk) versions for 480 Vrms service.
- LED-indication for control input.
- Control voltage range: 3 to 32 Vdc or 90 to 280Vac
- Industy standard "SCR Modules" package.l

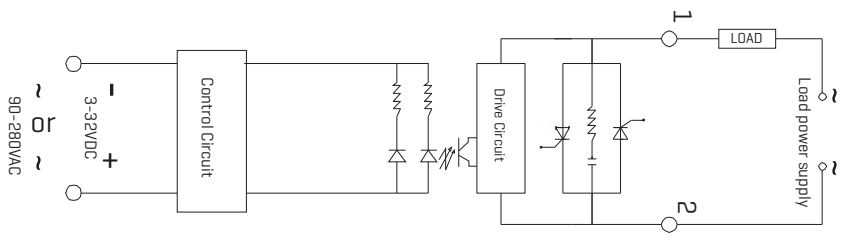
Ordering Options

VSM	500	D	A48	Z
VSM Series	**Load Current**	**Control Voltage**	**Output Voltage**	**Switching Type**
Single Phase Solid State Relay	500: 500Amps 600: 600Amps 800: 800Amps 1000: 1000Amps	D: 3-32VDC A: 90-280VAC	A28: 24-280VAC A48: 48-480VAC A66: 48-660VAC	Z: Zero Cross Turn-on R: Random Turn-on

Product Selection

Control Voltage	Output Voltage	Rated Operational Current			
		500Amps	600Amps	800Amps	1000Amps
3 to 32VDC	280VAC "Z"	VSM500DA28Z	VSM600DA28Z	VSM800DA28Z	VSM1000DA28Z
3 to 32VDC	280VAC "R"	VSM500DA28R	VSM600DA28R	VSM800DA28R	VSM1000DA28R
90 to 280VAC	280VAC "Z"	VSM500AA28Z	VSM600AA28Z	VSM800AA28Z	VSM1000AA28Z
90 to 280VAC	280VAC "R"	VSM500AA28R	VSM600AA28R	VSM800AA28R	VSM1000AA28R
3 to 32VDC	480VAC "Z"	VSM500DA48Z	VSM600DA48Z	VSM800DA48Z	VSM1000DA48Z
3 to 32VDC	480VAC "R"	VSM500DA48R	VSM600DA48R	VSM800DA48R	VSM1000DA48R
90 to 280VAC	480VAC "Z"	VSM500AA48Z	VSM600AA48Z	VSM800AA48Z	VSM1000AA48Z
90 to 280VAC	480VAC "R"	VSM500AA48R	VSM600AA48R	VSM800AA48R	VSM1000AA48R

Connection Diagram



Input Specifications

Parameter-list	Specification Limits	
Input Parameter	D	A
Control Voltage Range	3 to 32VDC	90 to 280VAC
Input Current (Max.)	13/16mADC @=5V/12V	29mAAC@=220V
Must Turn-on Voltage	3VDC	90VAC
Must Turn-off Voltage	1VDC	10VAC
Reverse Voltage (Max.)	-6VDC	/

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VSM Series Single Phase Solid State Relays (Module Type)

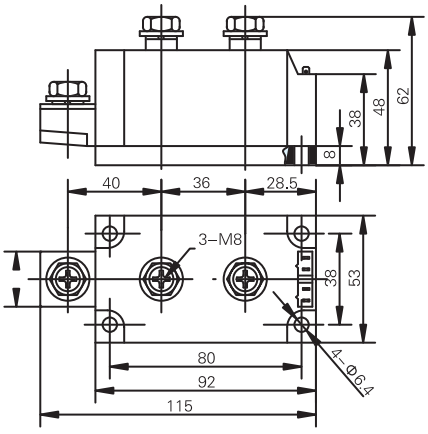
Output Specifications

Output Parameter	Units	Specification Limits			
Model No.: VSM	Amps	500	600	800	1000
Load Current Range	Arms	0.1 to 50	0.1 to 600	0.1 to 800	0.1 to 1000
Surge Current 20mSec (Max.)	Arms	7200	8800	11500	12000
Load Voltage Range (280V)	Vrms	24 to 280			
Transient Overvoltage (280V)	Vpk	≥1200			
Load Voltage Range (480V)	Vrms	48 to 480			
Transient Overvoltage (480V)	Vpk	≥1600			
Frequency Range	Hz	47 to 63			
Off State dv/dt (Min.)	V/μsec	500			
Off State Leakage Current (Max.)	mArms	≤8			
On State Voltage Drop (Max.)	Vrms	1.8			
Thermal Resistance, (Rthjc)	°C/W	0.1	0.1	0.08	0.07
Turn on Time (Max.) "Z"	Cycle	1/2			
Turn off Time (Max.) "D"	Cycle	1/2			
Turn on Time (Max.) "R"	mSec	1			
Turn off Time (Max.) "A"	mSec	10			

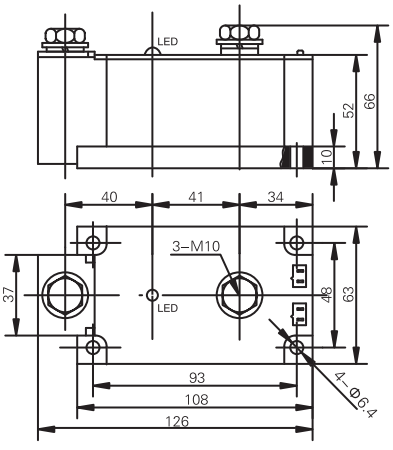
General Specifications (Ta=25°C)

Description	500	600	800	1000
Dielectric Strength, Input to Output (50/60 Hz)	2500Vrms			
Dielectric Strength, Input/Output to Base (50/60 Hz)	2500Vrms			
Minimum Insulation Resistance (@ 500 VDC)	$10^9\Omega$			
Maximum Capacitance, Input/Output	0.8pF			
Ambient Operating Temperature Range	-30 to 80°C			
Ambient Storage Temperature Range	-30 to 100°C			
Humidity per IEC60068-2-78	95%			
LED Input Status Indicator	Red			
Baseplate Material	Pure copper			
Weight	880g		1500g	

Dimensions



500A~600A



800A~1000A

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ZGZX SOLID STATE RELAYS

VTH Series Three Phase Solid State Relays

Features

- Three-pole, single-throw, one normally open, suitable for three-phase loads
- Rated off-state voltage: 480Vrms; 530Vrms
- The switch type is zero-crossing conduction type and random conduction type
- Input control voltage: 3-32Vdc, AC 90-280Vac
- Good thermal performance and long life
- Rated on-state current: 3x25-150A
- Input/output insulation voltage: 2500Vrms
- LED input displayl

Ordering Options

VTH	40	D	A48	Z
VTH Series	**Load Current**	**Control Voltage**	**Output Voltage**	**Switching Type**
Three Phase Solid State Relay	25: 25Amps 40: 40Amps 60: 60Amps 80: 80Amps 100: 100Amps 120: 120Amps 150: 150Amps	D: 3-32VDC A: 90-280VAC	A48: 48-480VAC A53: 53-530VAC	Z: Zero Cross Turn-on R: Random Turn-on

Product Selection

Control Voltage	Output Voltage	Rated Operational Current						
		25Amps	40Amps	60Amps	80Amps	100Amps	120Amps	150Amps
3 to 32VDC	480VAC "Z"	VTH25DA48Z	VTH40DA48Z	VTH60DA48Z	VTH80DA48Z	VTH100DA48Z	VTH120DA48Z	VTH150DA48Z
3 to 32VDC	480VAC "R"	VTH25DA48R	VTH40DA48R	VTH60DA48R	VTH80DA48R	VTH100DA48R	VTH120DA48R	VTH150DA48R
90 to 280VAC	480VAC "Z"	VTH25AA48Z	VTH40AA48Z	VTH60AA48Z	VTH80AA48Z	VTH100AA48Z	VTH120AA48Z	VTH150AA48Z
90 to 280VAC	480VAC "R"	VTH25AA48R	VTH40AAT8R	VTH60AA48R	VTH80AA48R	VTH100AA48R	VTH120AA48R	VTH150AA48R
3 to 32VDC	530VAC "Z"	VTH25DA53Z	VTH40DA53Z	VTH60DA53Z	VTH80DA53Z	VTH100DA53Z	VTH120DA53Z	VTH150DA53Z
3 to 32VDC	530VAC "R"	VTH25DA53R	VTH40DA53R	VTH60DA53R	VTH80DA53R	VTH100DA53R	VTH120DA53R	VTH150DA53R
90 to 280VAC	530VAC "Z"	VTH25AA53Z	VTH40AA53Z	VTH60AA53Z	VTH80AA53Z	VTH100AA53Z	VTH120AA53Z	VTH150AA53Z
90 to 280VAC	530VAC "R"	VTH25AA53R	VTH40AA53R	VTH60AA53R	VTH80AA53R	VTH100AA53R	VTH120AA53R	VTH150AA53R

