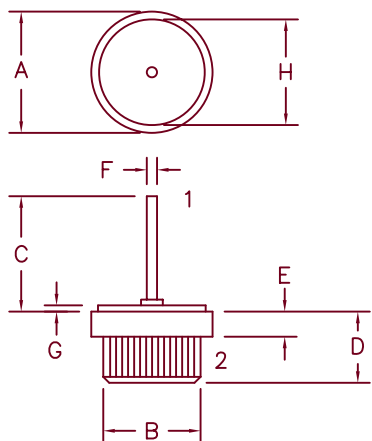


# Silicon Power Rectifier S/R50PF Series



| Dim. | Inches  |         | Millimeter |         | Notes |
|------|---------|---------|------------|---------|-------|
|      | Minimum | Maximum | Minimum    | Maximum |       |
| A    | .590    | .630    | 15.0       | 16.0    | Dia.  |
| B    | .499    | .510    | 12.6       | 13.0    | Dia.  |
| C    | .600    | —       | 15.2       | —       |       |
| D    | .350    | .370    | 8.90       | 9.40    |       |
| E    | .090    | .130    | 2.28       | 3.30    |       |
| F    | .097    | .103    | 2.46       | 2.62    | Dia.  |
| G    | .030    | .035    | .762       | .900    |       |
| H    | .500    | .510    | 12.7       | 13.0    | Dia.  |

DO-21

## Microsemi Catalog Number

| Standard | Reverse |
|----------|---------|
| S5020PF  | R5020PF |
| S5040PF  | R5040PF |
| S5060PF  | R5060PF |
| S5080PF  | R5080PF |

## Repetitive Peak Reverse Voltage

|     |
|-----|
| 200 |
| 400 |
| 600 |
| 800 |

- High Voltage, Low Leakage Current
- Glass Passivated Die
- Economical Design
- 700 Amps Surge Rating
- $V_{RRM}$  to 800V

## Electrical Characteristics

|                                      |                     |                                                                       |
|--------------------------------------|---------------------|-----------------------------------------------------------------------|
| Average Forward Current              | $I_F(AV)$ 50 Amps   | $T_C = 135^\circ C$ , half sine wave, $R_{\theta JC} = 0.8^\circ C/W$ |
| Maximum Surge Current                | $I_{FSM}$ 700 Amps  | 8.3ms, half sine, $T_J = 175^\circ C$                                 |
| Maximum $I^2t$ For Fusing            | $I^2t$ 2600 $A^2s$  |                                                                       |
| Max. Peak Forward Voltage            | $V_{FM}$ 1.05 Volts | $I_{FM} = 50A: T_J = 25^\circ C^*$                                    |
| Max. Peak Reverse Current            | $I_{RM}$ 10 $\mu A$ | $V_{RRM, T_J} = 25^\circ C$                                           |
| Max. Peak Reverse Current            | $I_{RM}$ 2.0 mA     | $V_{RRM, T_J} = 150^\circ C$                                          |
| Max. Recommended Operating Frequency | 10kHz               |                                                                       |

\*Pulse test: Pulse width 300 $\mu s$ , Duty cycle 2%

## Thermal and Mechanical Characteristics

|                               |                 |                                   |
|-------------------------------|-----------------|-----------------------------------|
| Storage temp range            | $T_{STG}$       | $-65^\circ C$ to $200^\circ C$    |
| Operating junction temp range | $T_J$           | $-65^\circ C$ to $175^\circ C$    |
| Max thermal resistance        | $R_{\theta JC}$ | 0.8 $^\circ C/W$ Junction to case |
| Typical thermal resistance    | $R_{\theta CS}$ | 0.2 $^\circ C/W$ Case to sink     |
| Weight                        |                 | .27 ounce (7.2 grams) typical     |



