

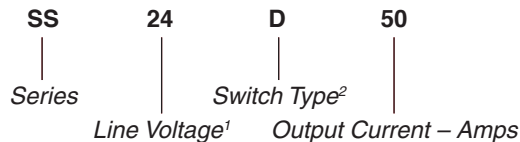
#### FEATURES/BENEFITS

- Zero switching AC output
- DC control input
- Fault detection: line or load open; short-circuit output
- Solid-state N.C. status output without power supply
- Control and status LED indicators
- Terminal block for control and status output connections



| Part Number | Description                      |
|-------------|----------------------------------|
| SS24D50     | 50A, 70–280 Vac with diagnostic  |
| SS24D75     | 75A, 70–280 Vac with diagnostic  |
| SS48D50     | 50A, 150–510 Vac with diagnostic |
| SS48D75     | 75A, 150–510 Vac with diagnostic |

#### Part Number Explanation



#### ELECTRICAL SPECIFICATIONS

(+25°C ambient temperature unless otherwise specified)

##### INPUT (CONTROL) SPECIFICATIONS

|               | Min | Max | Units |
|---------------|-----|-----|-------|
| Control Range |     |     |       |
| SS24          | 7   | 32  | V     |
| SS48          | 8   | 32  | V     |

##### Input Current Range

|      |   |    |    |
|------|---|----|----|
| SS24 | 4 | 30 | mA |
| SS48 | 4 | 28 | mA |

##### Must Turn-Off Voltage

|      |   |   |
|------|---|---|
| SS24 | 3 | V |
| SS48 | 4 | V |

##### Input Resistance (Typical)

|            |      |      |
|------------|------|------|
| All relays | 1000 | Ohms |
|------------|------|------|

##### Reverse Voltage Protection

|            |    |   |
|------------|----|---|
| All relays | 30 | V |
|------------|----|---|

#### MECHANICAL SPECIFICATION

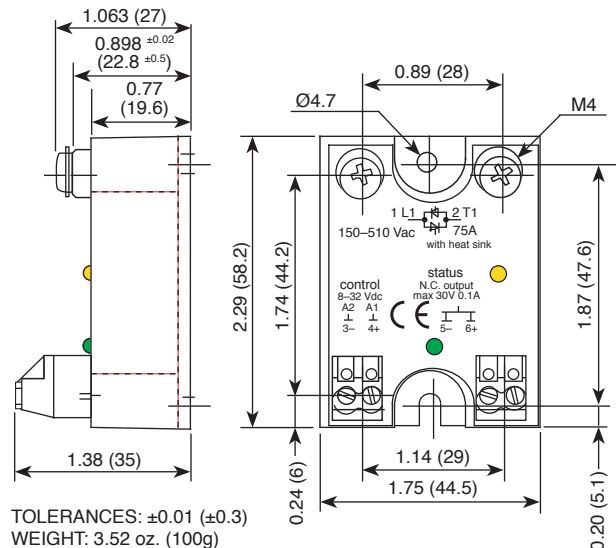
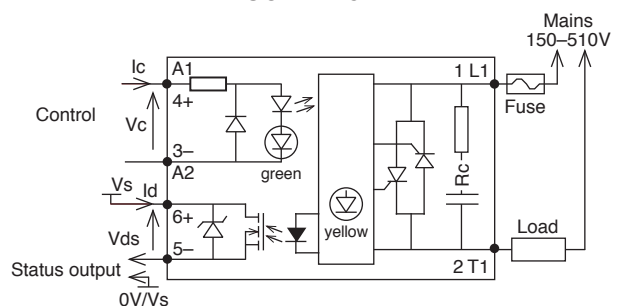


Figure 1

#### BLOCK DIAGRAM



Without faults, the status output is normally closed (NC)

Figure 2

#### STATUS OUTPUT SPECIFICATIONS

|                      | Min | Max | Units |
|----------------------|-----|-----|-------|
| Supply Voltage       | 1   | 32  | V     |
| Output Current       | 0   | 0.1 | A     |
| On Resistance        |     | 2   | Ohms  |
| Maximum Cable Length |     | 40  | m     |

