



SSRD series

Dual AC Output Solid State Relay

File E29244

File E29244 UL Recognized for Canada

Features

- Two independent AC output solid state relays in one standard package.
- Inverse parallel SCR outputs.
- 25A rms & 40A rms versions available.
- 3 - 32 VDC input control.
- Zero voltage and random voltage turn-on versions.
- 2500V rms optical isolation.
- Quick connect style terminals.

Engineering Data

Form: 2 Form A (2 SPST-NO).

Duty: Continuous.

Isolation: 2500V rms minimum.

Isolation Resistance: 10^{10} ohms @ 500VDC Min.

Capacitance: 10 pF maximum (input to output).

Temperature Range:

Storage: -40°C to +120°C

Operating: -25°C to + 80°C

Case Material: Plastic, UL rated 94V-0.

Base Plate Material: Ceramic.

Case and Mounting: Refer to outline dimension.

Termination: Refer to outline dimension.

Approximate Weight: 3.5 oz. (98g).

Ordering Information

Sample Part Number ▶

SSRD -240 D 25

1. **Basic Series:** SSRD = Dual output SSR - 2 SPST - NO

2. **Line Voltage:** 240 = 24-240 VAC

3. **Input Type & Voltage:** D = 3-32 VDC on zero voltage turn-on types

4. **Maximum Switching Rating/Output:** 25 = .05-25A rms @ 25°C, mounted to heatsink
40 = .05-40A rms @ 25°C, mounted to heatsink

5. **Options:** Blank = Zero voltage turn-on (both outputs)
R = Random voltage turn-on (both outputs)

Stock Items – The following items are normally maintained in stock for immediate delivery.

SSRD-240D25

SSRD-240D40

Input Specifications

Parameter	Units	Zero V Turn-on Units	Random V Turn-on Units
Control Voltage Range V_{IN}	VDC	3-32	4-15
Must Operate Voltage $V_{IN(OP)}$ (Min.)	VDC	3	4
Must Release Voltage $V_{IN(REL)}$ (Min.)	VDC	1	1
Input Current (Max.) @ 5VDC	mA DC	15	15

Output Specifications (@ 25°C, unless otherwise specified)

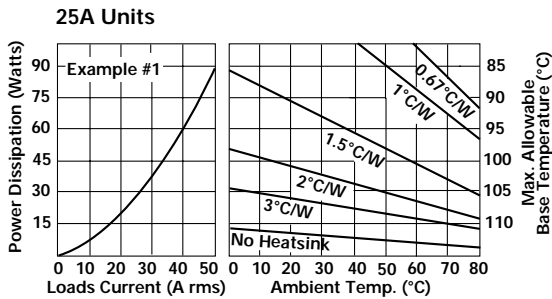
Parameter	Conditions	Units	25A Models	40A Models
Load Voltage Range V_L		V rms	24-240	
Repetitive Blocking Voltage (Min.)		V peak	±600	
Load Current Range I_L^*	Resistive	A rms	.05-25	.05-40
Single Cycle Surge Current (Min.)		A peak	300	500
Leakage Current (Off-State) (Max.)	$f = 60 \text{ Hz}$, $V_L = 240\text{V rms}$	mA rms	5	
On-State Voltage Drop (Max.)	$I_L = \text{Max.}$	V peak	1.7	
Static dv/dt (Off-State) (Min.)		V/μs	200	
Thermal Resistance, Junction to Case ($R_{\theta JC}$) (Max.)	Both Sections On	°C/W	0.30	0.25
Turn-On Time (Max.)	$f = 60 \text{ Hz}$.	ms	8.3 for Zero Voltage Turn-On Models 0.02 for Random Voltage Turn-On Models	
Turn-Off Time (Max.)	$f = 60 \text{ Hz}$.	ms	8.3	
I^2t Rating	$t = 8.3 \text{ ms}$	A ² Sec.	370	1,040
Load Power Factor Rating	$I_L = \text{Max.}$		0.5 - 1.0	

*See Derating Curves

Electrical Characteristics (Thermal Derating Curves)

How To Use These Curves

Knowing maximum load current and maximum ambient temperature, use derating curves to determine the minimum required heat sink and maximum allowable base plate temperature. On left hand power dissipation curve, locate the point corresponding to maximum load current. Extend a line to the right from that point to the intersection of vertical line on right hand chart corresponding to maximum ambient temperature. From heat sink curve, read directly or extrapolate required heat sink size. Extend the line farther to the right and read on the right hand scale the maximum allowable base plate temperature.



Example #1:

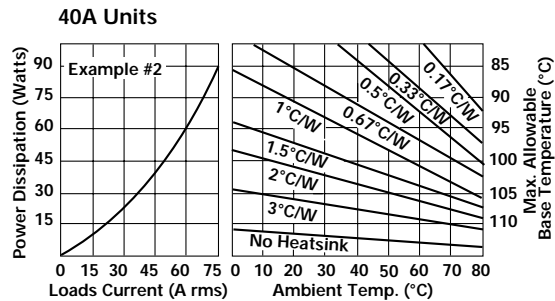
Given: $I_L =$ Two 12.5A loads @ 45°C

Find: Heatsink required

Solution: From 25A unit curve

$2 \times 12.5\text{A} = 25\text{A}$ 2 sections ON

Heatsink = 2°C/W



Example #2:

Given: 40A unit

Find: Rating mounting to 1°C/W HS @ 45°C

Both sections ON

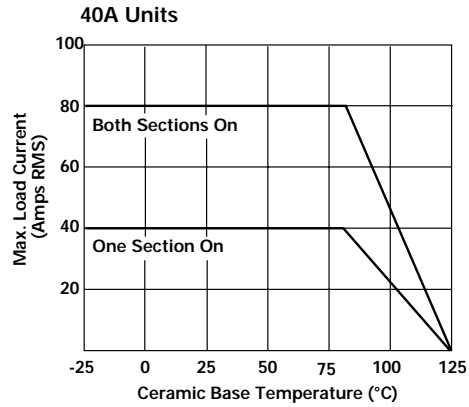
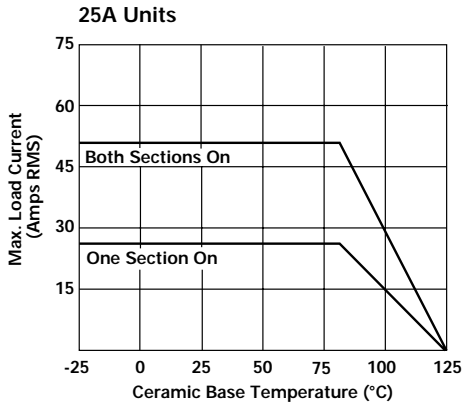
Solution: From 40A unit curve

Both Sections ON: Rating mounted to 1°C/W HS @ 45°C = 54A
total 27A for each section or 40A one section & 14A on the other

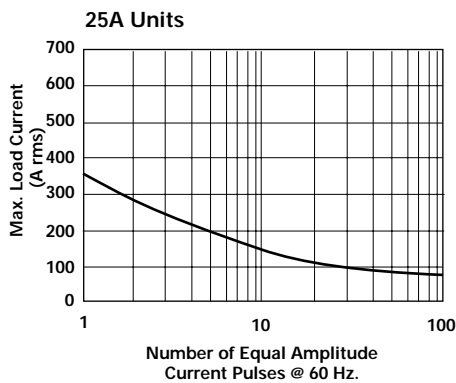
Heatsink Requirements

- We recommend that solid State Relay Modules be mounted to a heatsink sufficient to maintain the module's base temperature at less than 85°C under worst case ambient temperature and load conditions.
- The heatsink mounting surface should be a smooth (30-40 micro-inch finish), flat (30-40 micro-inch flatness across mating area), un-painted surface which is clean and free of oxidation.
- An even coating of thermal compound (Dow Corning DC340 or equivalent) should be applied to both the heatsink and module mounting surfaces and spread to a uniform depth of .002" to eliminate all air pockets.
- The module should be mounted to the heatsink using two#10 screws. The mounting screws should be torqued to 10 inch-pounds by alternately tightening the screws one quarter turn at a time.

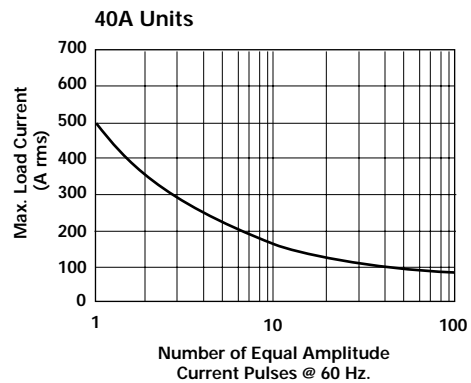
Load Current vs. Base Temperature



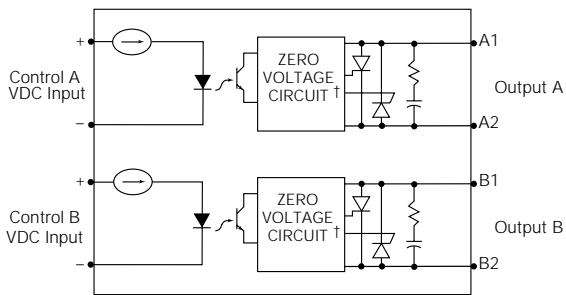
Allowable Peak Surge Current vs. Duration/Expected Lifetime



Family of curves shows approximate expected lifetime of relay when subjected to repetitive current surges, i.e., number of surges of a specific magnitude.

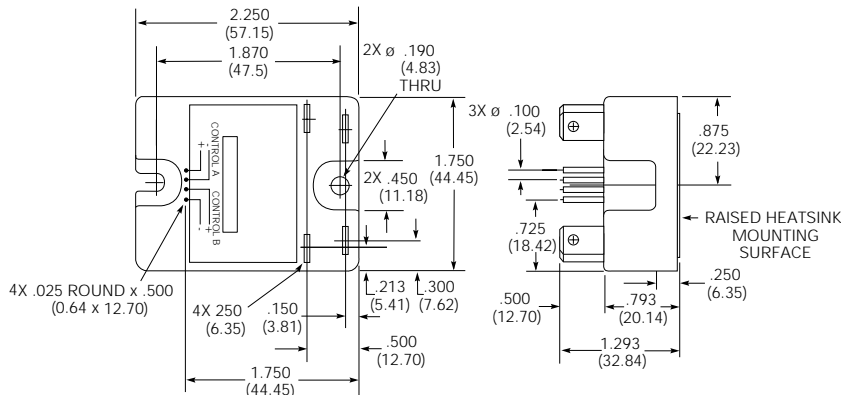


Operating Diagram



† Random Turn-on Units have a Random Turn-on circuit instead of Zero Voltage Circuit

Outline Dimensions



Tolerances: ±.035 (0.88)

Input Terminals Connectors are available from several different manufacturers.

AMP P/N: 103976-3 or 640440-4
Methode P/N: 1300-004-422

Consult your local distributor for these or equivalent connectors.