

AD Series Class 6 Solid State Relays

The Class 6 solid state relays offer an energy-efficient alternative to standard electromechanical relays.

Switching types include DC switching for low-voltage DC loads and Zero Cross for resistive AC loads where the output energizes/de-energizes when control voltage is near zero.

Switching devices include: MOSFET for DC loads, Triac and SCR for AC loads.

Features

- Finger-safe "Hockey Puck" housing
- Solid-state circuitry
- High load ratings up to 75 amps
- Input indicating LED
- Optically coupled circuits
- Panel mount
- Thermal pad included with each relay



AD-SSR610-AC-280A shown

| Class 6 Solid State Relay Selection Guide | | | | | | |
|---|---------|-------------|---------------|---------------|---------------|----------------|
| Part Number | Price | Type | Input Voltage | Load Voltage | Configuration | Contact Rating |
| AD-SSR610-AC-280A | \$19.50 | N.O. SCR | 90 to 280 VAC | 24 to 280 VAC | SPST | 10A |
| AD-SSR610-DC-280A | \$17.50 | N.O. SCR | 3 to 32 VDC | | | |
| AD-SSR6T10-DC-280A | \$17.50 | N.O. TRIAC | 3 to 32 VDC | | | |
| AD-SSR625-AC-280A | \$25.00 | N.O. SCR | 90 to 280 VAC | | | |
| AD-SSR625-DC-280A | \$19.00 | N.O. SCR | 3 to 32 VDC | | | 25A |
| AD-SSR6T25-DC-280A | \$20.00 | N.O. TRIAC | 3 to 32 VDC | | | |
| AD-SSR640-AC-280A | \$27.50 | N.O. SCR | 90 to 280 VAC | | | |
| AD-SSR640-DC-280A | \$26.50 | N.O. SCR | 3 to 32 VDC | | | |
| AD-SSR6T40-DC-280A | \$24.50 | N.O. TRIAC | 3 to 32 VDC | | | 40A |
| AD-SSR650-AC-280A | \$32.50 | N.O. SCR | 90 to 280 VAC | | | |
| AD-SSR650-DC-280A | \$32.50 | N.O. SCR | 3 to 32 VDC | | | |
| AD-SSR675-AC-280A | \$44.50 | N.O. SCR | 90 to 280 VAC | | | |
| AD-SSR675-DC-280A | \$44.50 | N.O. SCR | 3 to 32 VDC | | | 75A |
| AD-SSR6M12-DC-200D | \$18.50 | N.O. MOSFET | 3.5 to 32 VDC | | | |
| AD-SSR6M25-DC-200D | \$43.50 | N.O. MOSFET | 3.5 to 32 VDC | | | |
| AD-SSR6M40-DC-200D | \$43.50 | N.O. MOSFET | 3.5 to 32 VDC | | | |
| AD-SSR610-AC-480A | \$16.00 | N.O. SCR | 90 to 280 VAC | 48 to 480 VAC | SPST | 10A |
| AD-SSR610-DC-480A | \$16.00 | N.O. SCR | 3 to 32 VDC | | | |
| AD-SSR6T10-DC-480A | \$16.00 | N.O. TRIAC | 3 to 32 VDC | | | |
| AD-SSR625-AC-480A | \$20.00 | N.O. SCR | 90 to 280 VAC | | | 25A |
| AD-SSR625-DC-480A | \$19.00 | N.O. SCR | 3 to 32 VDC | | | |
| AD-SSR6T25-DC-480A | \$20.50 | N.O. TRIAC | 3 to 32 VDC | | | |
| AD-SSR640-AC-480A | \$35.00 | N.O. SCR | 90 to 280 VAC | | | |
| AD-SSR640-DC-480A | \$32.50 | N.O. SCR | 3 to 32 VDC | | | 40A |
| AD-SSR6T40-DC-480A | \$24.50 | N.O. TRIAC | 3 to 32 VDC | | | |

Note: Thermal pad included with each relay.

