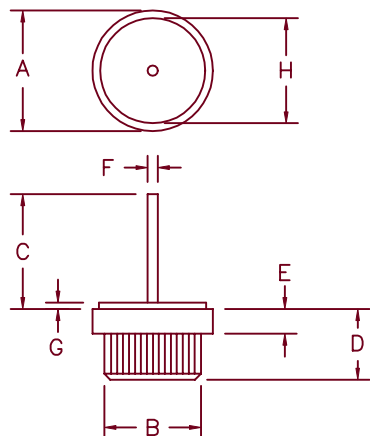


# Silicon Power Rectifier S/R35PF Series



Standard Polarity:  
Case is Cathode  
Reverse Polarity:  
Case is Anode

| 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    | .045    | .053    | 1.14       | 1.35    | Dia.  |
| G    | .030    | .035    | .762       | .900    |       |
| H    | .500    | .510    | 12.7       | 13.0    | Dia.  |

D0-21 (D0-208)

| Microsemi<br>Catalog Number                                                                                                                      | JEDEC<br>Number | Repetitive Peak<br>Reverse Voltage | <ul style="list-style-type: none"><li>• High Voltage, Low Leakage Current</li><li>• Glass Passivated Die</li><li>• Soft Recovery</li><li>• 400 Amps Surge Rating</li><li>• <math>V_{RRM}</math> to 600V</li></ul> |
|--------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| S3520PF                                                                                                                                          | 1N3491, 1N3659  | 50V                                |                                                                                                                                                                                                                   |
|                                                                                                                                                  | 1N3492, 1N3660  | 100V                               |                                                                                                                                                                                                                   |
| S3540PF                                                                                                                                          | 1N3493, 1N3661  | 200V                               |                                                                                                                                                                                                                   |
|                                                                                                                                                  | 1N3494, 1N3662  | 300V                               |                                                                                                                                                                                                                   |
| S3560PF                                                                                                                                          | 1N3495, 1N3663  | 400V                               |                                                                                                                                                                                                                   |
|                                                                                                                                                  | 1N3664          | 500V                               |                                                                                                                                                                                                                   |
|                                                                                                                                                  | 1N3665          | 600V                               |                                                                                                                                                                                                                   |
| For Reverse Polarity change the "S" prefix of Microsemi part number to "R". Add "R" suffix to the JEDEC part number to specify reverse polarity. |                 |                                    |                                                                                                                                                                                                                   |

## Electrical Characteristics

|                                             |                     |                                                                       |
|---------------------------------------------|---------------------|-----------------------------------------------------------------------|
| Average Forward Current (standard polarity) | $I_F(AV)$ 35 Amps   | $T_C = 133^\circ C$ , half sine wave, $R_{\theta JC} = 1.0^\circ C/W$ |
| Average Forward Current (reverse polarity)  | $I_F(AV)$ 35 Amps   | $T_C = 92^\circ C$ , half sine wave, $R_{\theta JC} = 2.0^\circ C/W$  |
| Maximum Surge Current                       | $I_{FSM}$ 400 Amps  | 8.3ms, half sine, $T_J = 175^\circ C$                                 |
| Maximum $I^2t$ For Fusing                   | $I^2t$ 665 $A^2s$   |                                                                       |
| Max. Peak Forward Voltage                   | $V_{FM}$ 1.1 Volts  | $I_{FM} = 35A; T_J = 25^\circ C^*$                                    |
| 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  $\mu sec$ . Duty cycle 2%

## Thermal and Mechanical Characteristics

|                                            |                 |                                  |
|--------------------------------------------|-----------------|----------------------------------|
| Storage temp range                         | $T_{STG}$       | $-65^\circ C$ to $175^\circ C$   |
| Operating junction temp range              | $T_J$           | $-65^\circ C$ to $175^\circ C$   |
| Max thermal resistance (standard polarity) | $R_{\theta JC}$ | $1.0^\circ C/W$ Junction to case |
| Max thermal resistance (reverse polarity)  | $R_{\theta JC}$ | $2.0^\circ C/W$ Junction to case |
| Typical thermal resistance                 | $R_{\theta CS}$ | $0.2^\circ C/W$ Case to sink     |
| Typical Weight                             |                 | 0.3 ounce (9.0 grams) typical    |