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05-02-07 Rev. 3

# S/R50PF

Figure 1  
Typical Forward Characteristics

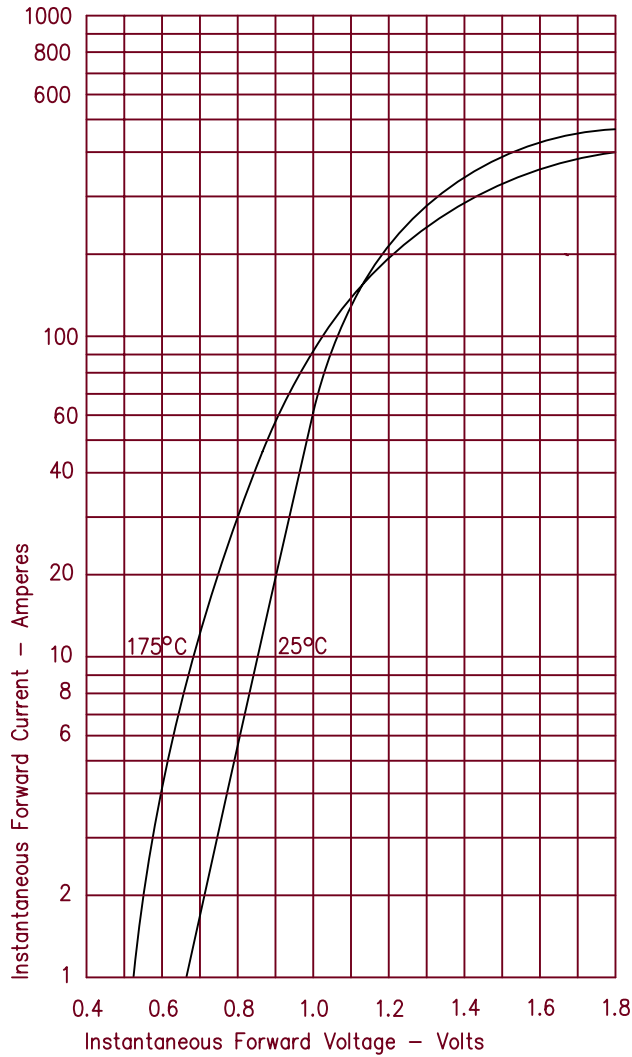


Figure 2  
Typical Reverse Characteristics

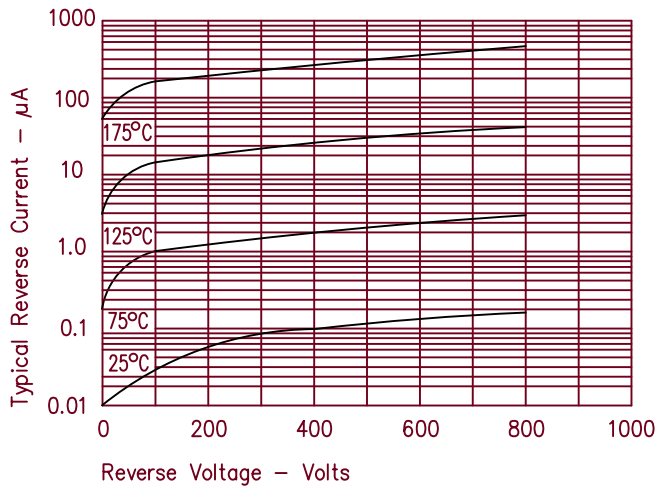


Figure 3  
Forward Current Derating

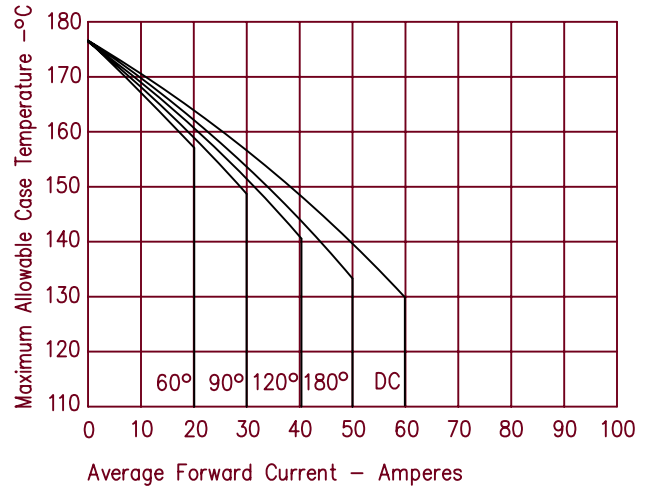


Figure 4  
Maximum Forward Power Dissipation

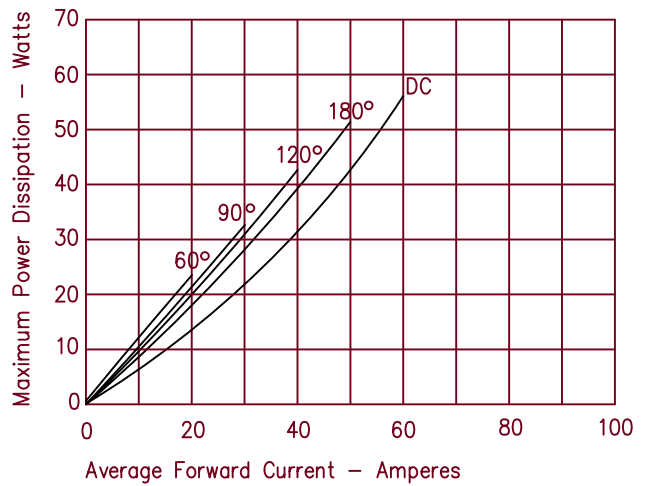
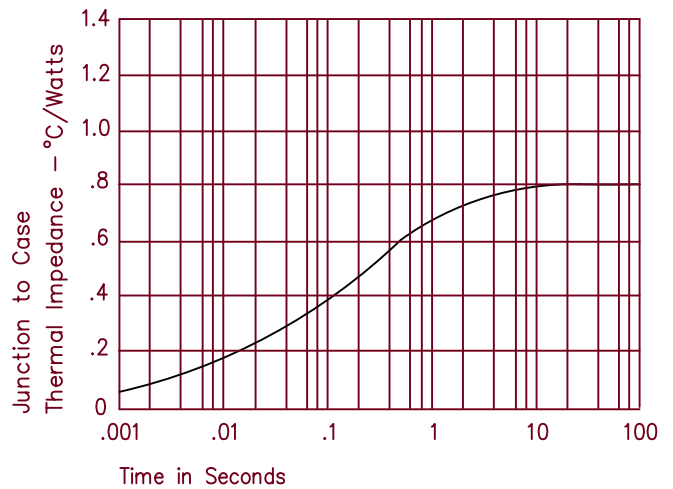