AD Series Class 6 Solid State Relays

| Specifications | | | | | | |
|--|--|--------------------|-------------------|------------------------------|---------------------|--------------------|
| Part Number | AD-SSR610-AC-280A | AD-SSR610-DC-280A | AD-SSR610-DC-280A | AD-SSR625-AC-280A | AD-SSR625-DC-280A | AD-SSR6125-DC-280A |
| | Input Characteristics | | | | | |
| Control Voltage Range | 90 to 280 VAC | 3 to 32 VDC | | 90 to 280 VAC | 3 to 32 VDC | |
| Typical Input Current | 20mA @240VAC 11mA @120VAC | 16mA | 2mA | 20mA @240VAC 11mA @120VAC | 16mA | 2mA |
| Must Release Voltage | 10VAC | 1VDC | | 10VAC | 1VDC | |
| Reverse Polarity Protection | – | yes | yes | – | yes | yes |
| Switching Type | Zero Cross | | | | | |
| Power Indicator | Green LED status lamp | | | | | |
| | Output Characteristics | | | | | |
| Load Voltage Range | 24 to 280 VAC | | | | | |
| Rated Load Current | 10A | | | 25A | | |
| Maximum Off-State Voltage dv/dt | 200V/μs | 200V/μs | 250V/μs | 500V/μs | 500V/μs | 250V/μs |
| Minimum Load Current | 50mA | 50mA | 50mA | 120mA | 120mA | 120mA |
| Maximum Non-Repetitive Surge Current (1 Cycle, 16.6 ms), peak | 83A | 83A | 100A | 250A | | |
| Maximum Off State Leakage current (RMS) | 8mA | 10mA | 10mA | 8mA | 10mA | 10mA |
| Maximum On-State Voltage Drop (RMS) | 1.6 V rms | | | | | |
| Maximum I²T for Fusing (A²Sec) | 72 | 83 | 52 | 312 | 250 | 300 |
| Operating Frequency Range | 50 to 60 Hz | | | | | |
| Maximum Turn-On Time | 1/2 cycle | | | | | |
| Maximum Turn-Off Time | 1/2 cycle | | | | | |
| | General Characteristics | | | | | |
| Dielectric Strength (Input-to-Output Isolation) | 4000VAC (rms) | | | | | |
| Thermal Resistance (Junction to Base) | 3.5°C/W (6.3°F/W) | 2.1°C/W (3.78°F/W) | | 1.02°C/W (1.836°F/W) | 1.45°C/W (2.61°F/W) | |
| Minimum Insulation Resistance @ 500 VDC | 1E + 10Ω | | | | | |
| Operating Temperature Range | -40°C to 80°C (-40° to 176°F) derating applies | | | | | |
| Storage Temperature Range | -40°C to 125°C (-40°F to 257°F) | | | | | |
| Weight | 100g (3.53 oz) | | | | | |
| Terminal Screw Size | Input: M3.5 Output: M4 | | | | | |
| Terminal Torque | Input terminals: 10 lb-in Output terminals: 20 lb-in | | | | | |
| Terminal Wire Capacity | Inputs up to 12AWG / Outputs up to 10AWG. For anything larger, fork or ring terminals are recommended. | | | | | |
| Agency Approvals and Standards | UL file # E222847 CE, CSA, RoHS | | | | | |