11-29-00 Rev. 1

# S/R35PF

Figure 1  
Typical Forward Characteristics

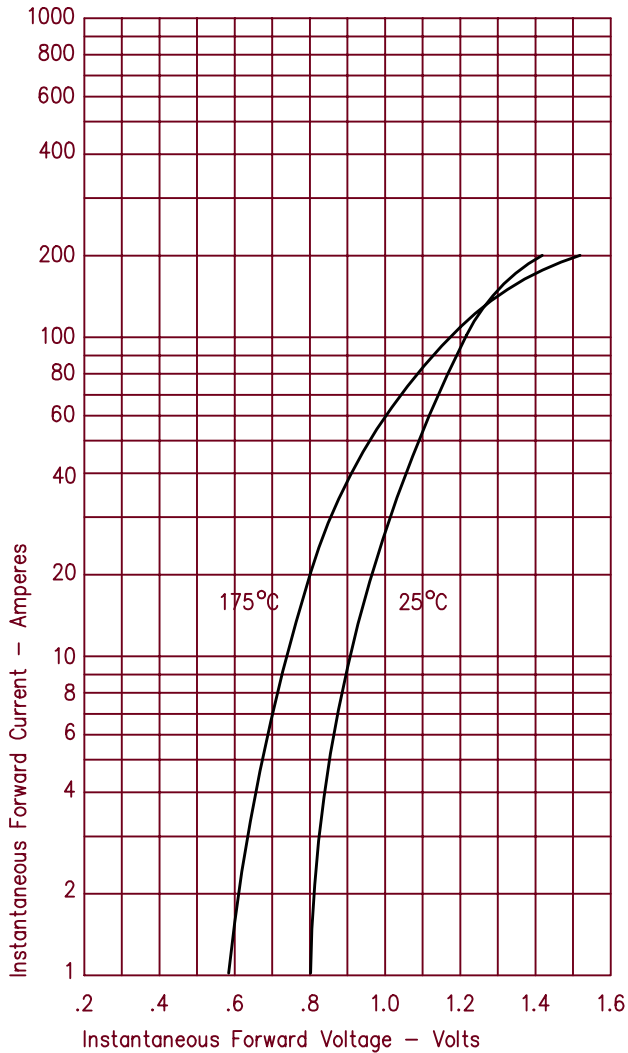


Figure 2  
Typical Reverse Characteristics

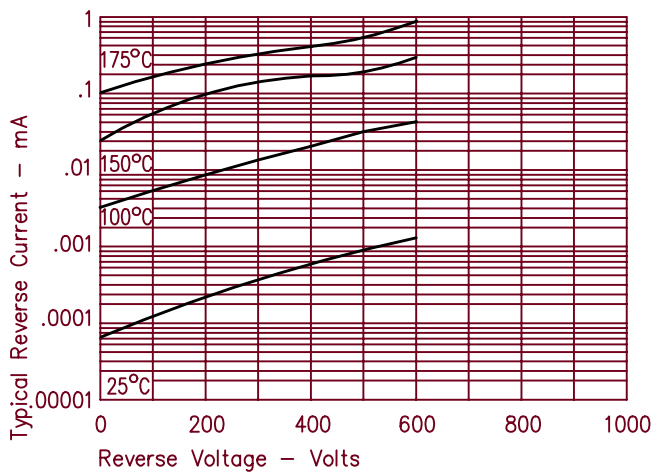


Figure 3  
Forward Current Derating - Standard Polarity

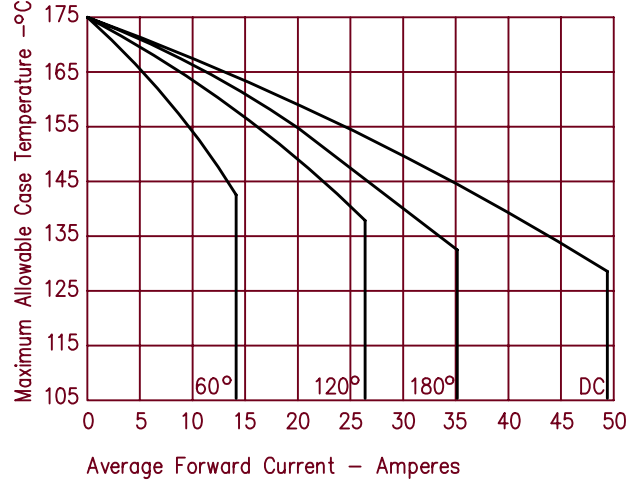


Figure 4  
Maximum Forward Power Dissipation - Standard Polarity

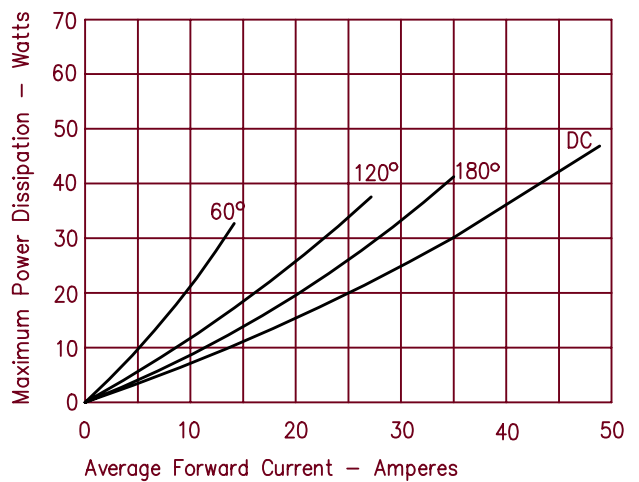
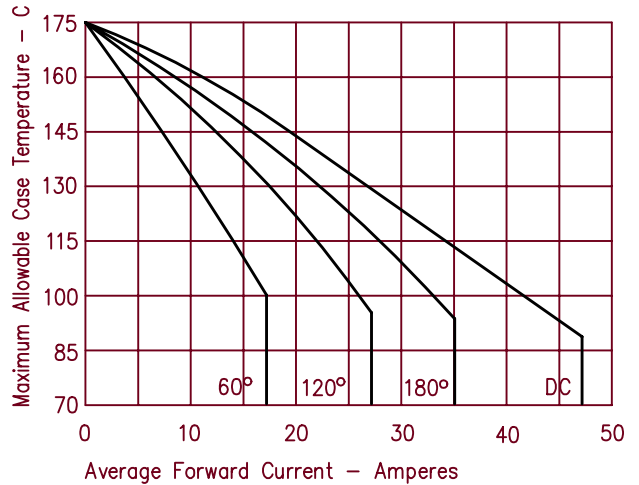


