

Advantages of the Class 6 Solid State Relay

The Complete System Solution!



Optional Heat Sink
(SSR-HS-1)
Section 3 p.20



Optional Thermal Pad
(SSR-TP-1)
Section 3 p.21

We at Magnecraft strive to be your one-stop-shop for all of your solid state relay needs. The new line of 6 series solid-state relays give industrial relay users an energy-efficient current switching alternative. Depending on the application, these solid-state relays offer a number of advantages over electromechanical relays, including longer life cycles, less energy consumption and reduced maintenance costs. This is why great care and attention was given when developing the next generation of "Hockey Puck" style SSRs. These new SSRs will be finger-safe, fit a pre-cut heat transfer thermal pad (sold separately) and have the ability to be mounted onto a factory tested pre-drilled and tapped heat sink (sold separately).

Magnecraft's expertise in both SSR design and thermal management enables us to provide customers with a solution to their solid state relay requirements. This solution comes ready-to-use, virtually eliminating in-house assembly and complex heat sink calculations. Furthermore, each SSR, thermal pad (sold separately) and heat sink assembly (sold separately) utilizes the reliability and technology only available in our 6 series solid state relays. These features, coupled with Magnecraft's superior customer service and engineering support team, provide our customers with a level of convenience not easily found in the market today!



Evolut

Legacy

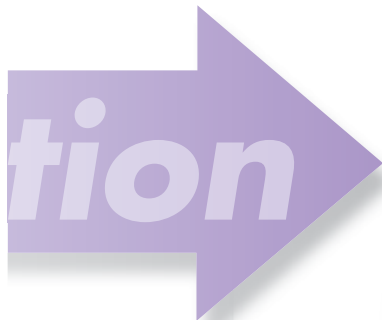
The Class 6 is also available with Blade Terminals.



The new finger-safe Class 6* "Hockey Puck" Style Solid State Relay (SSR) expands and enhances the current Magnecraft Solid State Relay product line.

This product features a finger-safe cover and LED Status Indicator. The optically coupled circuitry isolates the input from the output to give pure solid state performance. This product carries with it agency certifications from UL, CSA, and CE.

*Available for products up to 40 Amps (AC Load) and 12 Amps (DC Load).



Finger Safe
Protects Operators from live circuits.

Input Indication
Green LED.

Optically Coupled Circuit
NO Interference between separate circuits.

Solid State Circuitry
No Moving Parts Involved.

Internal Snubber
Protects from Transients.

Panel Mounting



New

Class 6 Solid State Relays/SPST-NO, SPST-NC, DPST-NO, 10-125 Amp Rating



NEW
NEW
NEW
NEW
NEW



General Specifications (@ 25° C) (UL 508)

| | | New Part # | 6210AXXSZ5-AC90 |
|---|----------------------|--------------------|-------------------------|
| | | Superceding Part # | 6210ASX-1 |
| Output Characteristics | | | |
| Number and type of Contacts | | | SPST-NO |
| Switching Device | | | SCR (2) |
| Current rating | | A | 10 |
| Switching voltage | | V | 24....280 AC |
| Switching Type | | | Zero Cross |
| Maximum Rate of Rise Off State Voltage (dv/dt) | | V/us | 200 |
| Incandescent Lamp Ampere Rating (rms) | | A | 8 |
| Motor Load Rating (rms) | | A | 4.5 |
| Min. Load current to maintain on | | mA | 50 |
| Non-Repetitive Surge Current (1 cycle) | | A | 83 |
| Max. RMS overload current (1 second) | | A | 24 |
| Max. Off state leakage current (rms) | | mA | 8 |
| Peak Blocking Voltage | | Vpk | 600 |
| Typical On State Voltage Drop (rms) | | V | 1.6 AC |
| Max. On State Voltage Drop (rms) | | V | 1.6 AC |
| Maximum I ² T for Fusing (A ²) | | | 72 |
| Input Characteristics | | | |
| Voltage Range | | V | 90...280 AC/80...140 DC |
| Must Release Voltage | | V | 10 AC |
| Nominal Input Impedance | | Ω | 13K |
| Typical Input Current @ 5VDC or 240VAC | | mA | 20 |
| Reverse Polarity Protection | | | N/A |
| Performance Characteristics | | | |
| Operating Time (response time) | On | ms | 8.3 |
| | Off | ms | 8.3 |
| Rated Insulation Voltage | Input to Output | V | 4000 AC |
| Dielectric strength | Terminals to Chassis | V | 4000 AC |
| Environment | | | |
| Product certifications | Standard version | | UR, CSA, CE |
| Ambient air temperature around the device | Storage | °C | -40...+100 |
| | Operation | °C | -40...+80 |
| Degree of protection | | | IP 20 |
| Miscellaneous Characteristics | | | |
| Thermal Resistance (Junction to Case) | | °C/W | 3.5 |
| Weight | | g (oz) | 100 (3.5) |
| LED | Input | | Green |
| Input Terminals | | | M3.5 or equivalent |
| Output Terminals | | | M4 or equivalent |
| Mounting Screw Torque | | Nm | 1.0 |