Input Specifications

Parameter-list	Specification Limits	
Input Parameter	D	A
Control Voltage Range	3 to 32VDC	90 to 280VAC
Input Current (Max.)	33/56mADC @=5V/12V	13mAAC @=220V
Must Turn-on Voltage	3VDC	90VAC
Must Turn-off Voltage	1VDC	10VAC
Reverse Voltage (Max.)	-6VDC	/

VTH Series Three Phase Solid State Relays

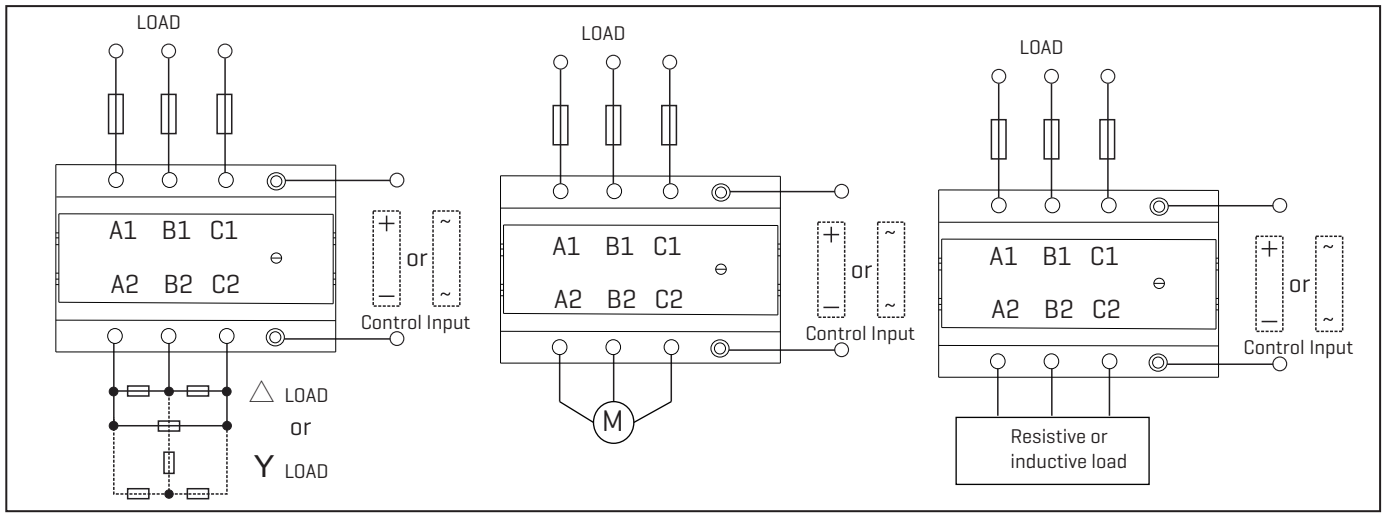
Output Specifications

Output Parameter	Units	Specification Limits						
Model No.: VTH	Amps	25	40	60	80	100	120	150
Load Current Range	Arms	3x25	3x 40	3x60	3x80	3x100	3x120	3x150
Surge Current 20mSec (Max.)	Arms	300	400	600	800	1000	1200	1500
Load Voltage Range (480V)	Vrms	48 to 480						
Transient Overvoltage (480V)	Vpk	≥1200						
Load Voltage Range (530V)	Vrms	52 to 530						
Transient Overvoltage (530V)	Vpk	≥1400						
Frequency Range	Hz	47 to 63						
Off State dv/dt (Min.)	V/μsec	500						
Off State Leakage Current (Max.)	mArms	≤8						
On State Voltage Drop (Max.)	Vrms	1.8						
Thermal Resistance, (Rthjc)	°C/W	0.75	0.55	0.46	0.38	0.34	0.23	0.23
Turn on Time (Max.) "Z"	Cycle	1/2						
Turn off Time (Max.) "D"	Cycle	1/2						
Turn on Time (Max.) "R"	mSec	1						
Turn off Time (Max.) "A"	mSec	10						

General Specifications (Ta=25°C)

Description	25A	40A	60A	80A	100A	120A	150A
Dielectric Strength, Input to Output (50/60 Hz)	2500Vrms						
Dielectric Strength, Input/Output to Base (50/60 Hz)	2500Vrms						
Minimum Insulation Resistance (@ 500 VDC)	$10^9\Omega$						
Maximum Capacitance, Input/Output	0.8pF						
Ambient Operating Temperature Range	-30 to 80°C						
Ambient Storage Temperature Range	-30 to 100°C						
Humidity per IEC60068-2-78	95%						
LED Input Status Indicator	Red						
Baseplate Material	Pure copper						
Weight	500g						

Connection Diagram



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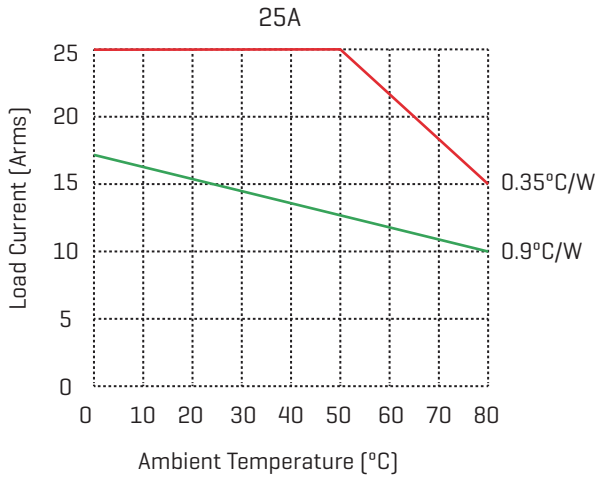
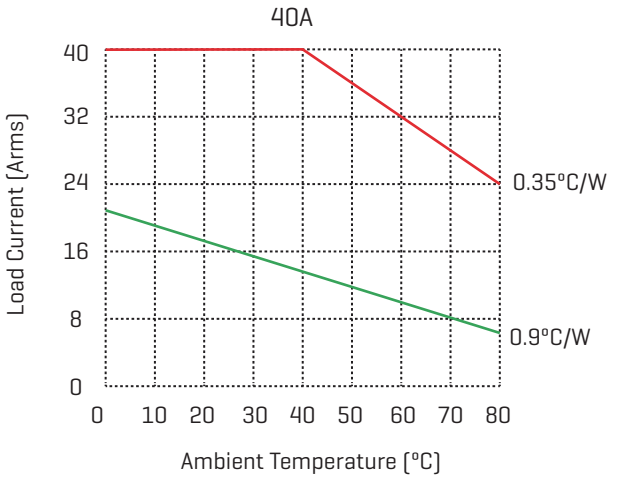
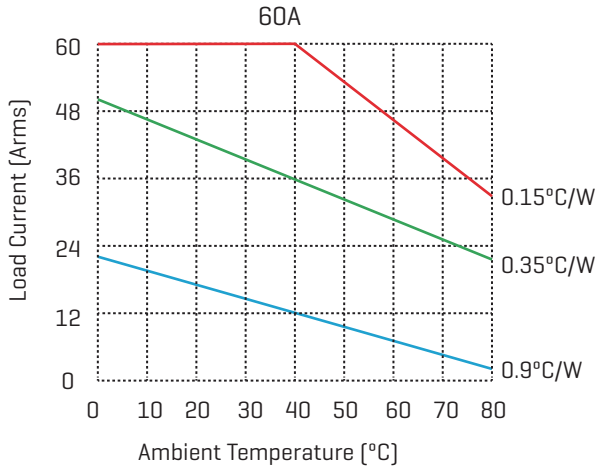
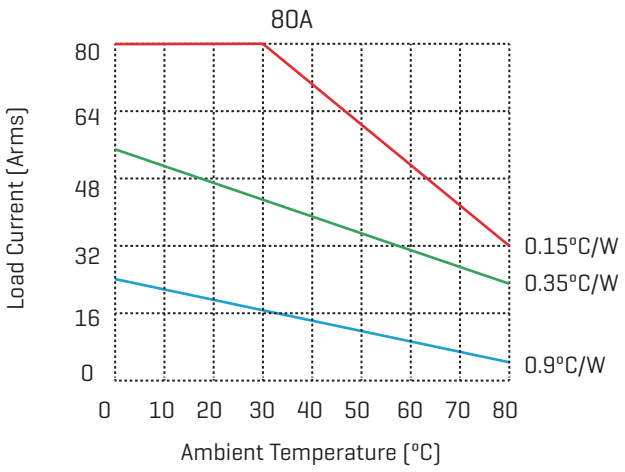
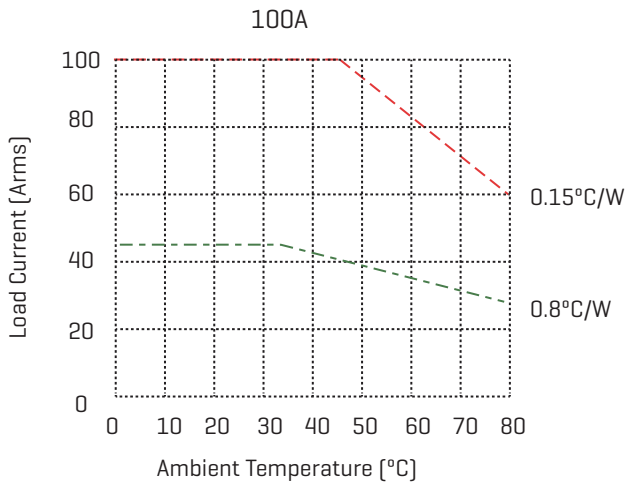
Thermal Derating Curve

