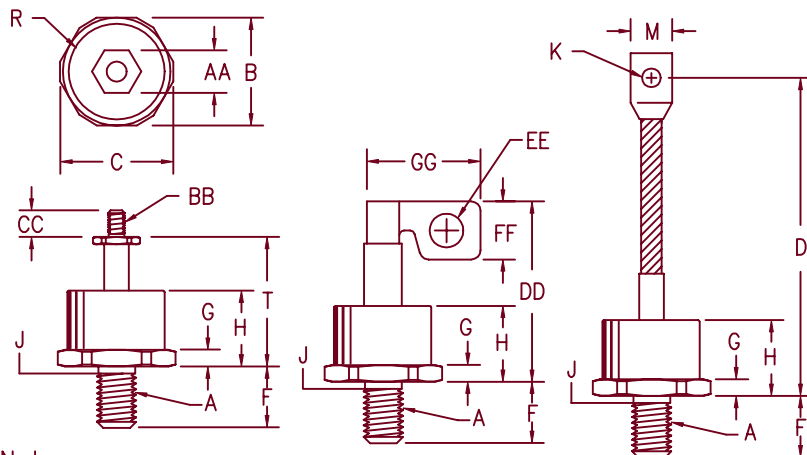


# Silicon Power Rectifier S/R42 Series



## Notes:

1. 3/8-24 UNF-3A
2. Full threads within 2 1/2 threads
3. 1/4-28 UNF-2B
4. Reverse polarity: Stud is Anode

| Dim. | Inches  |         | Millimeter |         | Notes |
|------|---------|---------|------------|---------|-------|
|      | Minimum | Maximum | Minimum    | Maximum |       |
| A    | ---     | ---     | ---        | ---     | 1     |
| B    | 1.050   | 1.060   | 26.67      | 26.92   |       |
| C    | ---     | 1.166   | ---        | 29.61   |       |
| D    | 4.30    | 4.70    | 109.22     | 119.38  |       |
| F    | .610    | .640    | 15.49      | 16.25   |       |
| G    | .213    | .233    | 5.41       | 5.66    |       |
| H    | ---     | .745    | ---        | 18.92   |       |
| J    | .344    | .373    | 8.74       | 9.47    | 2     |
| K    | .276    | .286    | 7.01       | 7.26    |       |
| M    | .465    | .515    | 11.81      | 13.08   |       |
| R    | ---     | .850    | ---        | 21.59   | Dia   |
| T    | 1.426   | ---     | 36.22      | ---     |       |
| AA   | .427    | .437    | 10.84      | 11.09   |       |
| BB   | ---     | ---     | ---        | ---     | 3     |
| CC   | .407    | ---     | 10.33      | ---     |       |
| DD   | ---     | 1.75    | ---        | 44.45   |       |
| EE   | .215    | .225    | 5.46       | 5.72    | Dia   |
| FF   | .360    | .390    | 9.14       | 9.91    |       |
| GG   | .740    | .750    | 18.80      | 19.05   |       |

## Microsemi Catalog Number

\*S4210  
\*S4220  
\*S4230  
\*S4240  
\*S4250  
\*S4260  
\*S4280  
\*S42100  
\*S42120  
\*S42140  
\*S42160

## Peak Reverse Voltage

100V  
200V  
300V  
400V  
500V  
600V  
800V  
1000V  
1200V  
1400V  
1600V

\*Change S to R in part number for Reverse Polarity  
Add the suffix TS for Top Stud; F for flag

## D0205AA (D08)

- Soft recovery
- Glass Passivated Die
- 2000 Amps Surge Rating
- Glass to metal seal construction
- VRRM to 1600V

## Electrical Characteristics

|                                     |                                |                                                                        |
|-------------------------------------|--------------------------------|------------------------------------------------------------------------|
| Average forward current             | $I_F(AV)$ 125 Amps             | $T_C = 146^\circ C$ , Half Sine Wave, $R_{\theta JC} = 0.40^\circ C/W$ |
| Maximum surge current               | $I_{FSM}$ 2000 Amps            | 8.3ms, half sine, $T_J = 200^\circ C$                                  |
| Max $I^2 t$ for fusing              | $I^2 t$ 16600 A <sup>2</sup> s |                                                                        |
| Max peak forward voltage            | $V_{FM}$ 1.2 Volts             | $I_{FM} = 200A; T_J = 25^\circ C^*$                                    |
| Max peak reverse current            | $I_{RM}$ 50 $\mu A$            | $V_{RRM}, T_J = 25^\circ C$                                            |
| Max peak reverse current            | $I_{RM}$ 5.0 mA                | $V_{RRM}, T_J = 150^\circ C$                                           |
| Max Recommended Operating Frequency | 7.5kHz                         |                                                                        |

\*Pulse test: Pulse width 300  $\mu sec$ . Duty cycle 2%

## Thermal and Mechanical Characteristics

|                               |                 |                                    |
|-------------------------------|-----------------|------------------------------------|
| Storage temperature range     | $T_{STG}$       | $-65^\circ C$ to $200^\circ C$     |
| Operating junction temp range | $T_J$           | $-65^\circ C$ to $200^\circ C$     |
| Maximum thermal resistance    | $R_{\theta JC}$ | 0.40 $^\circ C/W$ Junction to Case |
| Mounting torque               |                 | 80-100 inch pounds                 |
| Weight                        |                 | 2.75 ounces (78 grams) typical     |