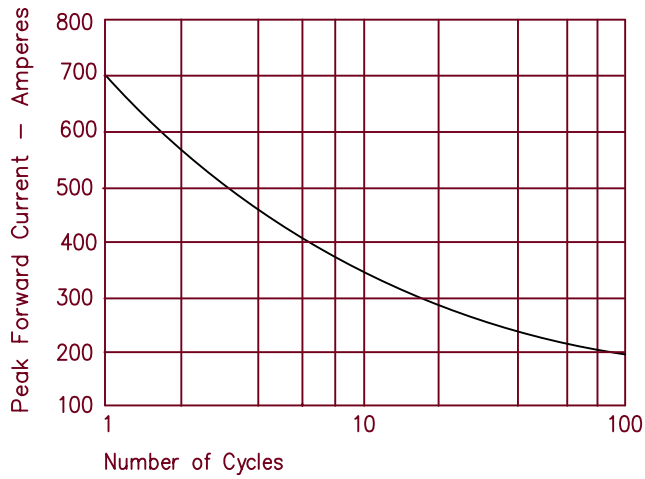


Figure 5  
Transient Thermal Impedance



# S/R50PF

Figure 6  
Maximum Nonrepetitive Surge Current



## HEAT SINK MOUNTING

The hole edge must be chamfered as shown to avoid shearing off the knurl during press-in. Apply press-in force evenly to avoid tilting. Thermal compound is recommend. Recommended heat sink materials are aluminum with a hardness below 65 on Brinell scale or copper with a hardness below 50 on the Rockwell F scale.