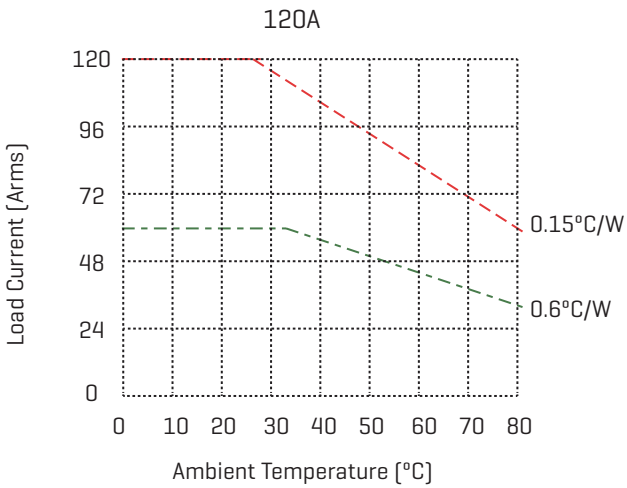












Important Notice

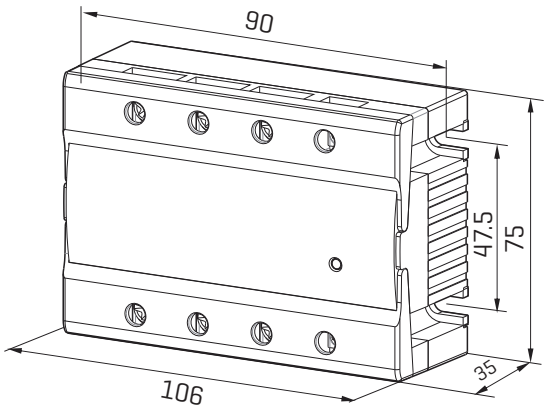
1. If the connection of the load will produce high surge current, please pay attention to the solid state relay is able to withstand surge current value.

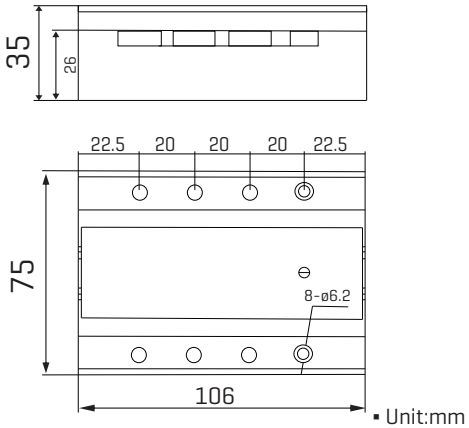
2. If the connection of the load will produce high peak reverse voltage, please pay attention to the solid state relay is able to withstand the peak voltage.

3. When choosing SSR, please pay special attention to the working current of the load and working temperature, when the environment temperature is higher, the user should take load discount into account according to the thermal curve

VTH Series Three Phase Solid State Relays

Dimensions





▪ Unit:mm

ZGZX SOLID STATE RELAYS

VTG Series Three Phase Solid State Relays

Features

- Three-pole, single-throw, one normally open, suitable for three-phase loads
- Rated off-state voltage: 480Vrms; 530Vrms
- The switch type is zero-crossing conduction type and random conduction type
- Input control voltage: 3-32Vdc, AC 90-280Vac
- Good thermal performance and long life
- Rated on-state current: 3x25-150A
- Input/output insulation voltage: 2500Vrms
- LED input displayl

Ordering Options

VTG	40	D	A48	Z
VTG Series	**Load Current**	**Control Voltage**	**Output Voltage**	**Switching Type**
Three Phase Solid State Relay	25: 25Amps 40: 40Amps 60: 60Amps 80: 80Amps 100: 100Amps 120: 120Amps 150: 150Amps	D: 3-32VDC A: 90-280VAC	A48: 48-480VAC A53: 53-530VAC	Z: Zero Cross Turn-on R: Random Turn-on

Product Selection

Control Voltage	Output Voltage	Rated Operational Current						
		25Amps	40Amps	60Amps	80Amps	100Amps	120Amps	150Amps
3 to 32VDC	480VAC "Z"	VTG25DA48Z	VTG40DA48Z	VTG60DA48Z	VTG80DA48Z	VTG100DA48Z	VTG120DA48Z	VTG150DA48Z
3 to 32VDC	480VAC "R"	VTG25DA48R	VTG40DA48R	VTG60DA48R	VTG80DA48R	VTG100DA48R	VTG120DA48R	VTG150DA48R
90 to 280VAC	480VAC "Z"	VTG25AA48Z	VTG40AA48Z	VTG60AA48Z	VTG80AA48Z	VTG100AA48Z	VTG120AA48Z	VTG150AA48Z
90 to 280VAC	480VAC "R"	VTG25AA48R	VTG40AAT8R	VTG60AA48R	VTG80AA48R	VTG100AA48R	VTG120AA48R	VTG150AA48R
3 to 32VDC	530VAC "Z"	VTG25DA53Z	VTG40DA53Z	VTG60DA53Z	VTG80DA53Z	VTG100DA53Z	VTG120DA53Z	VTG150DA53Z
3 to 32VDC	530VAC "R"	VTG25DA53R	VTG40DA53R	VTG60DA53R	VTG80DA53R	VTG100DA53R	VTG120DA53R	VTG150DA53R
90 to 280VAC	530VAC "Z"	VTG25AA53Z	VTG40AA53Z	VTG60AA53Z	VTG80AA53Z	VTG100AA53Z	VTG120AA53Z	VTG150AA53Z
90 to 280VAC	530VAC "R"	VTG25AA53R	VTG40AA53R	VTG60AA53R	VTG80AA53R	VTG100AA53R	VTG120AA53R	VTG150AA53R

Input Specifications

Parameter-list	Specification Limits	
Input Parameter	D	A
Control Voltage Range	3 to 32VDC	90 to 280VAC
Input Current (Max.)	33/56mADC @=5V/12V	13mAAC @=220V
Must Turn-on Voltage	3VDC	90VAC
Must Turn-off Voltage	1VDC	10VAC
Reverse Voltage (Max.)	-6VDC	/

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VTG Series Three Phase Solid State Relays

