



### Ordering Key

S S R 200 48 Z D1  
 1 2 3 4 5

- 1: Semiconductor type;
- 2: Rated working current (A);
- 3: Rated working voltage (V) (24:240 V,44:440V,48:480V);
- 4: Control method Z - Zero, R - Random;
- 5: Control voltage D: 3-8V, D1 - 4-16VDC, D3 - 3-32VDC, A2 - 90-250VAC.

### SSR 10 to 40 Amps AC SSR

Series SSR Solid State Relays are AC relays, Triac Output. The triac version of the zero switching relay is an inexpensive solution for resistive loads. The zero switching relay switches on when the AC sine voltage just crosses zero, and switches off when the current crosses zero.

- Rated operational current 10 to 40 Amps.
- Rated operational voltage 280V or 480 V
- Input Voltage Range 4 to 16 Vdc, 3 to 32 Vdc or 90 to 250 Vac.
- 4000 Vrms Optical Isolation.(input/output)
- Both "Zero Voltage" & phase controllable "Random Switching" versions.
- LED-indication for control input.

### Type Selection

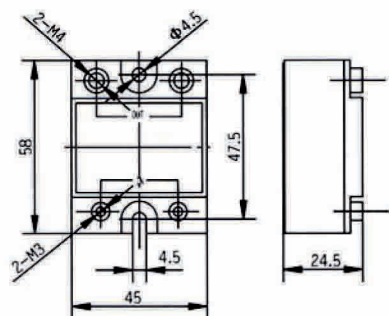
- Mounting type D: AC Single phase Solid State Relay
- Rated operational current 10: 10Amp, 15: 15Amp, 25: 25Amp, 40: 40Amp
- Rated operational voltage 28: 280VAC, 48: 480VAC.
- Switched mode Z: Zero Voltage,R: Random Switching.
- Input Control voltage D1: DC 4to16V, D3: DC 3to32V, A2: 90to250V.

### Selection guide

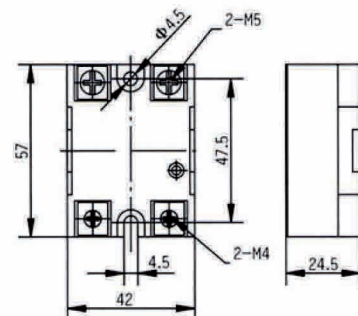
| Voltage     | Control voltage | Rated operational current |             |             |
|-------------|-----------------|---------------------------|-------------|-------------|
|             |                 | 10 Amp                    | 25 Amp      | 40 Amp      |
| 280 VAC "Z" | 4 to 16 Vdc     | SSR-1028ZD1               | SSR-2528ZD1 | SSR-4028ZD1 |
| 280 VAC "R" | 4 to 16 Vdc     | SSR-1028RD1               | SSR-2528RD1 | SSR-4028RD1 |
| 280 VAC "Z" | 3 to 32 Vdc     | SSR-1028ZD1               | SSR-2528ZD1 | SSR-4028ZD1 |
| 280 VAC "R" | 3 to 32 Vdc     | SSR-1028RD3               | SSR-2528RD3 | SSR-4028RD3 |
| 280 VAC "Z" | 90 to 250Vac    | SSR-1028ZD2               | SSR-2528ZD2 | SSR-4028ZD2 |
| 280 VAC "R" | 90 to 250Vac    | SSR-1028RA2               | SSR-2528RA2 | SSR-4028RA2 |
| 480 VAC "Z" | 4 to 16 Vdc     | SSR-1048ZD1               | SSR-2548ZD1 | SSR-4048ZD1 |
| 480 VAC "R" | 4 to 16 Vdc     | SSR-1048RD1               | SSR-2548RD1 | SSR-4048RD1 |
| 480 VAC "Z" | 3 to 32 Vdc     | SSR-1048ZD3               | SSR-2548ZD3 | SSR-4048ZD3 |
| 480 VAC "R" | 3 to 32 Vdc     | SSR-1048RD3               | SSR-2548RD3 | SSR-4048RD3 |
| 480 VAC "Z" | 90 to 250Vac    | SSR-1048ZA2               | SSR-2548ZA2 | SSR-4048ZA2 |
| 480 VAC "R" | 90 to 250Vac    | SSR-1048RA2               | SSR-2548RA2 | SSR-4048RA2 |

