

January 7, 1998

TEL:805-498-2111 FAX:805-498-3804 WEB:http://www.semtech.com

AXIAL LEADED HERMETICALLY SEALED HIGH VOLTAGE FAST RECTIFIER DIODE

QUICK REFERENCE DATA

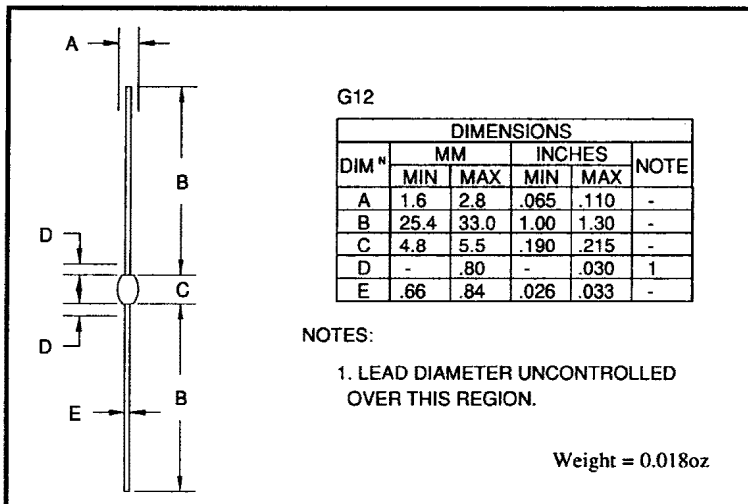
- Low reverse recovery time
- High thermal shock resistance
- Hermetically sealed with Metoxillite metal oxide
- Low switching losses
- Soft, non-snap off, recovery characteristics

- $V_R = 1500 - 2500V$
- $I_F = 0.5A$
- $t_{rr} = 300ns$
- $I_R = 1\mu A$

ABSOLUTE MAXIMUM RATINGS (@ 25°C unless otherwise specified)

| | Symbol | S15F | S20F | S25F | Unit |
|--|-------------|-----------------|------|------|------|
| Working reverse voltage | V_{RWM} | 1500 | 2000 | 2500 | V |
| Repetitive reverse voltage | V_{RRM} | 1500 | 2000 | 2500 | V |
| Average forward current (@ 55°C in oil) | $I_{F(AV)}$ | ← 0.5 → | | | A |
| Repetitive surge current (@ 55°C in oil) | I_{FRM} | ← 2.5 → | | | A |
| Non-repetitive surge current ($t_p = 8.3ms$, @ V_R & T_{jmax}) | I_{FSM} | ← 10.0 → | | | A |
| Storage temperature range | T_{STG} | ← -65 to +175 → | | | °C |
| Operating temperature range | T_{OP} | ← -65 to +175 → | | | °C |

MECHANICAL



These products are available in Europe to DEF STAN 59-61 (PART 80)/034 to F and FX levels.

January 7, 1998

CHARACTERISTICS (@ 25°C unless otherwise specified)

| | Symbol | S15F | S20F | S25F | Unit |
|---|-----------------|----------|------|------|---------------------------|
| Average forward current max. (pcb mounted; $T_A = 55^\circ\text{C}$) for sine wave | $I_{F(AV)}$ | ← 0.23 → | | | A |
| | $I_{F(AV)}$ | ← 0.24 → | | | A |
| Average forward current max. (unstirred oil at 55°C) for sine wave | $I_{F(AV)}$ | ← 0.50 → | | | A |
| | $I_{F(AV)}$ | ← 0.50 → | | | A |
| I^2t for fusing ($t = 8.3\text{ms}$) max. | I^2t | ← 0.4 → | | | A^2S |
| Forward voltage drop max. @ $I_F = 0.10\text{A}$, $T_j = 25^\circ\text{C}$ | V_F | ← 5.0 → | | | V |
| Reverse current max. @ V_{RWM} , $T_j = 25^\circ\text{C}$ @ V_{RWM} , $T_j = 100^\circ\text{C}$ | I_R | ← 1.0 → | | | μA |
| | I_R | ← 25 → | | | μA |
| Reverse recovery time max. 50mA I_F , 100mA I_R , Recover to 25mA I_{RR} . | t_{rr} | ← 300 → | | | nS |
| Junction capacitance typ. @ $V_R = 5\text{V}$, $f = 1\text{MHz}$ | C_j | ← 4.0 → | | | pF |
| Thermal resistance - junction to oil Stirred oil | $R_{\theta JO}$ | ← 18 → | | | $^\circ\text{C}/\text{W}$ |
| | $R_{\theta JO}$ | ← 30 → | | | $^\circ\text{C}/\text{W}$ |
| Thermal resistance - junction to amb. on 0.06" thick pcb. 1oz copper. | $R_{\theta JA}$ | ← 90 → | | | $^\circ\text{C}/\text{W}$ |