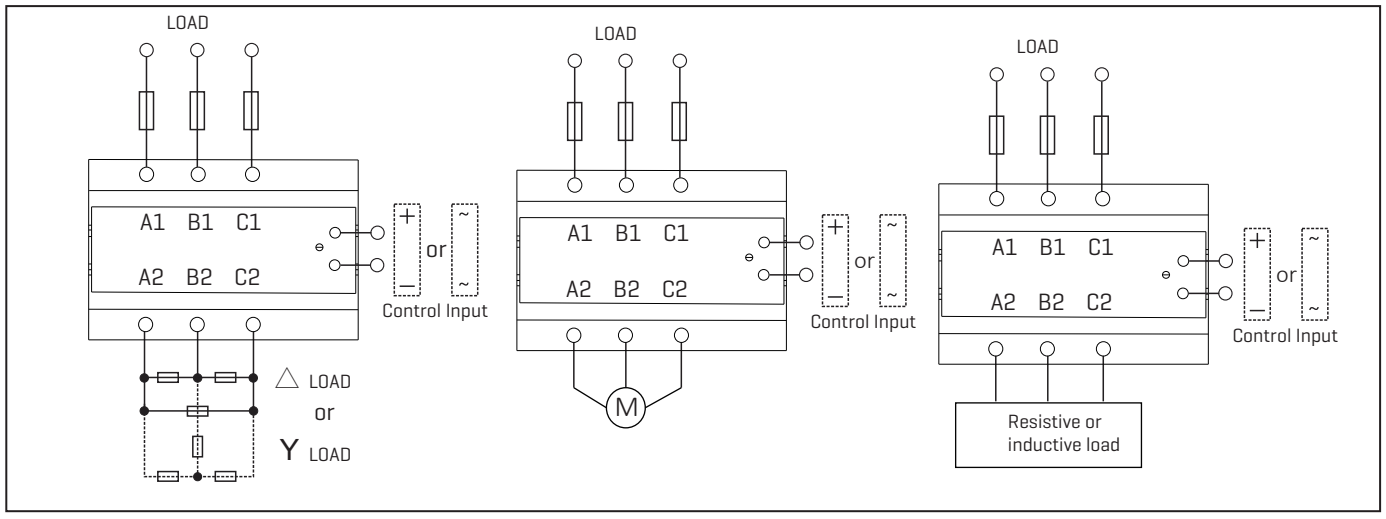
Output Specifications

Output Parameter	Units	Specification Limits						
Model No.: VTG	Amps	25	40	60	80	100	120	150
Load Current Range	Arms	3x25	3x 40	3x60	3x80	3x100	3x120	3x150
Surge Current 20mSec (Max.)	Arms	300	400	600	800	1000	1200	1500
Load Voltage Range (480V)	Vrms	48 to 480						
Transient Overvoltage (480V)	Vpk	≥1200						
Load Voltage Range (530V)	Vrms	53 to 530						
Transient Overvoltage (530V)	Vpk	≥1400						
Frequency Range	Hz	47 to 63						
Off State dv/dt (Min.)	V/μsec	500						
Off State Leakage Current (Max.)	mArms	≤8						
On State Voltage Drop (Max.)	Vrms	1.8						
Thermal Resistance, (Rthjc)	°C/W	0.75	0.55	0.46	0.38	0.34	0.23	0.23
Turn on Time (Max.) "Z"	Cycle	1/2						
Turn off Time (Max.) "D"	Cycle	1/2						
Turn on Time (Max.) "R"	mSec	1						
Turn off Time (Max.) "A"	mSec	10						

General Specifications (Ta=25°C)

Description	25A	40A	60A	80A	100A	120A	150A
Dielectric Strength, Input to Output (50/60 Hz)	2500Vrms						
Dielectric Strength, Input/Output to Base (50/60 Hz)	2500Vrms						
Minimum Insulation Resistance (@ 500 VDC)	$10^9\Omega$						
Maximum Capacitance, Input/Output	0.8pF						
Ambient Operating Temperature Range	-30 to 80°C						
Ambient Storage Temperature Range	-30 to 100°C						
Humidity per IEC60068-2-78	95%						
LED Input Status Indicator	Red						
Baseplate Material	Pure copper						
Weight	500g						

Connection Diagram



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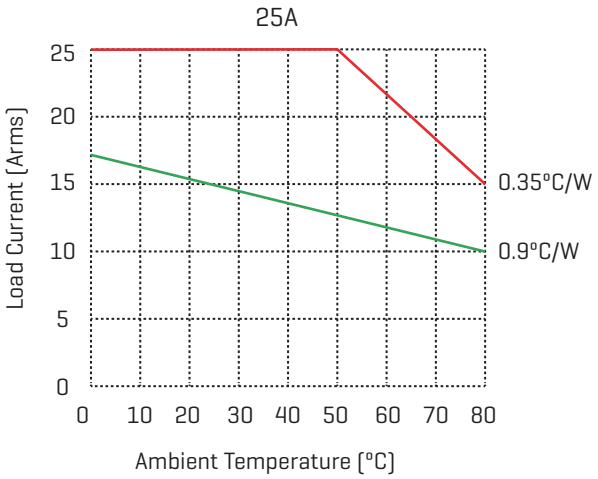
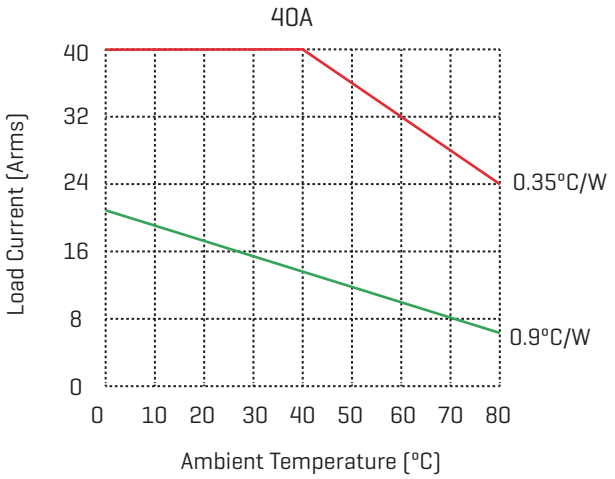
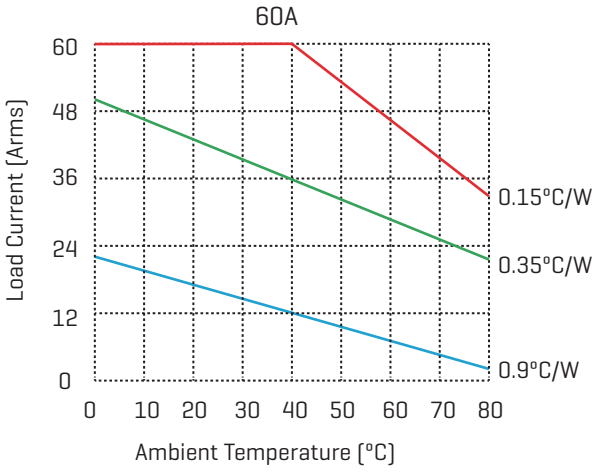
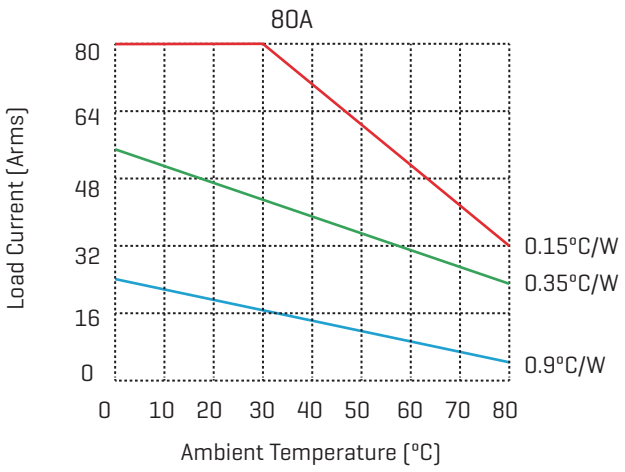
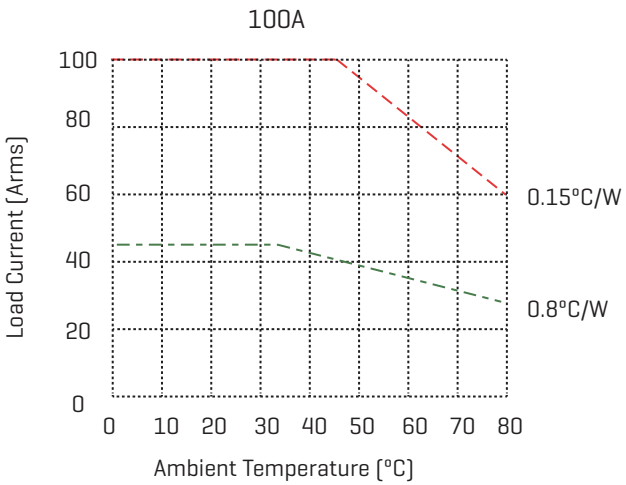
Thermal Derating Curve

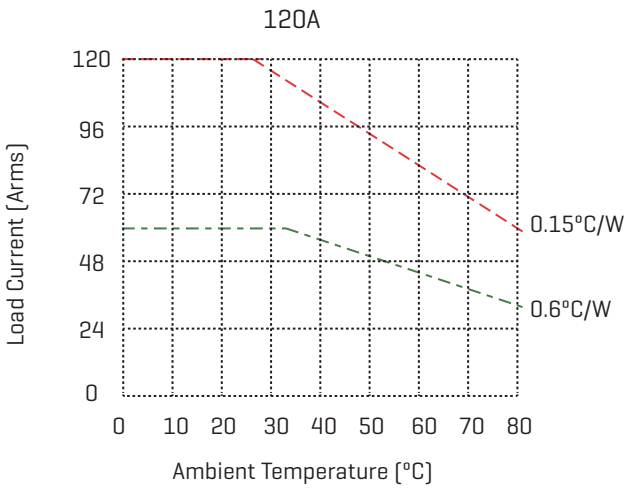












Important Notice

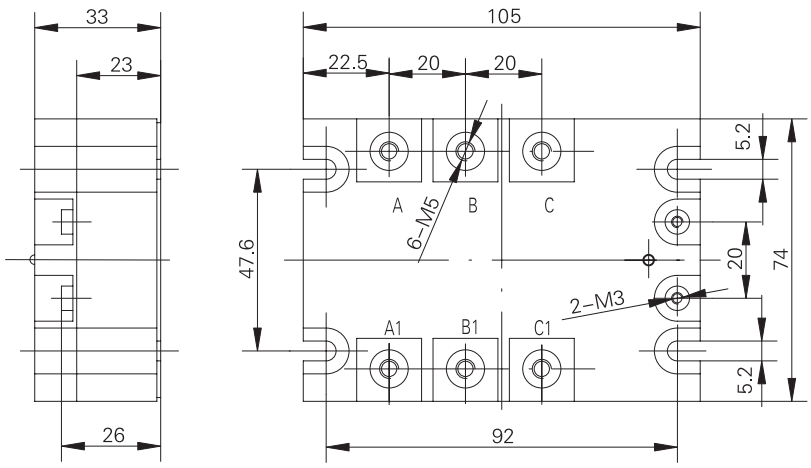
1. If the connection of the load will produce high surge current, please pay attention to the solid state relay is able to withstand surge current value.