SECTION 4



**Thermal Pad
(SSR-TP-1)**
Section 3 p.21



**Blade Terminals
DPST-NO**



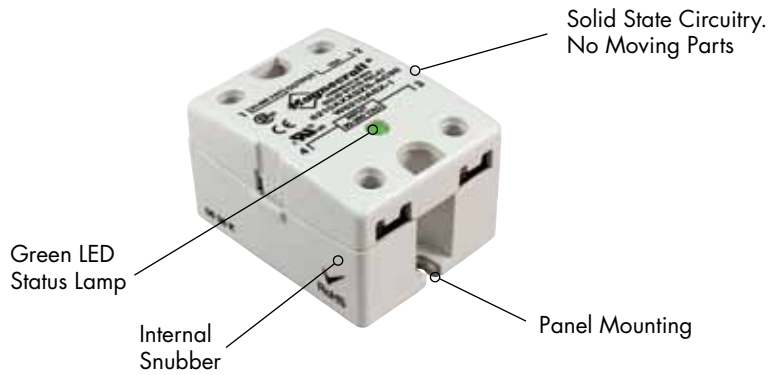
**Heat Sink
(SSR-HS-1)**
Section 3 p.20

| 6225AXXSZS-AC90 | 6250AXXSZS-AC90 | 6275AXXSZS-AC90 | 6210AXXSZS-DC3 | 6225AXXSZS-DC3 |
|-------------------------|-------------------------|-------------------------|--------------------|--------------------|
| 6225ASX-1 | 6250ASX-1 | 6275ASX-1 | 6210DSX-1 | 6225DSX-1 |
| SPST-NO | SPST-NO | SPST-NO | SPST-NO | SPST-NO |
| SCR (2) | SCR (2) | SCR (2) | SCR (2) | SCR (2) |
| 25 | 50 | 75 | 10 | 25 |
| 24...280 AC | 24...280 AC | 24...280 AC | 24...280 AC | 24...280 AC |
| Zero Cross | Zero Cross | Zero Cross | Zero Cross | Zero Cross |
| 500 | 500 | 500 | 200 | 500 |
| 16 | 39 | 39 | 8 | 16 |
| 8 | 14 | 25 | 4.5 | 8 |
| 120 | 250 | 250 | 50 | 120 |
| 250 | 520 | 1150 | 83 | 250 |
| 40 | 100 | 150 | 24 | 40 |
| 8 | 10 | 10 | 10 | 10 |
| 600 | 600 | 600 | 600 | 600 |
| 1.6 AC | 1.1 AC | 1.8 AC | 1.6 AC | 1.6 AC |
| 1.6 AC | 1.8 AC | 1.8 AC | 1.6 AC | 1.6 AC |
| 312 | 1250 | 5000 | 83 | 250 |
| 90...280 AC/80...140 DC | 90...280 AC/80...140 DC | 90...280 AC/80...140 DC | 3...32 | 3...32 |
| 10 AC | 10 AC | 10 AC | 1 DC | 1 DC |
| 13K | 13K | 13K | Current Regulator | Current Regulator |
| 20 | 20 | 20 | 16 | 16 |
| N/A | N/A | N/A | Yes | Yes |
| 8.3 | 8.3 | 8.3 | 8.3 | 8.3 |
| 8.3 | 8.3 | 8.3 | 8.3 | 8.3 |
| 4000 AC | 4000 AC | 4000 AC | 4000 AC | 4000 AC |
| 4000 AC | 4000 AC | 4000 AC | 4000 AC | 4000 AC |
| UR, CSA, CE | UR, CSA, CE | UR, CSA, CE | UR, CSA, CE | UR, CSA, CE |
| -40...+100 | -40...+100 | -40...+100 | -40...+100 | -40...+100 |
| -40...+80 | -40...+80 | -40...+80 | -40...+80 | -40...+80 |
| IP 20 | IP 20 | IP 20 | IP 20 | IP 20 |
| 1.02 | 0.63 | 0.6 | 3.50 | 1.02 |
| 100 (3.5) | 135 (4.8) | 200 (7.1) | 100 (3.5) | 100 (3.5) |
| Green | Green | Green | Green | Green |
| M3.5 or equivalent | M3.5 or equivalent | M3.5 or equivalent | M3.5 or equivalent | M3.5 or equivalent |
| M4 or equivalent | M4 or equivalent | M4 or equivalent | M4 or equivalent | M4 or equivalent |
| 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |

Class 6 Solid State Relays/SPST-NO, SPST-NC, DPST-NO, 10-125 Amp Rating *continued*



NEW
NEW
NEW
NEW
NEW



General Specifications (@ 25° C) (UL 508)

| | New Part # Superceding Part # | Units | 6250AXXSZS-DC3 6250DSX-1 | 6275AXXSZS-DC3 6275DSX-1 |
|---|----------------------------------|--------|-----------------------------|-----------------------------|
| Output Characteristics | | | | |
| Number and type of Contacts | | | SPST-NO | SPST-NO |
| Switching Device | | | SCR (2) | SCR (2) |
| Current rating | | A | 50 | 75 |
| Switching voltage | | V | 24...280 AC | 24...280 AC |
| Switching Type | | | Zero Cross | Zero Cross |
| Maximum Rate of Rise Off State Voltage (dv/dt) | | V/us | 500 | 500 |
| Incandescent Lamp Ampere Rating (rms) | | A | 39 | 39 |
| Motor Load Rating (rms) | | A | 14 | 25 |
| Min. Load current to maintain on | | mA | 250 | 250 |
| Non-Repetitive Surge Current (1 cycle) | | A | 520 | 1150 |
| Max. RMS overload current (1 second) | | A | 100 | 150 |
| Max. Off state leakage current (rms) | | mA | 8 | 10 |
| Peak Blocking Voltage | | Vpk | 600 | 600 |
| Typical On State Voltage Drop (rms) | | V | 1.8 | 1.8 |
| Max. On State Voltage Drop (rms) | | V | 1.8 | 1.8 |
| Maximum I ² T for Fusing (A ²) | | | 1250 | 5000 |
| Input Characteristics | | | | |
| Voltage Range | | V | 3...32 | 3...32 |
| Must Release Voltage | | V | 1 DC | 1 DC |
| Nominal Input Impedance | | Ω | Current Regulator | Current Regulator |
| Typical Input Current @ 5VDC or 240VAC | | mA | 16 | 16 |
| Reverse Polarity Protection | | | Yes | Yes |
| Performance Characteristics | | | | |
| Operating Time (response time) | On | ms | 8.3 | 8.3 |
| | Off | ms | 8.3 | 8.3 |
| Rated Insulation Voltage | Input to Output | V | 4000 AC | 4000 AC |
| Dielectric strength | Terminals to Chassis | V | 4000 AC | 4000 AC |
| Environment | | | | |
| Product certifications | Standard version | | UR, CSA, CE | UR, CSA, CE |
| Ambient air temperature around the device | Storage | °C | -40...+100 | -40...+100 |
| | Operation | °C | -40...+80 | -40...+80 |
| Degree of protection | | | IP 20 | IP 20 |
| Miscellaneous Characteristics | | | | |
| Thermal Resistance (Junction to Case) | | °C/W | 0.63 | 0.6 |
| Weight | | g (oz) | 135 (4.8) | 200 (7.1) |
| LED | Input | | Green | Green |
| Input Terminals | | | M3.5 or equivalent | M3.5 or equivalent |
| Output Terminals | | | M4 or equivalent | M4 or equivalent |
| Mouniting Screw Torque | | Nm | 1.0 | 1.0 |