**ELECTRICAL SPECIFICATIONS**

(+25°C ambient temperature unless otherwise specified)

**OUTPUT (LOAD) SPECIFICATIONS**

|                 | Min | Max | Units |
|-----------------|-----|-----|-------|
| Operating Range |     |     |       |
| SS24            | 70  | 280 | Vrms  |
| SS48            | 150 | 510 | Vrms  |

**Peak Voltage**

|      |      |       |
|------|------|-------|
| SS24 | 600  | Vpeak |
| SS48 | 1200 | Vpeak |

**Load Current Range**

|                    |    |    |      |
|--------------------|----|----|------|
| 50A output current | .1 | 50 | Arms |
| 75A output current | .1 | 75 | Arms |

**Maximum Surge Current Rating (Resistive)**

|                    |      |   |
|--------------------|------|---|
| 50A output current | 550  | A |
| 75A output current | 1000 | A |

**On-State Voltage Drop**

|                    |      |   |
|--------------------|------|---|
| 50A output current | 1.45 | V |
| 75A output current | 1.35 | V |

**Zero-Cross Window (Typical)**

|            |     |   |
|------------|-----|---|
| All relays | ±14 | V |
|------------|-----|---|

**Off-State Leakage Current (60 Hz)**

|            |   |    |
|------------|---|----|
| All relays | 5 | mA |
|------------|---|----|

**Turn-On Time (60 Hz)**

|            |     |    |
|------------|-----|----|
| All relays | 8.3 | ms |
|------------|-----|----|

**Turn-Off Time (60 Hz)**

|            |     |    |
|------------|-----|----|
| All relays | 8.3 | ms |
|------------|-----|----|

**Off-State dv/dt**

|            |     |      |
|------------|-----|------|
| All relays | 500 | V/μs |
|------------|-----|------|

**Maximum di/dt (Non-Repetitive)**

|            |    |      |
|------------|----|------|
| All relays | 50 | A/μs |
|------------|----|------|

**OUTPUT (LOAD) SPECIFICATIONS (Continued)**

|                                             | Min | Max  | Units |
|---------------------------------------------|-----|------|-------|
| I <sup>2</sup> t for Match Fusing (<8.3 ms) |     |      |       |
| 50A output current                          |     | 1500 | A²S   |
| 75A output current                          |     | 5000 | A²S   |

**Operating Frequency Range**

|            |    |    |    |
|------------|----|----|----|
| All relays | 47 | 63 | Hz |
|------------|----|----|----|