AD Series Class 6 Solid State Relays

| Specifications | | | | | | | |
|--|--|-------------------|---------------------|----------------------------|-------------------|----------------------------|-------------------|
| Part Number | AD-SSR640-AC-208A | AD-SSR640-DC-280A | AD-SSR6740-DC-280A | AD-SSR650-AC-280A | AD-SSR650-DC-280A | AD-SSR675-AC-280A | AD-SSR675-DC-280A |
| Input Characteristics | | | | | | | |
| Control Voltage Range | 90 to 280 VAC | 3 to 32 VDC | | 90 to 280 VAC | 3 to 32 VDC | 90 to 280 VAC | 3 to 32 VDC |
| Typical Input Current | 20mA @240VAC 11mA @120VAC | 16mA | 2mA | 4mA @240VAC 2mA @120VAC | 10mA | 4mA @240VAC 2mA @120VAC | 10mA |
| Must Release Voltage | 10VAC | 1VDC | | 10VAC | 1VDC | 10VAC | 1VDC |
| Reverse Polarity Protection | - | yes | yes | - | yes | - | yes |
| Switching Type | Zero Cross | | | | | | |
| Power Indicator | Green LED status lamp | | | | | | |
| Output Characteristics | | | | | | | |
| Load Voltage Range | 24 to 280 VAC | | | | | | |
| Rated Load Current | 40A | | 50A | | 75A | | |
| Maximum Off-State Voltage dv/dt | 500V/μs | 500V/μs | 250V/μs | 500V/μs | 500V/μs | 500V/μs | 500V/μs |
| Minimum Load Current | 250mA | 250mA | 50mA | 40mA | 150mA | 40mA | 250mA |
| Maximum Non-Repetitive Surge Current (1 Cycle, 16.6 ms), peak | 625A | 625A | 250A | 625A | 625A | 1000A | 1000A |
| Maximum Off State Leakage current (RMS) | 10mA | 10mA | 10mA | 10mA | 1mA | 10mA | 1mA |
| Maximum On-State Voltage Drop (RMS) | 1.6 V rms | | | | | | |
| Maximum I²T for Fusing (A²Sec) | 1250 | 625 | 488 | 1620 | 1620 | 4150 | 4150 |
| Operating Frequency Range | 50 to 60 Hz | | | | | | |
| Maximum Turn-On Time | 1/2 cycle | | 10ms | | 1/2 cycle | 10ms | 1/2 cycle |
| Maximum Turn-Off Time | 1/2 cycle | | 40ms | | 1/2 cycle | 40ms | 1/2 cycle |
| General Characteristics | | | | | | | |
| Dielectric Strength (Input-to-Output Isolation) | 4000VAC (rms) | | | | | | |
| Thermal Resistance (Junction to Base) | 0.9°C/W (1.62°F/W) | | 0.95°C/W (1.71°F/W) | 0.63°C/W (1.134°F/W) | | 0.31°C/W (0.558°F) | |
| Minimum Insulation Resistance @ 500 VDC | 1 ^E + 10Ω | | | 1 ^E + 9Ω | | | |
| Operating Temperature Range | -40°C to 80°C (-40° to 176°F) derating applies | | | | | | |
| Storage Temperature Range | -40°C to 125°C (-40°F to 257°F) | | | | | | |
| Weight | 100g (3.53 oz) | | | | | | |
| Terminal Screw Size | Input: M3.5 Output: M4 | | | | | | |
| Terminal Torque | Input terminals: 10 lb-in Output terminals: 20 lb-in | | | | | | |
| Terminal Wire Capacity | Inputs up to 12AWG / Outputs up to 10AWG. For anything larger, fork or ring terminals are recommended. | | | | | | |
| Agency Approvals and Standards | UL file # E222847 CE, CSA, RoHS | | | | | | |

AD Series Class 6 Solid State Relays

| Specifications | | | | | | |
|--|--|----------------------|--------------------|---------------------------------|-------------------|--------------------|
| Part Number | AD-SSR6M12-DC-200D | AD-SSR6M25-DC-200D | AD-SSR6M40-DC-200D | AD-SSR6T0-AC-480A | AD-SSR6T0-DC-480A | AD-SSR6T10-DC-480A |
| Input Characteristics | | | | | | |
| Control Voltage Range | 3.5 to 32 VDC | | | 90 to 280 VAC | 3 to 32 VDC | |
| Typical Input Current | 10mA | | | 20mA @240VAC 11mA @120VAC | 16mA | |
| Must Release Voltage | 1VDC | | | 10VAC | 1VDC | |
| Reverse Polarity Protection | no | | | - | no | |
| Switching Type | DC | | | Zero Cross | | |
| Power Indicator | Green LED status lamp | | | | | |
| Output Characteristics | | | | | | |
| Load Voltage Range | 3 to 200 VDC | | | 48 to 480 VAC | | |
| Rated Load Current | 12A | 25A | 40A | 10A | | |
| Maximum Off-State Voltage dv/dt | - | | | 200V/ μ s | | |
| Minimum Load Current | 20mA | | | 50mA | 150mA | 50mA |
| Maximum Non-Repetitive Surge Current (1 Cycle, 16.6 ms), peak | 27A | 50A | 90A | 83A | 83A | 100A |
| Maximum Off State Leakage current (RMS) | 8mA | | | 10mA | 8mA | 8mA |
| Typical On-State Voltage Drop (RMS) | 2.8 VDC (@ 40A load) | | | 1.7 V rms | 1.6 V rms | 1.6 V rms |
| Maximum I²T for Fusing (A²Sec) | - | | | 72 | 72 | 35 |
| Operating Frequency Range | - | | | 50 to 60 Hz | | |
| Maximum Turn-On Time | 300 μ s | 600 μ s | 600 μ s | 1/2 cycle | 8.3 ms | 1/2 cycle |
| Maximum Turn-Off Time | 1ms | | | 1/2 cycle | 8.3 ms | 1/2 cycle |
| General Characteristics | | | | | | |
| Dielectric Strength (Input-to-Output Isolation) | 2500VAC (rms) | | | 4000VAC (rms) | | |
| Thermal Resistance (Junction to Base) | 1.03°C/W (1.854°F/W) | 1.06°C/W (1.908°F/W) | | 3°C/W (5.4°F/W) | | 2.9°C/W (5.22°F/W) |
| Minimum Insulation Resistance @ 500 VDC | 1E + 10 Ω | | | | | |
| Operating Temperature Range | -40°C to 80°C (-40°F to 176°F) (derating applies) | | | | | |
| Storage Temperature Range | -40°C to 100°C (-40°F to 212°F) | | | -40°C to 100°C (-40°F to 212°F) | | |
| Weight | 110g (3.88 oz) | 135g (4.76 oz) | 135g (4.76 oz) | 100g (3.53 oz) | | |
| Terminal Screw Size | Input: M3.5 Output: M4 | | | | | |
| Terminal Torque | Input terminals: 10 lb-in. Output terminals: 20 lb-in | | | | | |
| Terminal Wire Capacity | Inputs up to 12AWG / Outputs up to 10AWG. For anything larger, fork or ring terminals are recommended. | | | | | |
| Agency Approvals and Standards | UL file # E222847, CE, CSA, RoHS | | | | | |