SECTION 4



**Thermal Pad
(SSR-TP-1)**
Section 3 p.21



**Blade Terminals
DPST-NO**



**Heat Sink
(SSR-HS-1)**
Section 3 p.20

| 6210AXXTZS-DC3 | 6425BXXTZB-DC3* | 6312AXXMDS-DC3 | 6325AXXMDS-DC3 | 6340AXXMDS-DC3 |
|--------------------|-------------------|--------------------|--------------------|--------------------|
| 6210DTX-1 | 6425DTX-3* | 6212DDX-1 | 6225DDX-1 | 6240DDX-1 |
| SPST-NO | DPST-NO | SPST-NO | SPST-NO | SPST-NO |
| Triac | Alternistor | MOSFET | MOSFET | MOSFET |
| 10 | 25 | 12 | 25 | 40 |
| 24....280 AC | 48....480 AC | 3....200 DC | 3....200 DC | 3....200 DC |
| Zero Cross | Zero Cross | DC Switching | DC Switching | DC Switching |
| 250 | 250 | N/A | N/A | N/A |
| 16 | N/A | N/A | N/A | N/A |
| 8 | N/A | N/A | N/A | N/A |
| 120 | 80 | 20 | 20 | 20 |
| 250 | 250 | 27 | 50 | 90 |
| 80 | 80 | N/A | N/A | N/A |
| 10 | 10 | 8 | 8 | 8 |
| 300 | 300 | | | |
| 1.6 | 1.1 | 1.6 | 1.6 | 1.6 |
| 1.6 | 1.6 | 2.83 | 2.83 | 2.83 |
| 300 | 200 | N/A | N/A | N/A |
| <hr/> | | | | |
| 3....32 | 3.5....32 | 3....32 | 3....32 | 3....32 |
| 1 DC | 1 DC | 1 DC | 1 DC | 1 DC |
| 1.5 K | Current Regulator | 1K | 1K | 1K |
| 2 | 16 | 10 | 10 | 10 |
| Yes | Yes | No | No | No |
| <hr/> | | | | |
| 8.3 | 8.3 | 300 µs | 600 µs | 600 µs |
| 8.3 | 8.3 | 1 | 2.6 | 2.6 |
| 4000 AC | 4000 AC | 4000 AC | 4000 AC | 4000 AC |
| 4000 AC | 4000 AC | 2500 AC | 2500 AC | 2500 AC |
| <hr/> | | | | |
| UR, CSA, CE | UR, CSA, CE | UR, CSA, CE | UR, CSA, CE | UR, CSA, CE |
| -40...+100 | -40...+100 | -40...+100 | -40...+100 | -40...+100 |
| -40...+80 | -40...+80 | -40...+80 | -40...+80 | -40...+80 |
| IP 20 | IP 20 | IP 20 | IP 20 | IP 20 |
| <hr/> | | | | |
| 1.45 | 1.20 | 1.06 | 1.06 | 1.06 |
| 100 (3.5) | 100 (3.5) | 110 (3.9) | 135 (4.8) | 135 (4.8) |
| Green | Green | Green | Green | Green |
| M3.5 or equivalent | 0.187" QC | M3.5 or equivalent | M3.5 or equivalent | M3.5 or equivalent |
| M4 or equivalent | 0.250" QC | M4 or equivalent | M4 or equivalent | M4 or equivalent |
| 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |

*Blade Terminal

Class 6 Solid State Relays/SPST-NO, SPST-NC, DPST-NO, 10-125 Amp Rating *continued*



