SSRT series

"Hockey Puck" Solid State Relay With Snubberless Triac Output

File E29244
File E29244 UL Recognized for Canada

Features

- Standard "hockey puck" package.
- Exposed ceramic base plate for reduced themal resistance.
- Floating terminal design.
- Low cost snubberless triac outputs.
- 10A & 25A rms versions.
- AC & DC input versions.
- 4000V rms isolation.

Engineering Data

Form: 1 Form A (SPST-NO).
Duty: Continuous.
Isolation: 4000V rms minimum, input - output.
Isolation Resistance: 10^{10} ohms @ 500VDC minimum.
Capacitance: 10 pf maximum (input to output).
Temperature Range:
Storage: –40°C to +120°C
Operating Temperature: –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 ►	SSRT	-240	D	10

1. Basic Series: SSRT = "hockey puck" triac output solid state relay

2. Line Voltage: 240 = 24-240 VAC

3. Input Type & Voltage: A = 90-280 VAC/VDC linear
D = 3-32 VDC constant current

4. Maximum Switching Rating: 10 = .05-10A rms, mounted to heatsink
25 = .05-25A rms, mounted to heatsink

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

SSRT-240A10 SSRT-240D10
SSRT-240A25 SSRT-240D25

Input Specifications

Parameter	AC/DC Input/AC Output	DC Input/AC Output
Control Voltage Range V_{IN}	90-280VAC/VDC	3-32VDC
Must Operate Voltage $V_{IN(OP)}$ (Max.)	90VAC/VDC	3VDC
Must Release Voltage $V_{IN(REL)}$ (Min.)	10VAC/VDC	1VDC
Input Current	15mA Max. @ 90VAC	15mA Max. @ 5VDC

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

Parameter	Conditions	Units	SSRT-240A10 & SSRT-240D10	SSRT-240A25 & SSRT-240D25
Load Voltage Range V_L		V rms	24-240	
Repetitive Blocking Voltage (Min.)		V peak	±600	
Load Current Range I_L*	Resistive	A rms	.05-10	.05-25
Single Cycle Surge Current (Min.)		A peak	100	200
Leakage Current (Off-State) (Max.)	f = 60 Hz. V_L = Nom. (120 or 240 V rms)	mA rms	0.5	
On-State Voltage Drop (Max.)	I_L = Max.	V peak	1.7	
Static dv/dt (Off-State) (Min.)		V/µs	200	
Thermal Resistance, Junction to Case ($R_{\theta j\text{-}c}$) (Max.)		° C/W	0.6	0.6
Turn-On Time (Max.)	f = 60 Hz.	ms	8.3	
Turn-Off Time (Max.)	f = 60 Hz.	ms	8.3	
I^2t Rating	t = 8.3 ms	A^2 Sec.	60	260
Load Power Factor Rating	I_L = Max.		0.5-1.0	

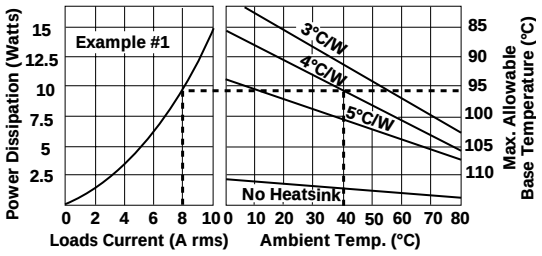
*See Derating Curves

Electrical Characteristics (Thermal Derating Curves)

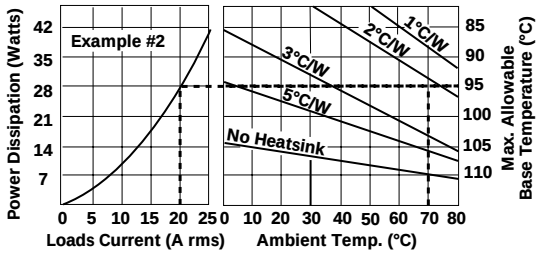
How To Use These Curves

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.