AD Series Class 6 Solid State Relays

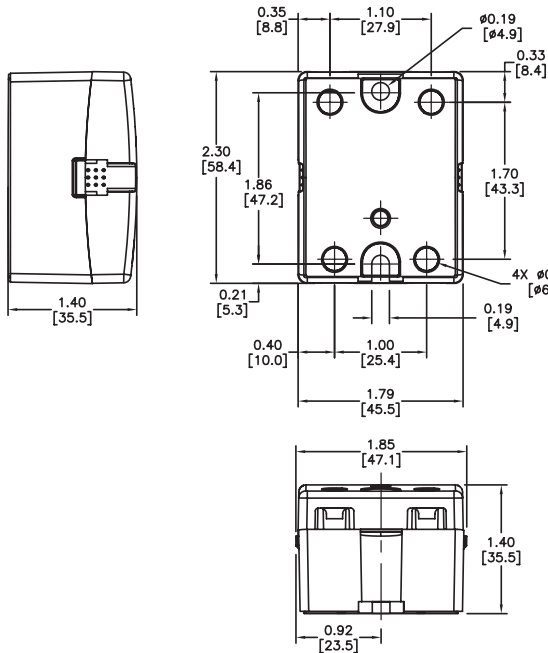
| Specifications | | | | | | |
|--|--|--------------------|--------------------|------------------------------|---------------------|--------------------|
| Part Number | AD-SSR625-AC-480A | AD-SSR625-DC-480A | AD-SSR6T25-DC-480A | AD-SSR640-AC-480A | AD-SSR640-DC-480A | AD-SSR6T40-DC-480A |
| | Input Characteristics | | | | | |
| Control Voltage Range | 90 to 280 VAC | 3 to 32 VDC | | 90 to 280 VAC | 3 to 32 VDC | |
| Typical Input Current | 20mA @240VAC 11mA @120VAC | 16mA | | 20mA @240VAC 11mA @120VAC | 16mA | |
| Must Release Voltage | 10VAC | 1VDC | | 10VAC | 1VDC | |
| Reverse Polarity Protection | - | no | | - | no | |
| Switching Type | Zero Cross | | | | | |
| Power Indicator | Green LED status lamp | | | | | |
| | Output Characteristics | | | | | |
| Load Voltage Range | 48 to 480 VAC | | | | | |
| Rated Load Current | 25A | | | 40A | | |
| Maximum Off-State Voltage dv/dt | 300V/ μ s | 500V/ μ s | 250V/ μ s | 500V/ μ s | 500V/ μ s | 250V/ μ s |
| Minimum Load Current | 120mA | 120mA | 20mA | 250mA | 250mA | 250mA |
| Maximum Non-Repetitive Surge Current (1 Cycle, 16.6 ms), peak | 250A | 250A | 250A | 625A | 625A | 300A |
| Maximum Off State Leakage current (RMS) | 10mA | 8mA | 8mA | 10mA | 8mA | 8mA |
| Typical On-State Voltage Drop (RMS) | 1.7 V rms | 1.6 V rms | 1.6 V rms | 1.7 V rms | 1.6 V rms | 1.6 V rms |
| Maximum I²T for Fusing (A²Sec) | 312 | 312 | 200 | 1250 | 1250 | 250 |
| Operating Frequency Range | 50/60 Hz | | | | | |
| Maximum Turn-On Time | 8.3 ms | 1/2 cycle | 1/2 cycle | 1/2 cycle | 1/2 cycle | 1/2 cycle |
| Maximum Turn-Off Time | 8.3 ms | 1/2 cycle | 1/2 cycle | 1/2 cycle | 1/2 cycle | 1/2 cycle |
| | General Characteristics | | | | | |
| Dielectric Strength (Input-to-Output Isolation) | 4000VAC (rms) | | | | | |
| Thermal Resistance (Junction to Base) | 1.02°C/W (1.836°F/W) | 1.2°C/W (2.16°F/W) | | 0.9°C/W (1.62°F/W) | 0.95°C/W (1.71°F/W) | |
| Minimum Insulation Resistance @ 500 VDC | 1 ^E + 10 Ω | | | | | |
| Operating Temperature Range | -40°C to 80°C (-40°F to 176°F) (derating applies) | | | | | |
| Storage Temperature Range | -40°C to 100°C (-40°F to 212°F) | | | | | |
| Weight | 100g (3.53 oz) | | | | | |
| Terminal Screw Size | Input: M3.5 Output: M4 | | | | | |
| Terminal Torque | Input terminals: 10 lb-in. Output terminals: 20 lb-in | | | | | |
| Terminal Wire Capacity | Inputs up to 12AWG / Outputs up to 10AWG. For anything larger, fork or ring terminals are recommended. | | | | | |
| Agency Approvals and Standards | UL file # E222847, CE, CSA, RoHS | | | | | |