2. If the connection of the load will produce high peak reverse voltage, please pay attention to the solid state relay is able to withstand the peak voltage.

3. When choosing SSR, please pay special attention to the working current of the load and working temperature, when the environment temperature is higher, the user should take load discount into account according to the thermal curve

VTG Series Three Phase Solid State Relays

Dimensions



▪ Unit:mm

ZGZX SOLID STATE RELAYS

VTM Series Three Phase Solid State Relays

Features

- Three phase Solid State Relays
- Rated operational current 3X200, 3X300, 3X400 and 3X500Amps.
- High voltage (1600 Vpk) versions for 530 Vrms service.
- Both "Zero Voltage" & phase controllable "Random Switching" versions.
- Input Voltage Range 3 to 32 Vdc, 90 to 280Vac.
- 2500 Vrms Optical Isolation.(input/output)

Ordering Options

VTM	200	D	A48	Z
VTM Series	**Load Current**	**Control Voltage**	**Output Voltage**	**Switching Type**
Three Phase Solid State Relay	200: 200Amps 300: 300Amps 400: 400Amps 500: 500Amps	D: 3-32VDC A: 90-280VAC	A48: 48-480VAC A53: 53-530VAC	Z: Zero Cross Turn-on R: Random Turn-on

Product Selection

Control Voltage	Output Voltage	Rated Operational Current			
		200Amps	300Amps	400Amps	500Amps
3 to 32VDC	480VAC "Z"	VTM200DA48Z	VTM300DA48Z	VTM400DA48Z	VTM500DA48Z
3 to 32VDC	480VAC "R"	VTM200DA48R	VTM300DA48R	VTM400DA48R	VTM500DA48R
90 to 280VAC	480VAC "Z"	VTM200AA48Z	VTM300AA48Z	VTM400AA48Z	VTM500AA48Z
90 to 280VAC	480VAC "R"	VTM200AA48R	VTM300AA48R	VTM400AA48R	VTM500AA48R
3 to 32VDC	530VAC "Z"	VTM200DA53Z	VTM300DA53Z	VTM400DA53Z	VTM500DA53Z
3 to 32VDC	530VAC "R"	VTM200DA53R	VTM300DA53R	VTM400DA53R	VTM500DA53R
90 to 280VAC	530VAC "Z"	VTM200AA53Z	VTM300AA53Z	VTM400AA53Z	VTM500AA53Z
90 to 280VAC	530VAC "R"	VTM200AA53R	VTM300AA53R	VTM400AA53R	VTM500AA53R

Input Specifications

Parameter-list	Specification Limits	
Input Parameter	D	A
Control Voltage Range	3 to 32VDC	90 to 280VAC
Input Current (Max.)	33/56mADC @=5V/12V	13mAAC @=220V
Must Turn-on Voltage	3VDC	90VAC
Must Turn-off Voltage	1.5VDC	10VAC
Reverse Voltage (Max.)	-6VDC	/

VTM Series Three Phase Solid State Relays

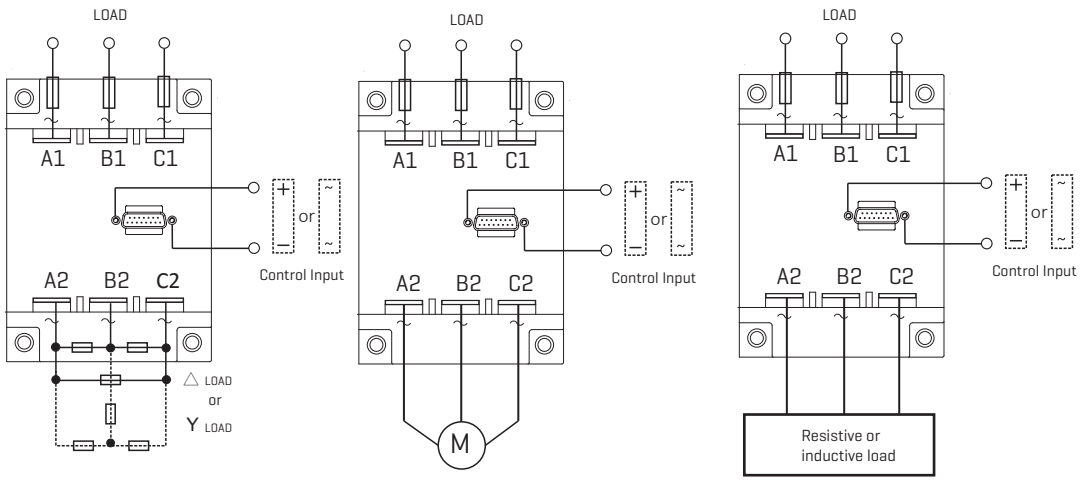
Output Specifications

Output Parameter	Units	Specification Limits			
Model No.: VTM	Amps	200	300	400	500
Load Current Range	Arms	3x200	3x300	3x400	3x500
Surge Current 20mSec (Max.)	Arms	2100	5000	7000	8000
Load Voltage Range (480V)	Vrms	48 to 480			
Transient Overvoltage (480V)	Vpk	≥1200			
Load Voltage Range (530V)	Vrms	53 to 530			
Transient Overvoltage (530V)	Vpk	≥1600			
Frequency Range	Hz	47 to 63			
Off State dv/dt (Min.)	V/μsec	500			
Off State Leakage Current (Max.)	mArms	≤10	≤10	≤15	≤20
On State Voltage Drop (Max.)	Vrms	1.8			
Thermal Resistance, (Rthjc)	°C/W	0.14	0.09	0.072	0.065
Turn on Time (Max.) "Z"	Cycle	1/2			
Turn off Time (Max.) "D"	Cycle	1/2			
Turn on Time (Max.) "R"	mSec	1			
Turn off Time (Max.) "A"	mSec	10			

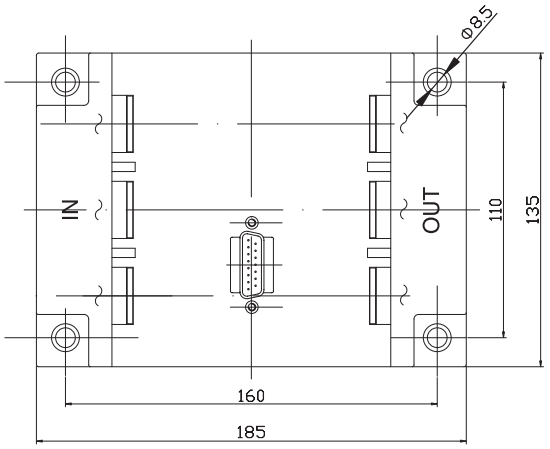
General Specifications (Ta=25°C)

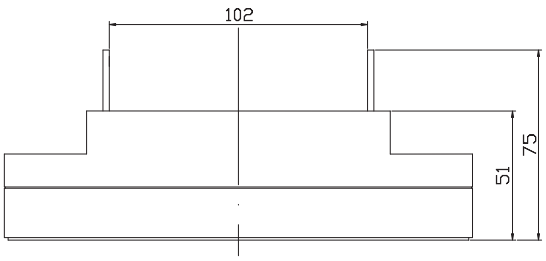
Description	200A	300A	400A	500A
Dielectric Strength, Input to Output (50/60 Hz)	2500Vrms			
Dielectric Strength, Input/Output to Base (50/60 Hz)	2500Vrms			
Minimum Insulation Resistance (@ 500 VDC)	$10^9\Omega$			
Maximum Capacitance, Input/Output	0.8pF			
Ambient Operating Temperature Range	-30 to 80°C			
Ambient Storage Temperature Range	-30 to 100°C			
Humidity per IEC60068-2-78	95%			
LED Input Status Indicator	No			
Baseplate Material	Pure copper			
Weight	2200g			

Connection Diagram



Dimensions

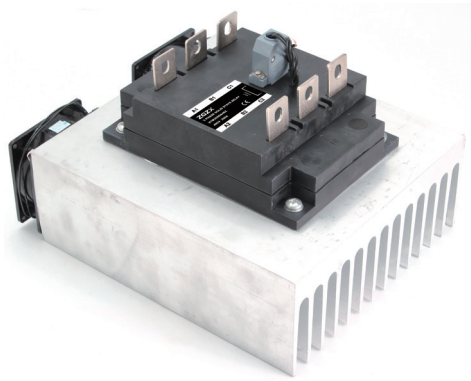


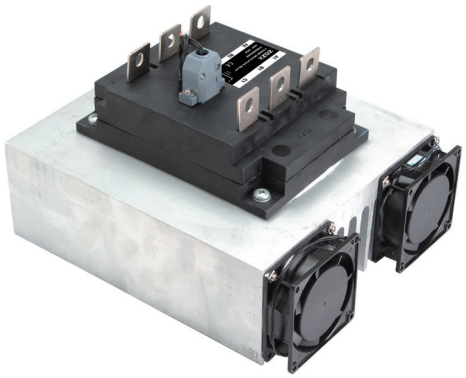


▪ Unit:mm

Heatsink for Solid State Relays

VTR-3





ZGZX | SOLID STATE RELAYS

VMR SERIES MOTOR REVERSING SSR

Features

Motor reversing Solid State Relays for 3-phase industrial motors up to 7 KW.