11-27-02 Rev. 3

# S/R42

Figure 1  
Typical Forward Characteristics

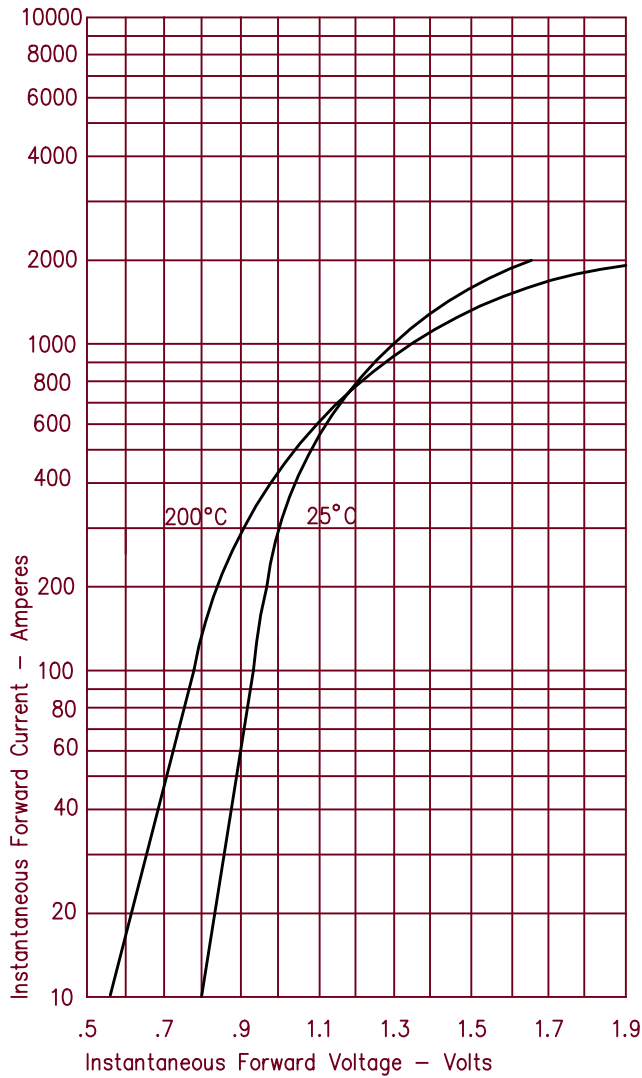


Figure 3  
Forward Current Derating

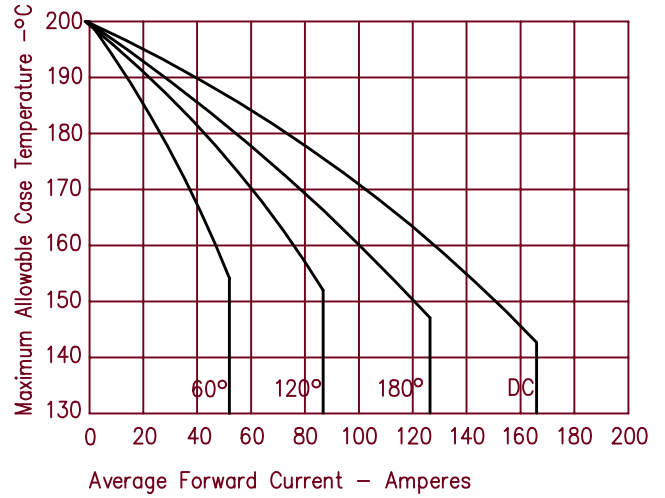


Figure 4  
Maximum Forward Power Dissipation

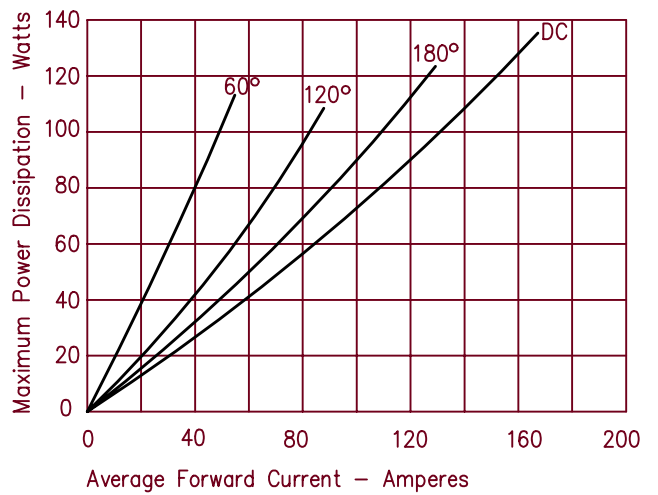


Figure 2  
Typical Reverse Characteristics

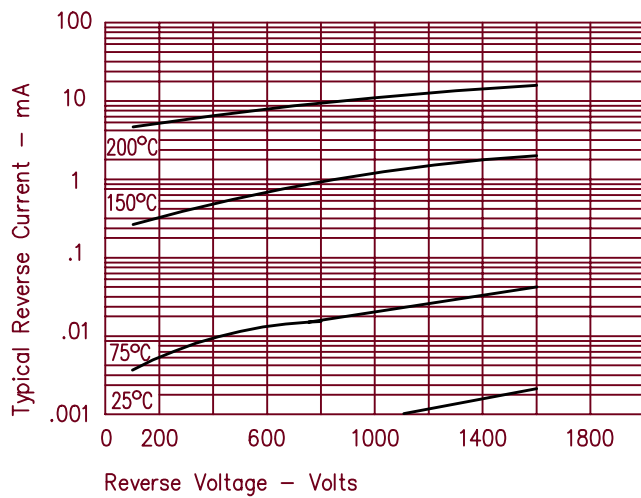


Figure 5  
Transient Thermal Impedance

