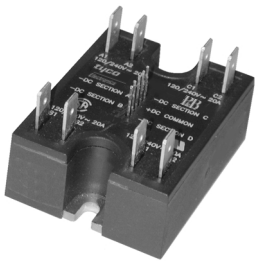
SSRQ series

Quad AC Output "Hockey Puck" Solid State Relay With Triac Outputs



c UL us File E29244

Users should thoroughly review the technical data before selecting a product part number. It is recommended that users also seek out the pertinent approvals files of the agencies/laboratories and review them to ensure the product meets the requirements for a given application.

Features

- Four independent AC output solid state relays in one standard package.
- 20A rms triac outputs.
- 4-15 VDC input control.
- Zero voltage and random voltage turn-on versions.
- 2500V rms optical isolation.
- Quick connect style terminals.

Engineering Data

Form: 4 Form A (4 SPST-NO).
Duty: Continuous.
Isolation: 2500V rms input-to-output-to-ground.
Capacitance: 10.0 pf maximum (input to output).
Temperature Range:
Storage: –40°C to +125°C
Operating: –40°C to + 80°C
Case Material: Plastic, UL rated 94V-0.
Case and Mounting: Refer to outline dimension.
Termination: Refer to outline dimension.
Approximate Weight: 3.5 oz. (98g).

Ordering Information

Sample Part Number ►	SSRQ	-240	D	20

1. Basic Series: SSRQ = Quad output SSR - 4 SPST - NO

2. Line Voltage: 240 = 24 - 280 VAC

3. Input Type & Voltage: D = 4 - 15VDC, zero voltage turn-on types.
R = 4 - 15VDC, random voltage turn-on types.

4. Maximum Switching Rating/Output: 20 = .05 - 20A rms, mounted to heatsink. NOTE: 60A max. per package.

5. Options: Blank = Zero voltage turn-on (all sections) Requires "D" input type above.
R = Random voltage turn-on (all sections) Requires "R" input type above.

Our authorized distributors are more likely to maintain the following items in stock for immediate delivery.

SSRQ-240D20

Input Specifications

Parameter	Conditions	Units	Zero V or Random V Turn-on Units
Control Voltage Range V_{IN}	@ 25°C	VDC	4-15
Must Operate Voltage $V_{IN(OP)}$ (Min.)	@ 25°C	VDC	4
Must Release Voltage $V_{IN(REL)}$ (Min.)	@ 25°C	VDC	1
Input Current (Typ.)	@ 25°C	mA DC	12
Input Impedance (Nom.)	@ 25°C	ohms	330

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

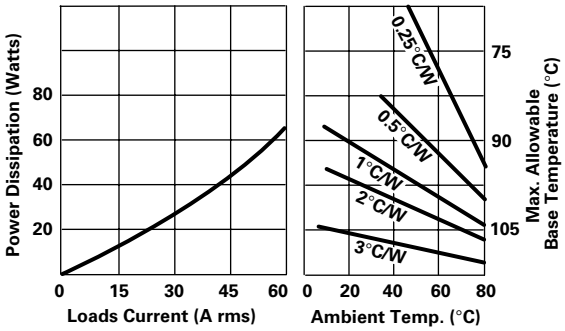
Parameter	Conditions	Units	
Load Voltage Range V_L		V rms	24-280
Repetitive Blocking Voltage (Min.)		V peak	±600
Load Current Range I_L*	Resistive	A rms	.15-20
Single Cycle Surge Current (Min.)		A peak	250
Leakage Current (Off-State) (Max.)	f = 60 Hz. V_L = 280Vrms	mA rms	10
On-State Voltage Drop (Max.)	I_L = Max.	V peak	1.6
Static dv/dt (Off-State) (Min.)	V_L = 280Vrms	V/µs	200
Thermal Resistance, Junction to Case ($R_{\theta J-C}$) (Max.)	All Sections On	°C/W	1.2
Turn-On Time (Max.)	f = 60 Hz.	ms	8.3 for Zero Voltage Turn-On Models 0.1 for Random Voltage Turn-On Models
Turn-Off Time (Max.)	f = 60 Hz.	ms	8.3
I^2t Rating	t = 8.3 ms	A^2Sec.	260
Load Power Factor Rating	I_L = Max.		0.5 - 1.0

*See Thermal Derating Curves. Note: While each output section is rated for a maximum of 20A, the maximum output per package is 60A.

Electrical Characteristics (Thermal Derating Curves)

How To Use These Curves

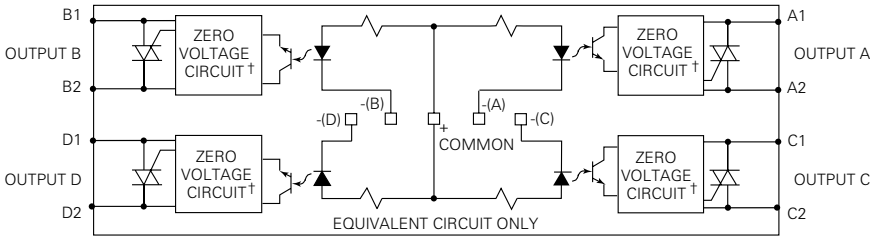
Knowing maximum load current and maximum ambient temperature, use derating curves to determine required heat sink and maximum allowable base plate temperature. On left hand power dissipation curve, locate the point corresponding to maximum load current. Extend a line to the right from that point to the 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 = Four 7.5A loads @ 60°C
Find: Minimum heatsink required
Solution: From Thermal Dissipation Graph
4 x 7.5A = 30A 4 sections ON
Heatsink = 2°C/W minimum

Example #2:
Given: SSRQ24020
Find: Maximum rating mounting to 1.0°C/W HS @ 60°C All sections ON
Solution: From Thermal Dissipation Graph
Rating mounted to 1.0°C/W HS @ 60°C = 36A total
9A for 4 Sections ON = 36A total
12A for 3 Sections ON = 36A total

Operating Diagram

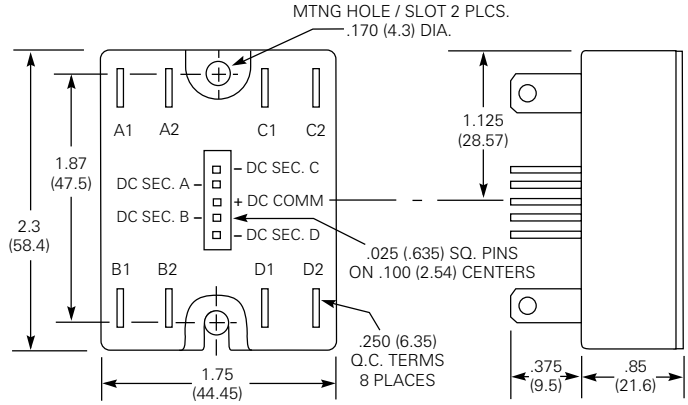


† Random Turn-On Units Have A Random Turn-On Circuit Instead Of A Zero Voltage Circuit

Heatsink Recommendations

- 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.

Outline Dimensions



Input Terminals mate with the following connectors or equivalent:

AMP P/N: 103976-4

Consult your local distributor for connectors.

AMEYA360
Components Supply Platform

Authorized Distribution Brand :

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