- Operational voltage: Up to 530VAC rms
- High performance /low cost circuit design.
- Built-in interlock function
- AC or DC control voltage
- LED indication for direction
- Insulation: Reed relay or opt coupler (input-output)2500VAC rms
- Control voltage range:10~30 Vdc or 115 Vac
- This series with Dual SCR Power Hybrid technology provide highly efficient thermal management for greatly increased cyclic life.

Ordering Options

VMR	50	48	T	D
VMR Series	**Motor Load Power**	**Rated Operational Voltage**	**Switched phase**	**Control Voltage**
Motor Reversing Solid State Relay	10: 1kW 30: 3kW 50: 5kW 70: 7kW	48: 480VAC 53: 530VAC	D:Two leg models T:Three leg models	D: 10-30VDC A: 115VAC

Product Selection

Control Voltage	Output Voltage	Load Power			
		1kW	3kW	5kW	7kW
10 to 30VDC	480VAC	VMR1048DD	VMR3048DD	VMR5048DD	VMR7048DD
10 to 30VDC	480VAC	VMR1048TD	VMR3048TD	VMR5048TD	VMR7048TD
115VAC	480VAC	VMR1048DA	VMR3048DA	VMR5048DA	VMR7048DA
115VAC	480VAC	VMR1048TA	VMR3048TA	VMR5048TA	VMR7048TA
10 to 30VDC	530VAC	VMR1053DD	VMR3053DD	VMR5053DD	VMR7053DD
10 to 30VDC	530VAC	VMR1053TD	VMR3053TD	VMR5053TD	VMR7053TD
115VAC	530VAC	VMR1053DA	VMR3053DA	VMR5053TD	VMR7053DA
115VAC	530VAC	VMR1053TA	VMR3053TA	VMR5053TA	VMR7053DD

Input Specifications

Parameter-list	Specification Limits	
Input Parameter	DC	AC
Control Voltage Range	10-30VDC	115VAC
Input Current (Max.)	30mADC @=12V	35mAAC @=380V
Must Turn-on Voltage	8VDC	85VAC
Must Turn-off Voltage	4VDC	30VAC
Reverse Voltage (Max.)	30VDC	/

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VMR SERIES MOTOR REVERSING SSR

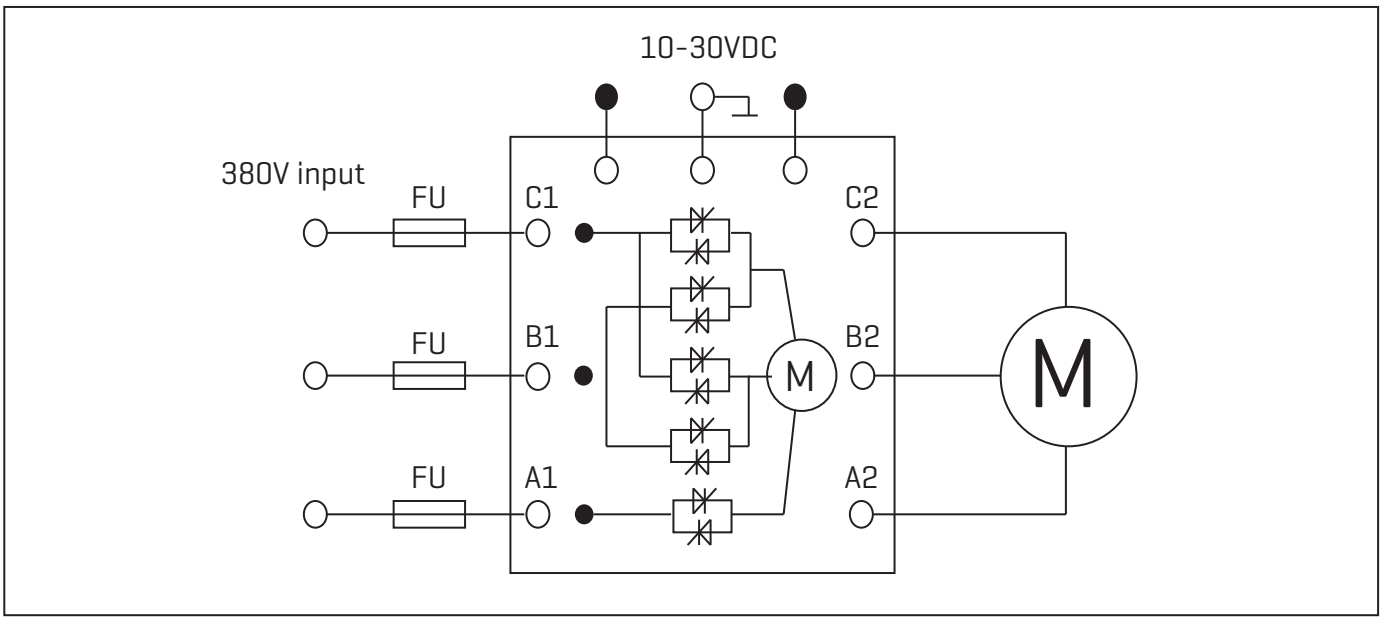
Output Specifications

Output Parameter	Units	Specification Limits			
Model No.: VMR	Amps	1kW	3kW	5kW	5kW
Load Current Range	Arms	3x25	3x40	3x60	3x80
Surge Current 20mSec (Max.)	Arms	250	500	600	1000
Load Voltage Range	Vrms	24 to 530			
Transient Overvoltage	Vpk	≥1200			
Frequency Range	Hz	47 to 63			
Off State dv/dt (Min.)	V/μsec	500			
Off State Leakage Current (Max.)	mArms	≤8			
On State Voltage Drop (Max.)	Vrms	1.8	1.8	1.6	1.6
Thermal Resistance, (Rthjc)	°C/W	0.25	0.22	0.22	0.17
Turn on Time (Max.)	Cycle	1/2			
Turn off Time (Max.)	Cycle	1/2			
Turn on Time (Max.) "A"	mSec	10			

General Specifications (Ta=25°C)

Description	1kW	3kW	5kW	7kW
Dielectric Strength, Input to Output (50/60 Hz)	2500Vrms			
Dielectric Strength, Input/Output to Base (50/60 Hz)	2500Vrms			
Minimum Insulation Resistance (@ 500 VDC)	$10^9\Omega$			
Maximum Capacitance, Input/Output	0.8pF			
Ambient Operating Temperature Range	-30 to 80°C			
Ambient Storage Temperature Range	-30 to 100°C			
Humidity per IEC60068-2-78	95%			
LED Input Status Indicator	Red and Green			
Baseplate Material	Pure copper			
Weight	430g			