NEW
NEW
NEW
NEW
NEW

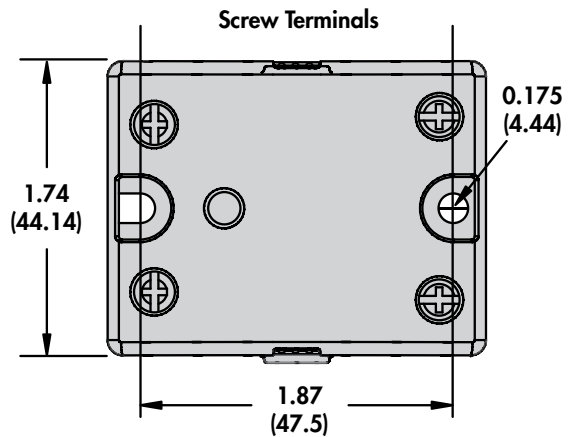
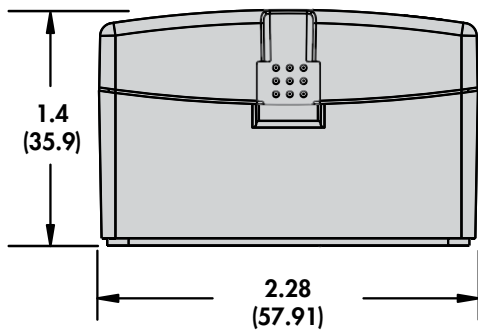
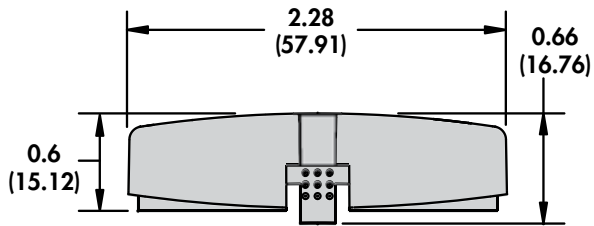


Screw Terminals
SPST-NO



Blade Terminals
DPST-NO

*Finger-safe safety cover is available for products up to 40 Amps.



SECTION 4

Heat Sink/Class 6 SSR Relay

Thermal management is a fundamental consideration in the design and use of Solid State Relays (SSRs) because of the contact dissipation (typically 1 W per amp). It is, therefore, vital that sufficient heat sinking is provided, or the life and switching reliability of the SSR will be compromised. The unique design of the Magnecraft aluminum heat sink maximizes heat dissipation. This heat sink is available for Magnecraft's panel mount SSRs and ensures reliable operation when properly selected for the specific application. For ease of installation, all mounting holes are pre-drilled and tapped.

Optional Thermal Pad (SSR-TP-1)

See Section 3 p.21



Optional Heat Sink (SSR-HS-1)

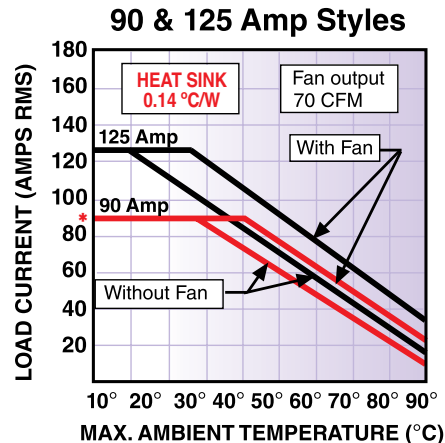
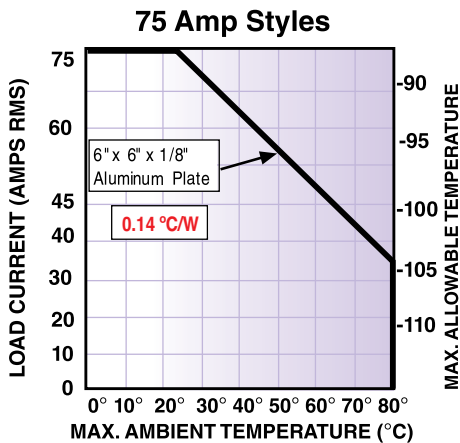
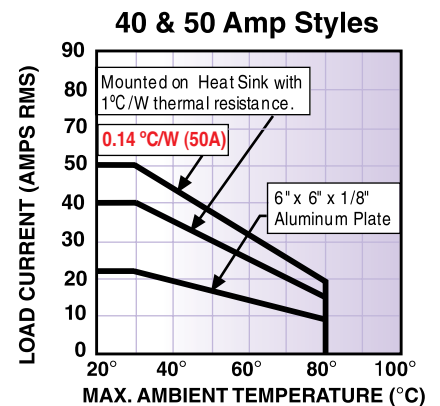
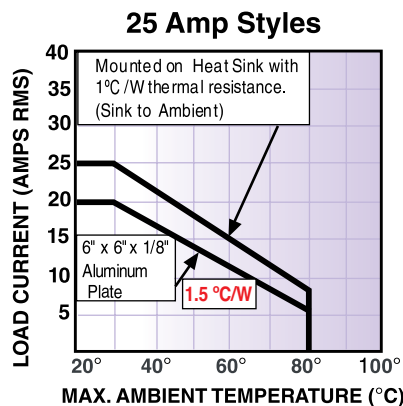
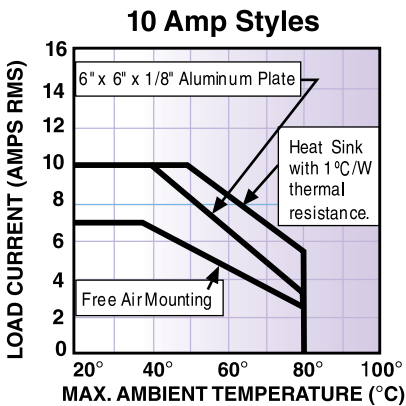
See Section 3 p.20