AD Series Class 6 Solid State Relays Dimensions & Derating Charts

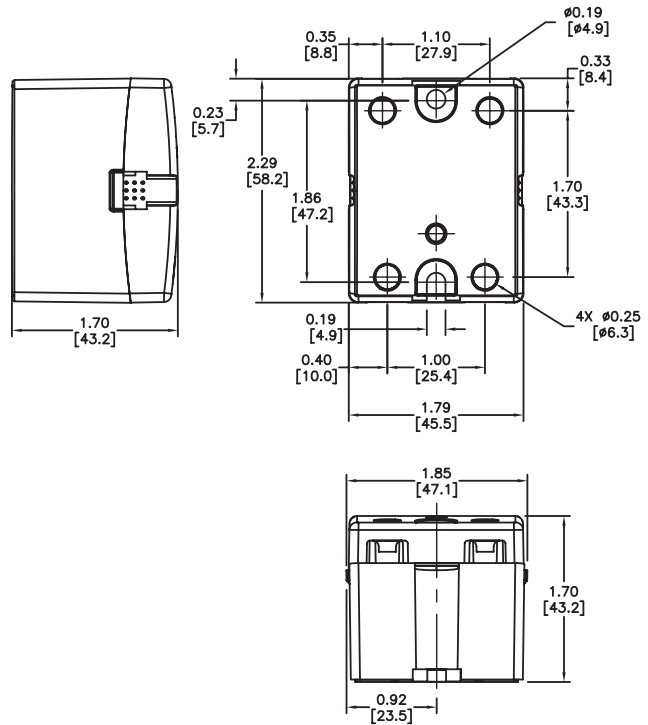
Dimensions

inches [mm]