### Dimension

SSR 10 to 40 Case A



SSR 10 to 40 Case B





# Semiconductor Device

## Solid state relays

1

### Specifications

| PARAMETER-LIST           | Units              | Specification Limits |                |  |
|--------------------------|--------------------|----------------------|----------------|--|
| <b>Input Parameter ①</b> | <b>D1</b>          | <b>D3</b>            | <b>A2</b>      |  |
| Control Voltage Range    | 4 to 16Vdc         | 3 to 32Vdc           | 90 to 250Vac   |  |
| Input Current (Max.)     | 7/20 mAdc @=5V/12V | 13/16 mAdc @=5V/12   | 30 MAac @=220V |  |
| Must Turn On Voltage     | 4Vdc               | 3 Vdc                | 90Vac          |  |
| Must Turn Off Voltage    | 1Vdc               | 1 Vdc                | 10Vac          |  |

| Output Parameter ②               | Units  | Specification Limits |            |            |            |
|----------------------------------|--------|----------------------|------------|------------|------------|
| Model No. <b>GD</b>              |        | 10                   | 15         | 25         | 40         |
| Load Current Range               | Arms   | 0.05 to 10           | 0.05 to 15 | 0.05 to 25 | 0.05 to 40 |
| Surge Current, 20 mSec (Max.)    | Arms   | 85                   | 115        | 230        | 400        |
| Load Voltage Range (240V)        | Vrms   | 24 to 280            |            |            |            |
| TRIAC Over voltage(240V)         | Vpk    | ≥600                 |            |            |            |
| Load Voltage Range (440V)        | Vrms   | 44 to 440            |            |            |            |
| TRIAC Over voltage(440V)         | Vpk    | ≥800                 |            |            |            |
| Thermal Resistance, (Rthjc)      | °C/w   | 2.5                  | 2.5        | 1.3        | 1.1        |
| Frequency Range                  | Hz     | 47 to 63             |            |            |            |
| Off State dv/dt (Min)            | V/μsec | 200                  |            |            |            |
| Off State Leakage Current (Max.) | mArms  | ≤8                   |            |            |            |
| On State Voltage Drop (Max.)     | Vrms   | 1.6                  |            |            |            |
| Turn On Time (Max.) "Z"          | Cycle  | 1/2                  |            |            |            |
| Turn On Time (Max.) "R"          | mSec   | 1                    |            |            |            |
| Turn Off Time (Max.)             | Cycle  | 1/2                  |            |            |            |
| Turn Off Time(Max.)"A2"          | mSec   | 40                   |            |            |            |

### Coupling Specifications

|                                |      |      |
|--------------------------------|------|------|
| Dielectric (Input/Output)      | Vrms | 2500 |
| Dielectric (Input-Output/Base) | Vrms | 2500 |
| Capacitance                    | pf   | 10   |

### General Specifications

Ambient temperature range: operating or Storage -30°C to +80°C

Weight( typical.): **Case A** Aluminum Base plate: 99g; Copper Base plate: 145g

**Case B** Aluminum Base plate: 81g; Copper Base plate: 120g

Base plate: Aluminum or Copper, nickel-plated

Case Color: Black

|                        |          |          |          |
|------------------------|----------|----------|----------|
| Reverse Voltage (Max.) | 32 Vdc   | 32 Vdc   | /        |
| LED Display            | Optional | Optional | Optional |



### Ordering Key

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- 4: Control method Z - Zero, R - Random;
- 5: Control voltage D: 3-8V, D1 - 4-16VDC, D3 - 3-32VDC, A2 - 90-250VAC.