User Guide:

The Magnecraft SSR should be firmly mounted on a clean, smooth heat sink surface using thermally conductive or suitable thermal transfer pads.

- The Magnecraft heat sink matches heat dissipation requirements for Magnecraft 6 Series SSRs; up to 50 amps.
- The Magnecraft heat sink design achieves outstanding thermal efficiency.
- The Magnecraft heat sink is pre-drilled and tapped to suit the Magnecraft SSR 6 Series "hockey puck style" range.



* De-rating curve without fan.

Class 6 Solid State Relays/SPST-NO, SPST-NC, DPST-NO, 10-125 Amp Rating *continued*



NEW
NEW
NEW
NEW
NEW



Standard Part Numbers

BOLD-FACED PART NUMBERS ARE NORMALLY STOCKED

| AC Operated, DUAL MARKED | | Input Voltage Range | Output Voltage Range | Contact Configuration | Switching Type | Rated Current Load (Amps) |
|---------------------------------|--------------------|---------------------|----------------------|-----------------------|----------------|---------------------------|
| New Part # | Supercedes | | SCR Output | | | |
| 6210AXXSZS-AC90 | W6210ASX-1 | 90...280 VAC | 24...280 VAC | SPST-NO | Zero Cross | 10 |
| 6225AXXSZS-AC90 | W6225ASX-1 | 90...280 VAC | 24...280 VAC | SPST-NO | Zero Cross | 25 |
| 6240AXXSZS-AC90 | W6240ASX-1 | 90...280 VAC | 24...280 VAC | SPST-NO | Zero Cross | 40 |
| 6250AXXSZS-AC90** | W6250ASX-1 | 90...280 VAC | 24...280 VAC | SPST-NO | Zero Cross | 50 |
| 6275AXXSZS-AC90** | W6275ASX-1 | 90...280 VAC | 24...280 VAC | SPST-NO | Zero Cross | 75 |
| 6410AXXSZS-AC90 | W6410ASX-1 | 90...280 VAC | 48...480 VAC | SPST-NO | Zero Cross | 10 |
| 6425AXXSZS-AC90 | W6425ASX-1 | 90...280 VAC | 48...480 VAC | SPST-NO | Zero Cross | 25 |
| 6440AXXSZS-AC90 | W6440ASX-1 | 90...280 VAC | 48...480 VAC | SPST-NO | Zero Cross | 40 |
| 6450AXXSZS-AC90** | W6450ASX-1 | 90...280 VAC | 48...480 VAC | SPST-NO | Zero Cross | 50 |
| 6475AXXSZS-AC90** | W6475ASX-1 | 90...280 VAC | 48...480 VAC | SPST-NO | Zero Cross | 75 |
| 6690AXXSZS-AC90** | W6690ASX-1 | 90...280 VAC | 48...600 VAC | SPST-NO | Zero Cross | 90 |
| 66125AXXSZS-AC90** | W66125ASX-1 | 90...280 VAC | 48...600 VAC | SPST-NO | Zero Cross | 125 |
| DC Operated, DUAL MARKED | | | | | | |
| New Part # | Supercedes | | | | | |
| 6210AXXSZS-DC3 | W6210DSX-1 | 3...32 VDC | 24...280 VAC | SPST-NO | Zero Cross | 10 |