AD-SSR6xx-xC-xxxA

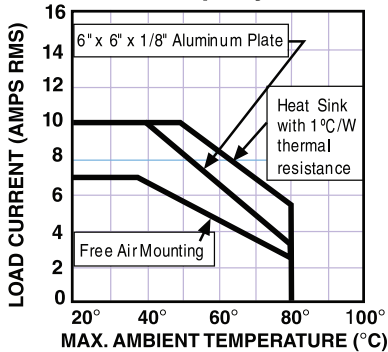


AD-SSR6Mxx-DC-200D

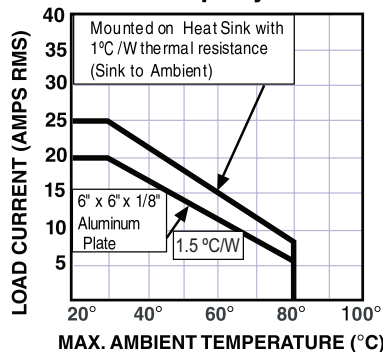


Derating Charts

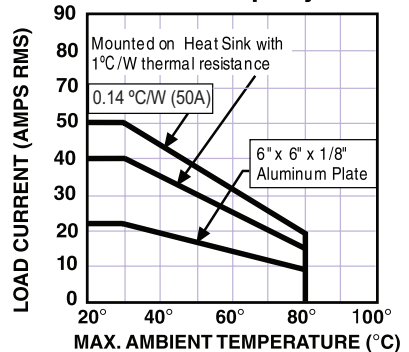
10 Amp Styles



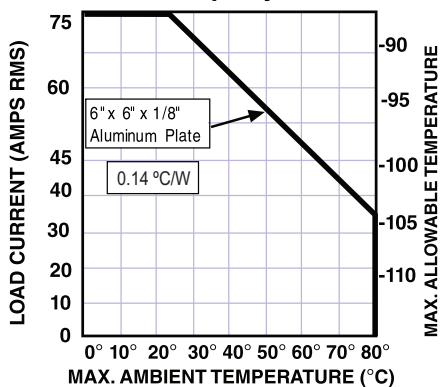
25 Amp Styles



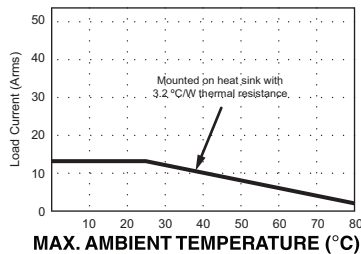
40 & 50 Amp Styles



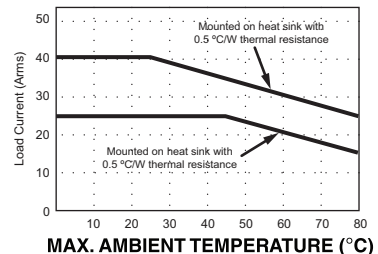
75 Amp Styles



12 A MOSFET



25/40 A MOSFET



Note: Charts are based on using a thermal transfer medium such as the included thermal pad

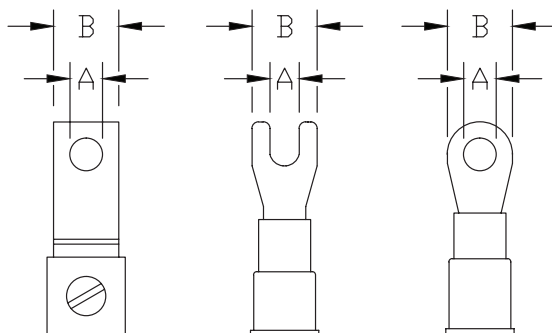
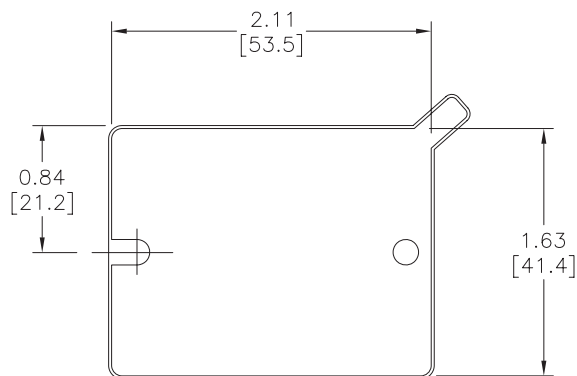
AD Series Class 6 Solid State Relays Accessory

| Accessory for SSR6 Solid State Relay | | |
|--------------------------------------|---------|--|
| Part Number | Price | Description |
| AD-SSR-THERM-PAD | \$18.50 | Thermal mounting pad for AD-SSR6 solid state relays ONLY. 10/pk. |



Dimensions

inches [mm]



| FORK/SPADE SIZES | | | |
|------------------|------------|------------|-------------|
| RELAY TERMINAL | A | | B |
| | MIN. | MAX. | MAX. |
| INPUT SIDE | 3.5 [0.14] | 5.0 [0.20] | 10.0 [0.39] |
| OUTPUT SIDE | 4.2 [0.16] | 6.4 [0.25] | 10.0 [0.39] |