10A Triac Units



25A Triac Units



Example #1:
Given: IL 8A rms @ 40°C
Find: Heatsink required
Solution: From 10A curve
Heatsink = 4°C/W

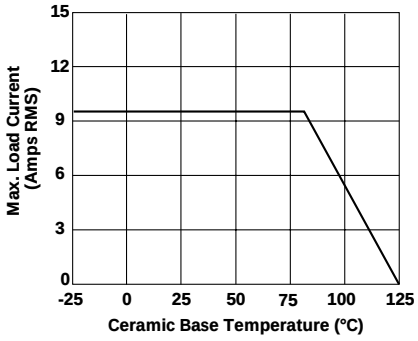
Example #2:
Given: IL = 20A rms @ 70°C
Find: Required heatsink
Solution: Heatsink = 2°C/W

Heatsink Dimensions

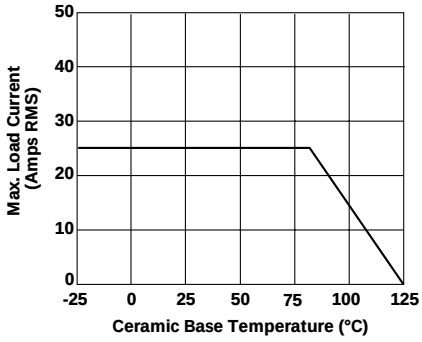
- We recommend that solid State Relay Modules be mounted to a heatsink sufficient to maintain the module's base temperature at less than 85°C under worst case ambient temperature and load conditions.
- The heatsink mounting surface should be a smooth (30-40 micro-inch finish), flat (30-40 micro-inch 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

10A Units

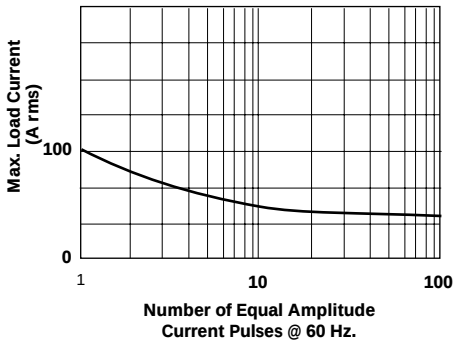


25A Units

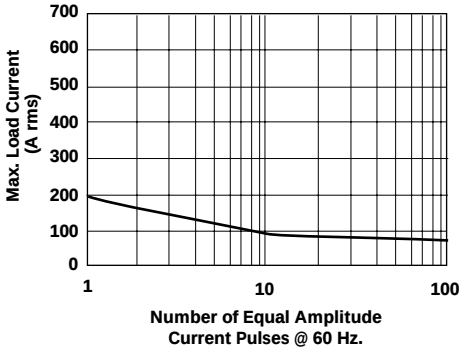


Allowable Peak Surge vs. Duration/Expected Lifetime

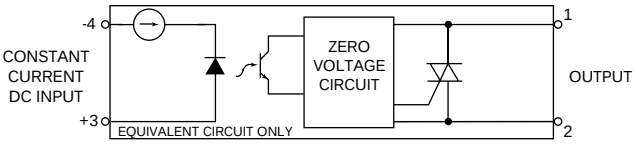
10A Units

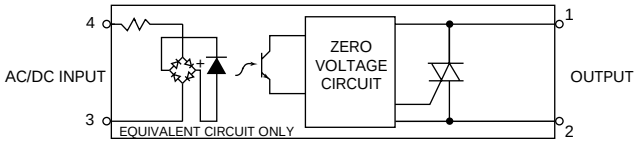


25A Units

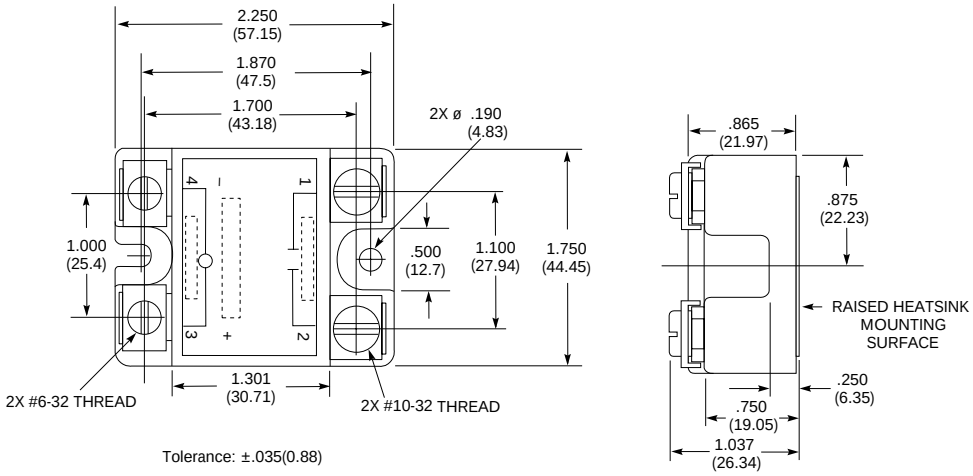


Operating Diagrams





Outline Dimensions



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