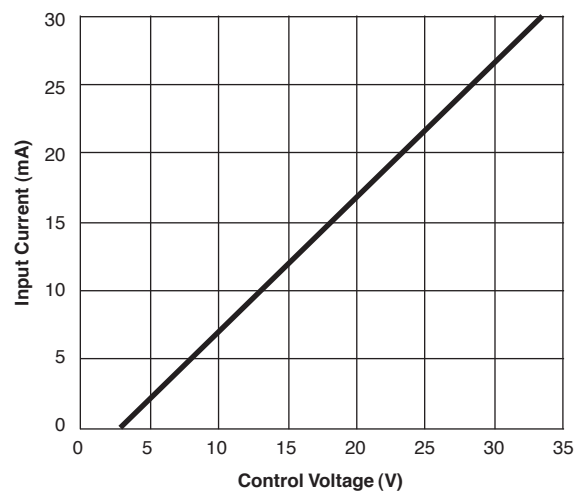
**CONTROL CHARACTERISTIC**


Figure 3

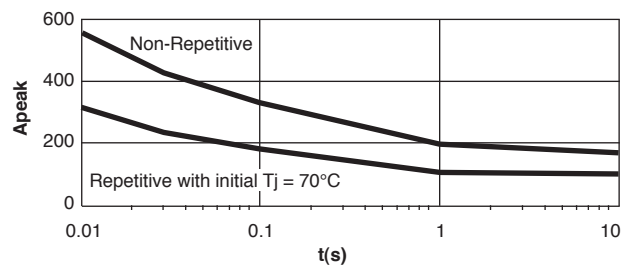
**SURGE CURRENT**


Figure 4a — 50A relays

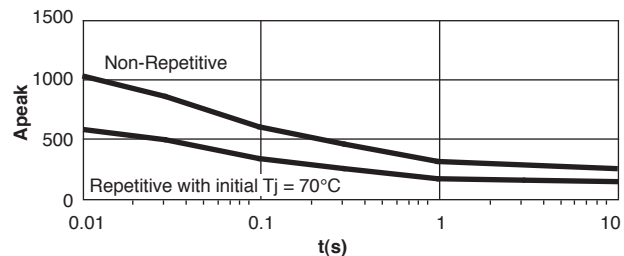


Figure 4b — 75A relays

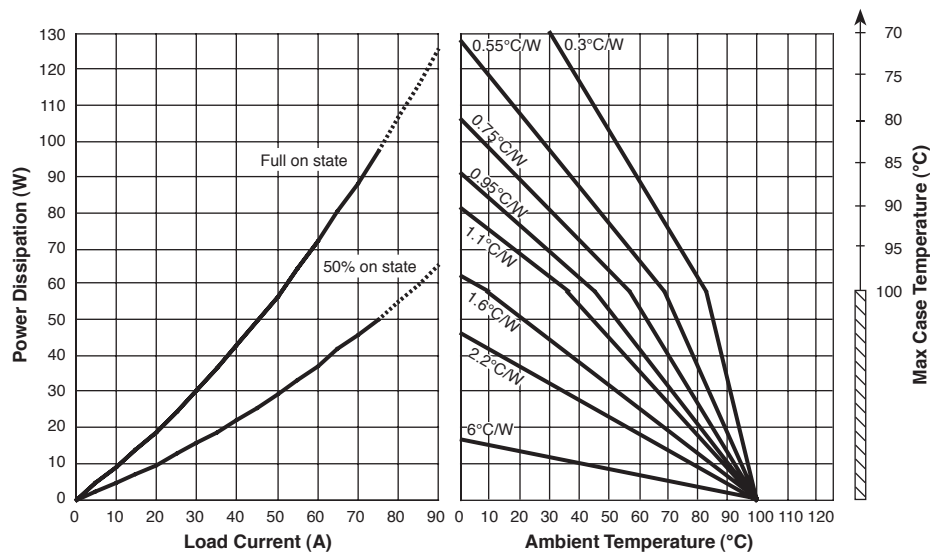
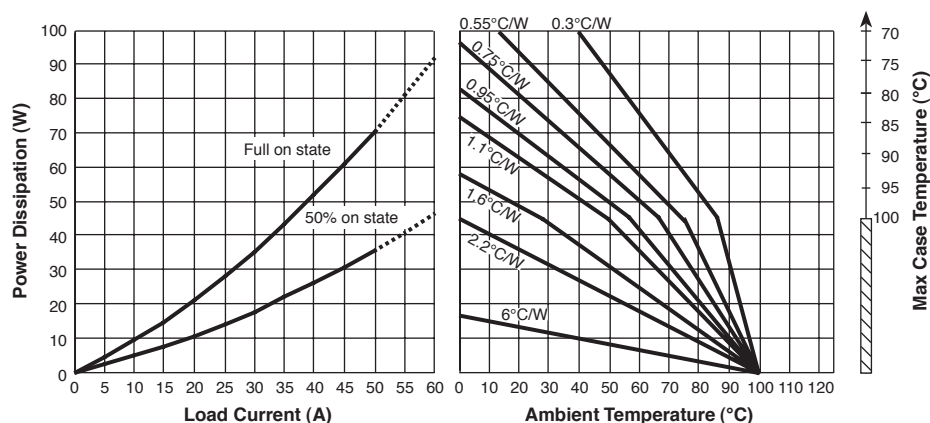
### GENERAL SPECIFICATIONS

(+25°C ambient temperature unless otherwise specified)