| 6225AXXSZS-DC3 | W6225DSX-1 | 3...32 VDC | 24...280 VAC | SPST-NO | Zero Cross | 25 |
| 6240AXXSZS-DC3 | W6240DSX-1 | 3...32 VDC | 24...280 VAC | SPST-NO | Zero Cross | 40 |
| 6250AXXSZS-DC3** | W6250DSX-1 | 3...32 VDC | 24...280 VAC | SPST-NO | Zero Cross | 50 |
| 6275AXXSZS-DC3** | W6275DSX-1 | 3...32 VDC | 24...280 VAC | SPST-NO | Zero Cross | 75 |
| 6410AXXSZS-DC3 | W6410DSX-1 | 3...32 VDC | 48...480 VAC | SPST-NO | Zero Cross | 10 |
| 6425AXXSZS-DC3 | W6425DSX-1 | 3...32 VDC | 48...480 VAC | SPST-NO | Zero Cross | 25 |
| 6440AXXSZS-DC3 | W6440DSX-1 | 3...32 VDC | 48...480 VAC | SPST-NO | Zero Cross | 40 |
| 6450AXXSZS-DC3** | W6450DSX-1 | 3...32 VDC | 48...480 VAC | SPST-NO | Zero Cross | 50 |
| 6475AXXSZS-DC3** | W6475DSX-1 | 3...32 VDC | 48...480 VAC | SPST-NO | Zero Cross | 75 |
| 6690AXXSZS-DC3** | W6690DSX-1 | 3...32 VDC | 48...600 VAC | SPST-NO | Zero Cross | 90 |
| 66125AXXSZS-DC3** | W66125DSX-1 | 3...32 VDC | 48...600 VAC | SPST-NO | Zero Cross | 125 |
| DC Operated, DUAL MARKED | | | | | | |
| New Part # | Supercedes | | TRIAC Output | | | |
| 6210AXXTZS-DC3 | W6210DTX-1 | 3...32 VDC | 24...280 VAC | SPST-NO | Zero Cross | 10 |
| 6225AXXTZS-DC3 | W6225DTX-1 | 3...32 VDC | 24...280 VAC | SPST-NO | Zero Cross | 25 |
| 6240AXXTZS-DC3 | W6240DTX-1 | 3...32 VDC | 24...280 VAC | SPST-NO | Zero Cross | 40 |
| 6210BXXTZB-DC3 | W6210DTX-3 | 3...32 VDC | 24...280 VAC | DPST-NO | Zero Cross | 10 |
| 6210XXATRS-DC3 | W6210DTX-4 | 3...32 VDC | 24...280 VAC | SPST-NC | Random | 10 |
| 6225XXATRS-DC3 | W6225DTX-4 | 3...32 VDC | 24...280 VAC | SPST-NC | Random | 25 |
| 6240XXATRS-DC3 | W6240DTX-4 | 3...32 VDC | 24...280 VAC | SPST-NC | Random | 40 |
| 6410AXXTZS-DC3 | W6410DTX-1 | 3...32 VDC | 48...480 VAC | SPST-NO | Zero Cross | 10 |
| 6425AXXTZS-DC3 | W6425DTX-1 | 3...32 VDC | 48...480 VAC | SPST-NO | Zero Cross | 25 |
| 6440AXXTZS-DC3 | W6440DTX-1 | 3...32 VDC | 48...480 VAC | SPST-NO | Zero Cross | 40 |
| DC Operated, DUAL MARKED | | | | | | |
| New Part # | Supercedes | | MOSFET Output | | | |
| 6312AXXMDS-DC3 | W6212DDX-1 | 3...32 VDC | 3...200 VDC | SPST-NO | Random | 12 |
| 6325AXXMDS-DC3** | W6225DDX-1 | 3...32 VDC | 3...200 VDC | SPST-NO | Random | 25 |
| 6340AXXMDS-DC3** | W6240DDX-1 | 3...32 VDC | 3...200 VDC | SPST-NO | Random | 40 |

**Only Legacy (superceding) part is currently available.

SECTION 4