### SSR 40 to 120 Amps AC SSR

Series SSR are power line relays allowing 10 to 120 Amps. switching power, with Voltage ratings from 280 to 480 Volts A.C. SSR series is Dual SCR Power Hybrid technology provides highly efficient thermal management for greatly increased cyclic life.

- High performance/low cost circuit design.
- Logic compatible current regulated input.
- 2500 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: 4~16 Vdc ,3 to 32 Vdc or 90~280Vac.
- Control voltage range: 4~16 Vdc ,3 to 32 Vdc or 90~280Vac.trol input.

### Type Selection

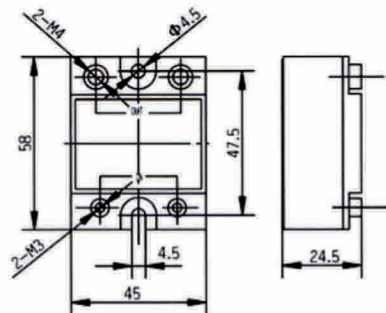
- Mounting type
  - Rated operational current
  - Rated operational voltage
  - Switched mode
  - Input Control voltage
  - Case type
- D: AC Single phase Solid State Relay  
 40: 40Amp, 60: 60Amp, 80: 80Amp, 100: 100Amp, 120: 120Amp  
 28: 280VAC, 48: 480VAC.  
 Z: Zero Voltage,R: Random Switching.  
 D1: DC 4to16V, D3: DC 3to32V, A2: 90to250V.  
 Blank: Case A, 1: Case B, with LED.

### Selection guide

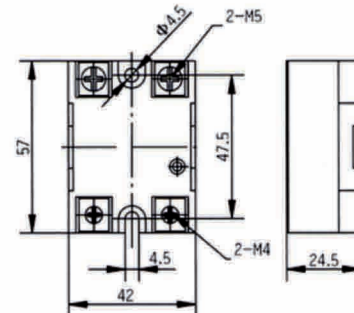
| Voltage                               | Control voltage | Rated operational current |             |             |              |              |
|---------------------------------------|-----------------|---------------------------|-------------|-------------|--------------|--------------|
|                                       |                 | 40 Amp                    | 60 Amp      | 80 Amp      | 100 Amp      | 120 Amp      |
| 280 V <sub>AC</sub><br>"Zero Voltage" | 4 to 16 Vdc     | SSR-4028ZD1               | SSR-6028ZD1 | SSR-8028ZD1 | SSR-10028ZD1 | SSR-12028ZD1 |
|                                       | 3 to 32 Vdc     | SSR-4028ZD3               | SSR-6028ZD3 | SSR-8028ZD3 | SSR-10028ZD3 | SSR-12028ZD3 |
|                                       | 90 to 250Vac    | SSR-4028ZA2               | SSR-6028ZA2 | SSR-8028ZA2 | SSR-10028ZA2 | SSR-12028ZA2 |
| 480 V <sub>AC</sub><br>"Zero Voltage" | 4 to 16 Vdc     | SSR-4028ZD1               | SSR-6028ZD1 | SSR-8028ZD1 | SSR-10028ZD1 | SSR-12028ZD1 |
|                                       | 3 to 32 Vdc     | SSR-4028ZD3               | SSR-6028ZD3 | SSR-8028ZD3 | SSR-10028ZD3 | SSR-12028ZD3 |
|                                       | 90 to 250Vac    | SSR-4028ZA2               | SSR-6028ZA2 | SSR-8028ZA2 | SSR-10028ZA2 | SSR-12028ZA2 |