Connection Diagram



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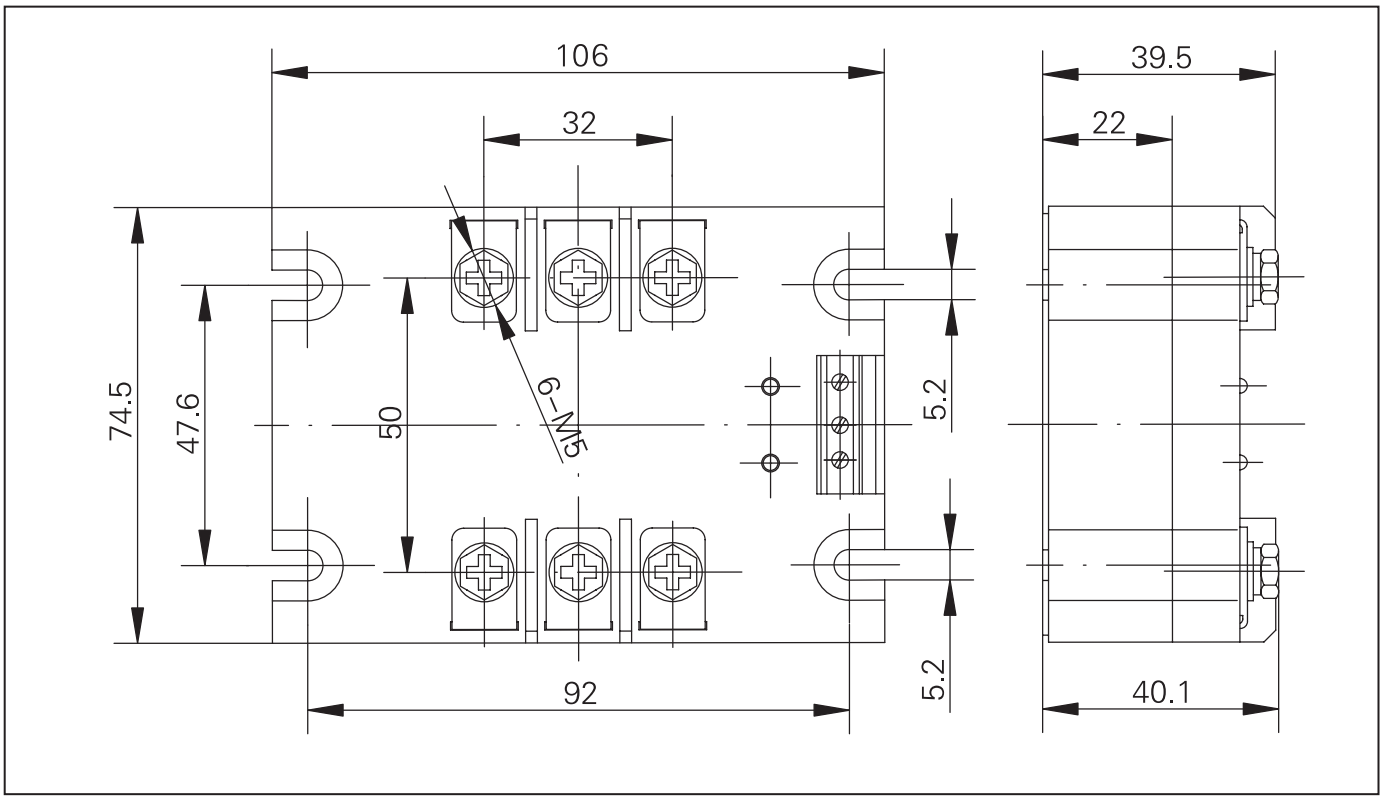
Dimensions



ZGZX SOLID STATE RELAYS

ZGVTR Series Intelligent Power Module Devices

Features

This product is a multi-functional power module, which combines thyristor power circuit, phase-shift and trigger circuit. It is a integrated electricity phase-shift and open-loop system. It can realize the voltage control of the load. With built-in linear control circuit, it is highly precise and stabilized. It is widely used the fields such as speed modulation of DC motor, industrial automation, electric heating control, mechanical and electrical integration, diversified power supplies. It has hand-control and automation control interfaces, no phase order requirements of the AC inputs. With built-in linear control circuit, it is highly precise and stabilized.

Ordering Options

ZGV	T	R	200 /	48
ZGV Series	**Phase**	**Working Type**	**Normal Current**	**Voltage**
Rectifier module with phase-shift voltage regulating controller	T: Three-phase D:Single-phase	R: Recifier voltage modulation	50: 50A 70: 70A 120: 120A 200: 200A 250: 250A 350: 350A 500: 500A 800: 800A	28: 280VAC 48: 480VAC

Main Technical Standards (ZGVTR-50;70;120;200;250;350;500;800)

Input Voltage	220V±20%， 380V±20%
Power Source	12V, ≤1A
Controlling Voltage	0-10VDC
Controlling Current	4-20mA
Hand-control Potentiometer Resistance	10KΩ
Colling Method	Wind-colling radiator, Wind speed ≤6m/s
Ambient Temperature	-30 to 40°C
Output Voltage	0-513VDC

Main Circuit Parameter

Parameter	Unit	Value							
Load Current	Arms	50	70	120	200	250	350	500	800
Max Working Current	Arms	3x50	3x70	3x120	3x200	3x250	3x350	3x500	3x800
Transient Overvoltage	Vpk	1200							
Frequency	Hz	50-60							
Off State Voltage Rising Rate	V/sec	500							
On State Voltage Rising Rate	A/sec	100							
Off State Leakape Current	mArms	≤8	≤10	≤10	≤10	≤15	≤15	≤20	≤20
On State Leakape Current	Vrms	1.6	1.6	1.8	1.8	1.8	1.8	1.8	1.8
Voltage Drop Insulating Voltage	Vrms	≥2500							
Weight	kg	0.425			2.2				

Note: The maximum temperature of bottom plate shall not exceed 80°C

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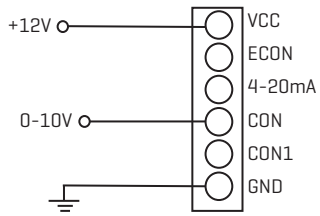
ZGVTR Series Intelligent Power Module Devices

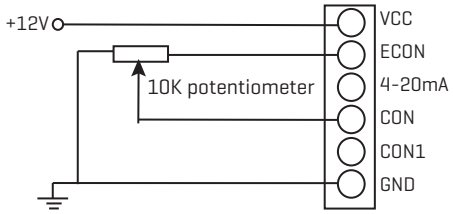
Connection Diagram

Connections of control lines（50-120A module）

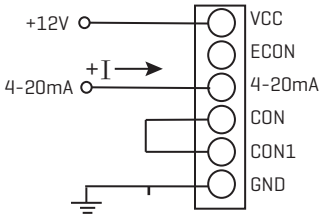
10V voltage control



10K potentiometer control

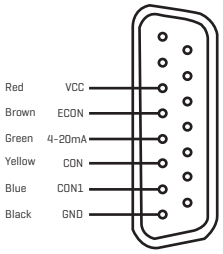


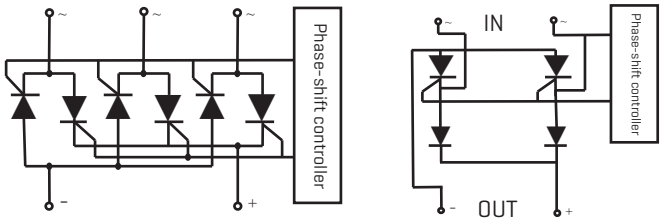
4-20mA control



Remarks:the interfaces of 200A—500A modules:VCC[red]、CON1（blue）、Econ[orange]、CON[yellow]、4-20mA（green）GND（black）others are blank See the right map connections is the same as above.

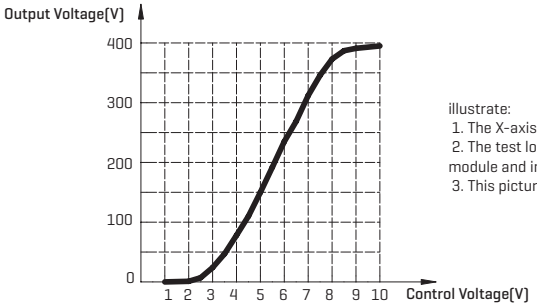
Connections of control lines（200-800A module）





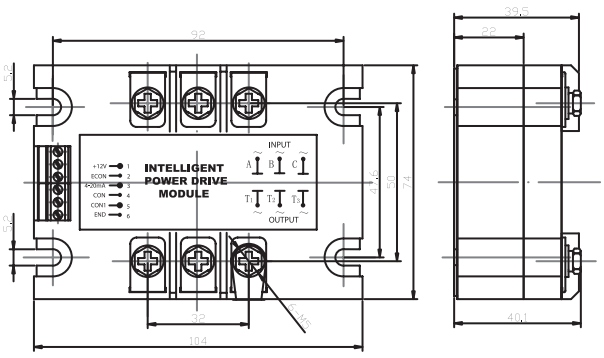
Internal circuit connection

Three-phase voltage regulator module control curve

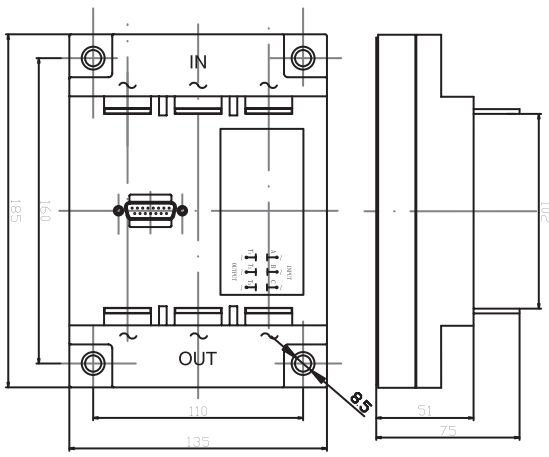


illustrate:
1. The X-axis is the control voltage, and the Y-axis is the output voltage of the main circuit.
2. The test load is a 380V three-phase symmetrical resistive load, and the half-control module and inductive load are different from this curve.
3. This picture is for reference only.