Figure 5  
Forward Current Derating - Reverse Polarity



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Figure 6  
Maximum Forward Power Dissipation – Reverse Polarity

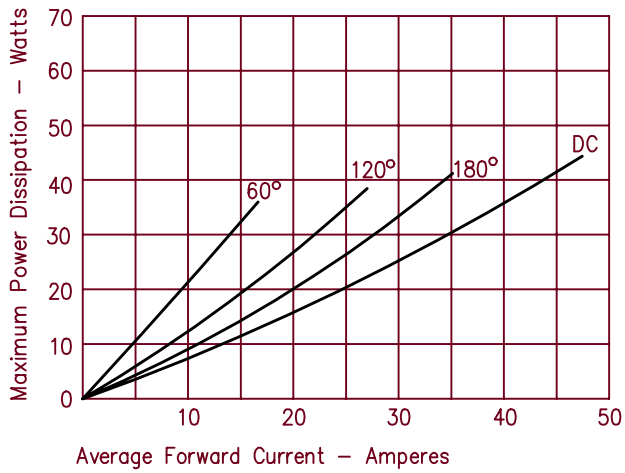


Figure 8  
Transient Thermal Impedance – Reverse Polarity

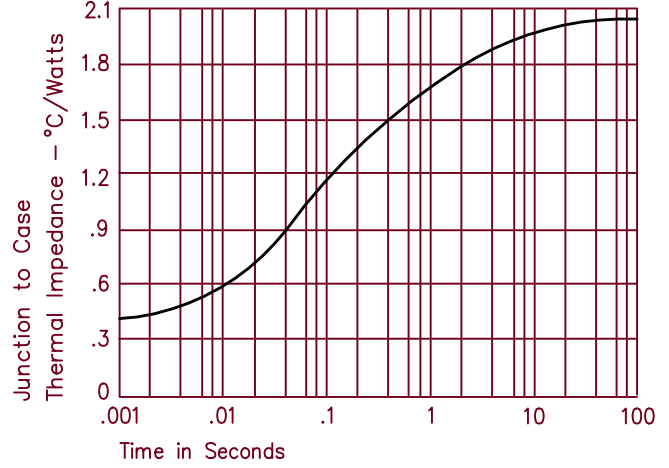


Figure 7  
Transient Thermal Impedance – Standard Polarity

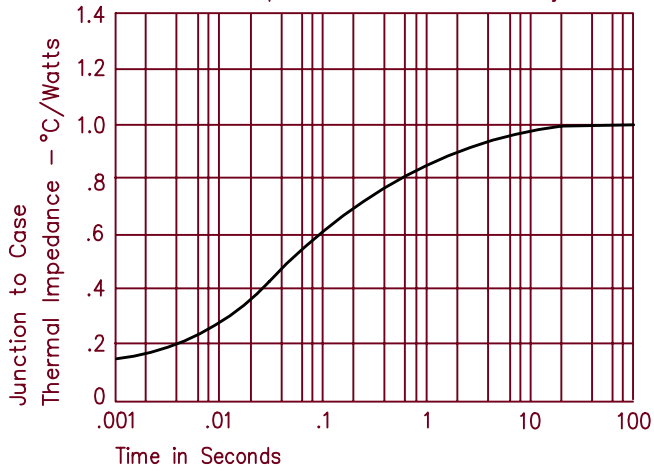
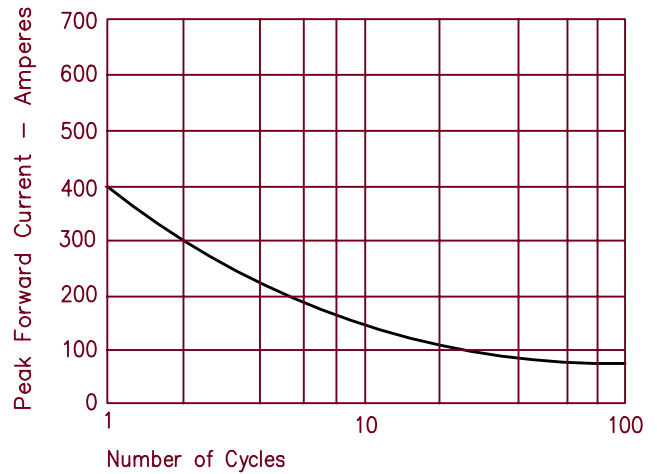


Figure 9  
Maximum Nonrepetitive Surge Current



## 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.