### Dimension

SSR 40 to 120 Case A



SSR 40 to 120 Case B



### Specifications

#### Electrical Specification

| Input Parameter ①      | D1                 | D3                  | A2             |
|------------------------|--------------------|---------------------|----------------|
| Control Voltage Range  | 4 to 16Vdc         | 3 to 32Vdc          | 90 to 250Vac   |
| Input Current (Max.)   | 7/20 mAdc @=5V/12V | 13/16 mAdc @=5V/24V | 29 mAac @=220V |
| Must Turn On Voltage   | 4Vdc               | 3Vdc                | 90Vac          |
| Must Turn Off Voltage  | 1Vdc               | 1Vdc                | 10Vdc          |
| Reverse Voltage (Max.) | 32Vdc              | 32Vdc               | /              |
| Display LED            | Yes                | Yes                 | Yes            |

| Output Parameter                 | Units  | Specification Limits |            |
|----------------------------------|--------|----------------------|------------|
| Model No. <b>SSR</b>             |        | 40A                  | 60A        |
| Load Current Range               | Arms   | 0.05 to 40           | 0.05 to 60 |
| Surge Current, 20 mSec (Max.)    | Arms   | 400                  | 600        |
| Load Voltage Range (280V)        | Vrms   | 24 to 280            |            |
| SCR interdiction voltage (280V)  | Vpk    | ≥800                 |            |
| Load Voltage Range (480V)        | Vrms   | 44 to 480            |            |
| SCR interdiction voltage (480V)  | Vpk    | ≥1200                |            |
| Frequency Range                  | Hz     | 47 to 63             |            |
| Min. Off-state dv/dt             | V/μsec | 200                  |            |
| Off State Leakage Current (Max.) | mArms  | ≤8                   |            |
| On-State Voltage Drop (Max.)     | Vrms   | 1.6                  |            |
| Thermal Resistance, (Rthjc)      | °C/W   | 1.3                  | 0.65       |
| Turn On Time (Max.) "Z"          | Cycle  | 1/2                  |            |
| Turn On Time (Max.) "R"          | mSec   | 1                    |            |
| Turn Off Time (Max.)             | Cycle  | 1/2                  |            |

| Model No. <b>SSR</b>             |        | 80A        | 100A        | 120A        |
|----------------------------------|--------|------------|-------------|-------------|
| Load Current Range               | Arms   | 0.05 to 80 | 0.05 to 100 | 0.05 to 120 |
| Surge Current, 20 mSec (Max.)    | Arms   | 1000       | 1200        | 1500        |
| Thermal Resistance (Rthjc)       | °C/W   | 0.5        | 0.3         | 0.3         |
| Load Voltage Range (280V)        | Vrms   | 24 to 280  |             |             |
| SCR interdiction voltage (280V)  | Vpk    | ≥800       |             |             |
| Load Voltage Range (480V)        | Vrms   | 44 to 480  |             |             |
| SCR interdiction voltage (480V)  | Vpk    | ≥1200      |             |             |
| Frequency Range                  | Hz     | 47 to 63   |             |             |
| Min. Off-state dv/dt             | V/μsec | 200        |             |             |
| Off State Leakage Current (Max.) | mArms  | ≤8         |             |             |
| On-State Voltage Drop (Max.)     | Vrms   | 1.6        |             |             |
| Turn On Time (Max.) "Z"          | Cycle  | 1/2        |             |             |
| Turn On Time (Max.) "R"          | mSec   | 1          |             |             |
| Turn Off Time (Max.)             | Cycle  | 1/2        |             |             |

#### General Specifications

|   |  |                |
|---|--|----------------|
| Dielectric (Input/Output)                     | Vrms   | 2500           |
| Dielectric (Input-Output/Base)                | Vrms   | 2500           |
| Capacitance(Max.)                             | pf   | 10             |
| Ambient Operating Temperature Range           |  | -30°C to +80°C |
| Ambient Storage Temperature Range             |  | -30°C to +80°C |
| Weight: ( typical)                            | Case A: Aluminum Base plate 99g, Copper Base plate 145g.<br>Case B: Aluminum Base plate 81g, Copper Base plate 120g. |                |
| Base plate: Aluminum or Copper, nickel-plated |  |                |
| Case Color: Black                             |  |                |

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