Dimensions



ZGVTR50~120A



ZGVTR200~800A

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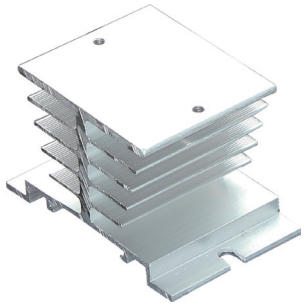
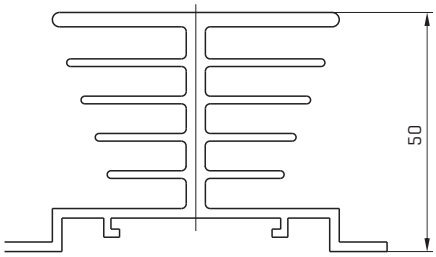
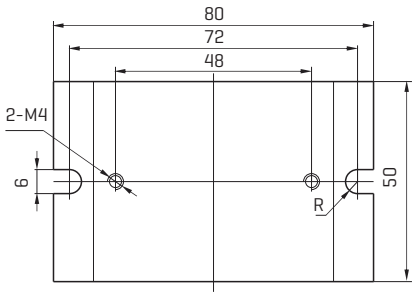
Heatsink for Solid State Relays

Heatsink for Solid State Relays

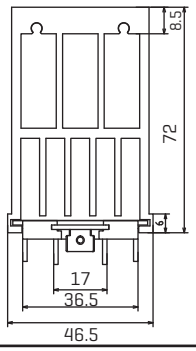
VSR-1

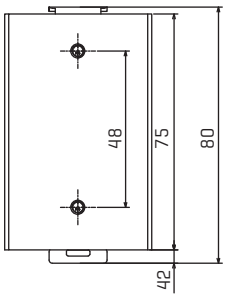


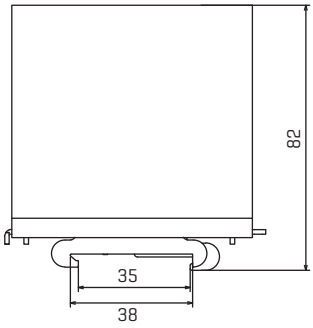




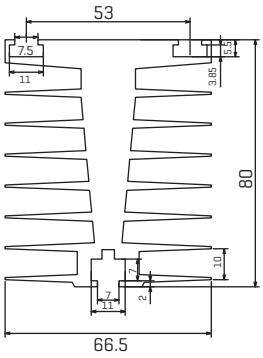
VSR-2

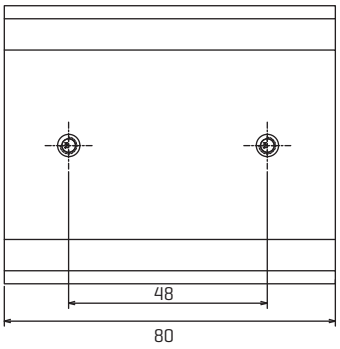






VSR-3





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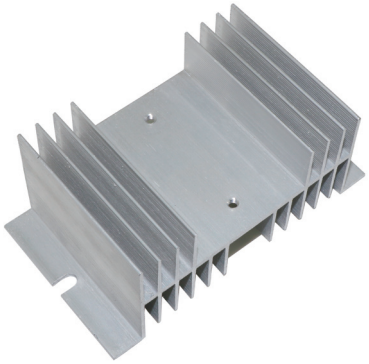

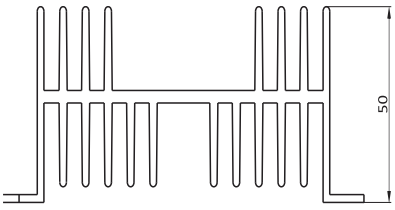

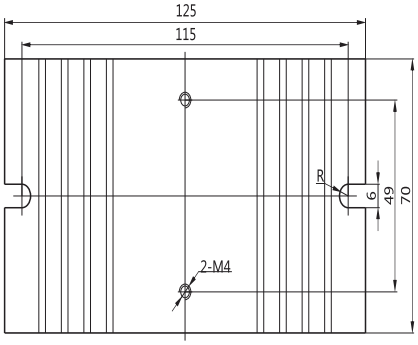

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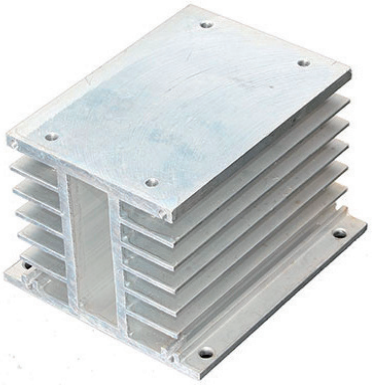
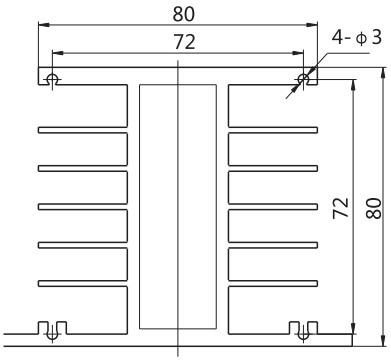
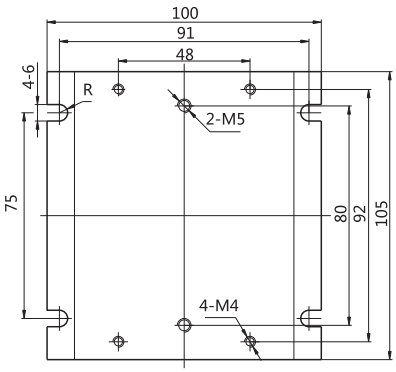
Heatsink for Solid State Relays

VTR-1







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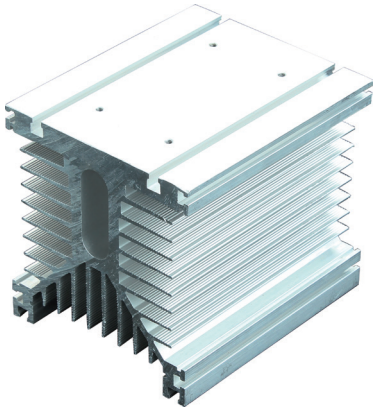

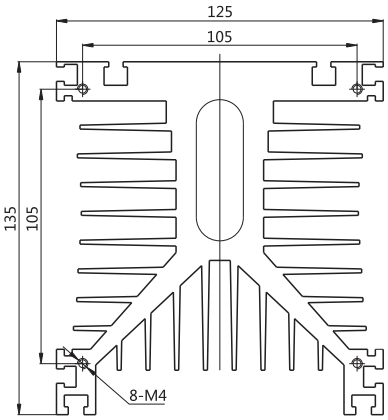

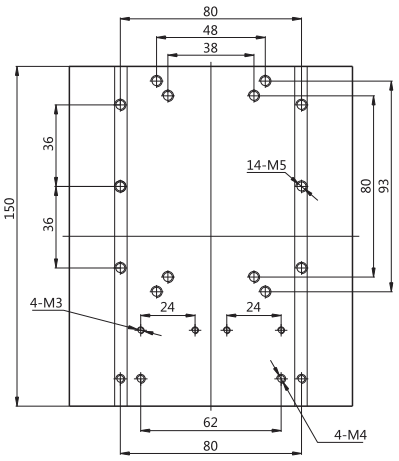

VTR+FAN

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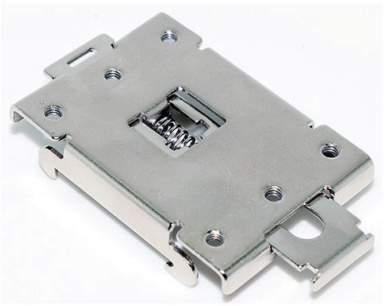
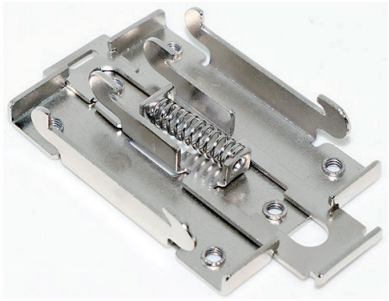
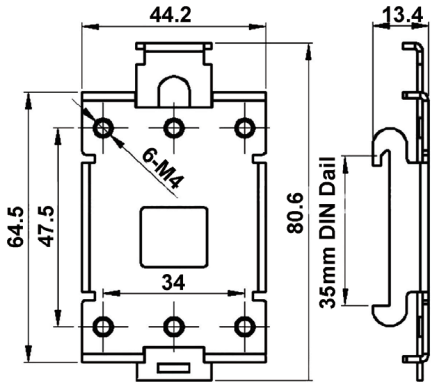
Heatsink for Solid State Relays

TS35P fastening clamps (Din Rail adaptor)







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