### ENVIRONMENTAL SPECIFICATIONS

|                                  | Min  | Max  | Units |
|----------------------------------|------|------|-------|
| Operating Temperature            | -40  | +90  | °C    |
| Storage Temperature              | -40  | +100 | °C    |
| Junction Case Thermal Resistance |      | 0.5  | °C/W  |
| Input-Output Isolation           | 3750 |      | Vrms  |
| Input, Output, Case Isolation    | 3300 |      | Vrms  |
| Status, Output, Input Isolation  | 2500 |      | Vrms  |
| Rated Impulse Voltage            | 4000 |      | V     |

### THERMAL CHARACTERISTICS



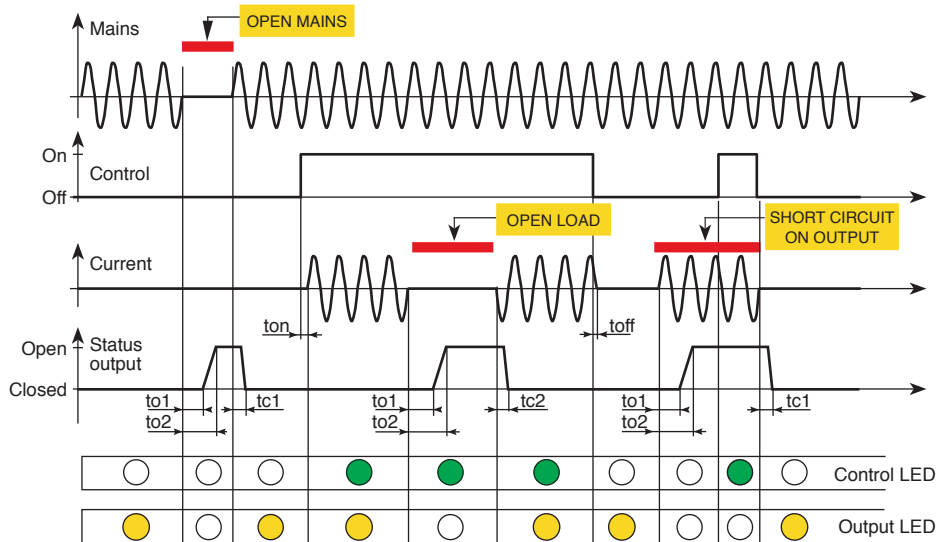
### DIAGNOSTIC DESCRIPTION

| Control | Control LED | Mains | Load | SSR           | Output LED | Output Status |
|---------|-------------|-------|------|---------------|------------|---------------|
| 0       | ○           | No    | X    | X             | ○          | Open          |
| 1       | ●           | No    | X    | X             | ○          | Open          |
| 0       | ○           | Yes   | OK   | OK            | ●          | Closed        |
| 1       | ●           | Yes   | OK   | OK            | ●          | Closed        |
| 0       | ○           | Yes   | Open | OK            | ○          | Open          |
| 0       | ○           | Yes   | OK   | Short circuit | ○          | Open          |
| 1       | ●           | Yes   | Open | OK            | ○          | Open          |
| 1       | ●           | Yes   | OK   | Short circuit | ○          | Open          |

- The yellow LED luminosity depends on:
  - Load voltage.
  - Control: ON or OFF.
  - Load type.
- The status outputs can be connected in series.
- NPN or PNP output is possible with status.
- Mains voltage lower than specifications (150 Vac). The SSR works correctly, but an alarm status can be given without control.

Figure 6

### DIAGNOSTIC OVERVIEW



- Output status is normally closed without failure on the relay and the load. The output LED is normally ON.
- In case of failure on the load (open) or on the SSR (short-circuit condition):
  - the status is open
  - the output LED is switched OFF

**Important:** If you use a long wiring cable between the SSR and the load (>25 meters), the diagnostic system might not be able to detect an open load.

Figure 7

### TIMING SPECIFICATIONS

(+25°C ambient temperature unless otherwise specified)

|                            | Min | Max | Units |
|----------------------------|-----|-----|-------|
| t01 – Open Delay (Typical) |     | 70  | ms    |
| t02 – Open Time (Typical)  |     | 120 | ms    |
| tc1 – Close Time           |     | 20  | ms    |
| tc2 – Close Time           |     | 20  | ms    |

#### NOTES

- For additional/custom options, contact factory.