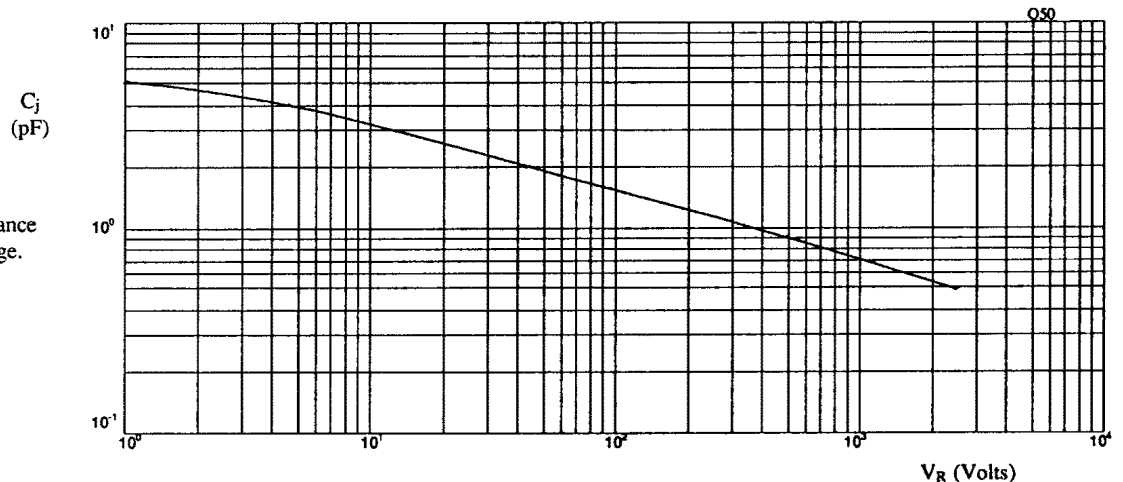


Fig 1 Junction capacitance against reverse voltage.

January 7, 1998

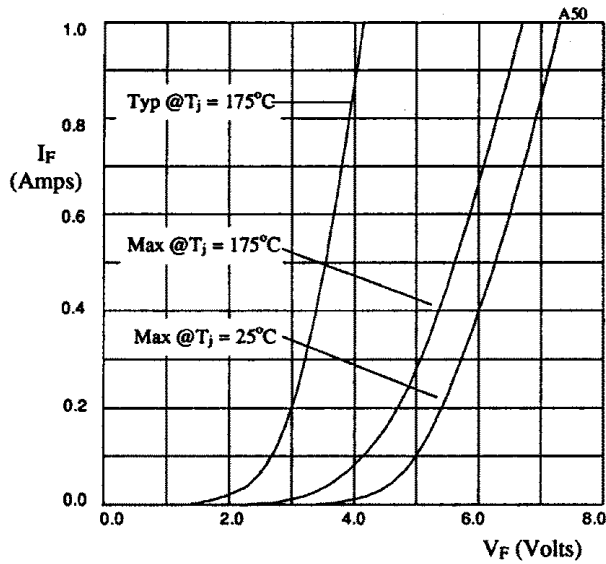


Fig 1. Forward voltage drop as a function of forward current.

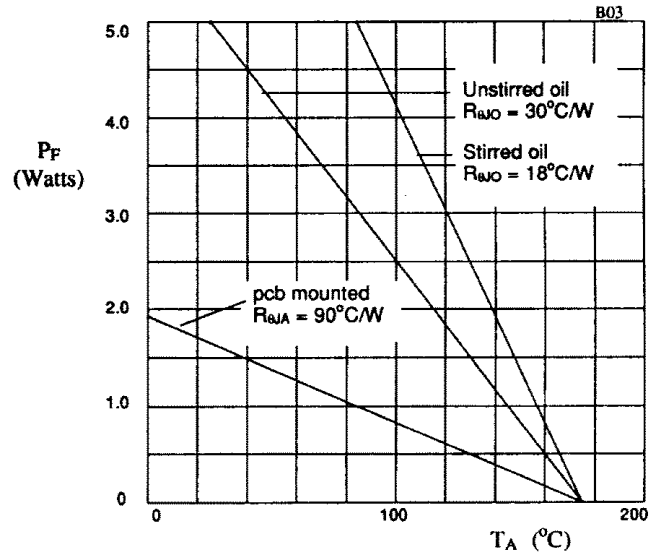


Fig 2. Power derating in air and oil.

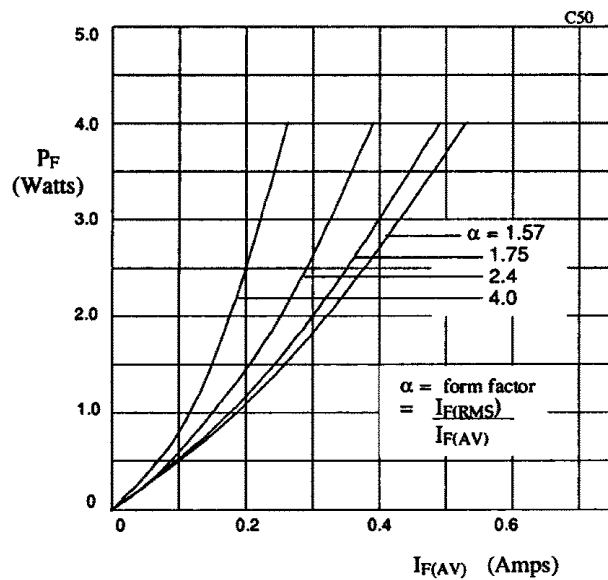


Fig 3. Forward power dissipation as a function of forward current, for sinusoidal operation.

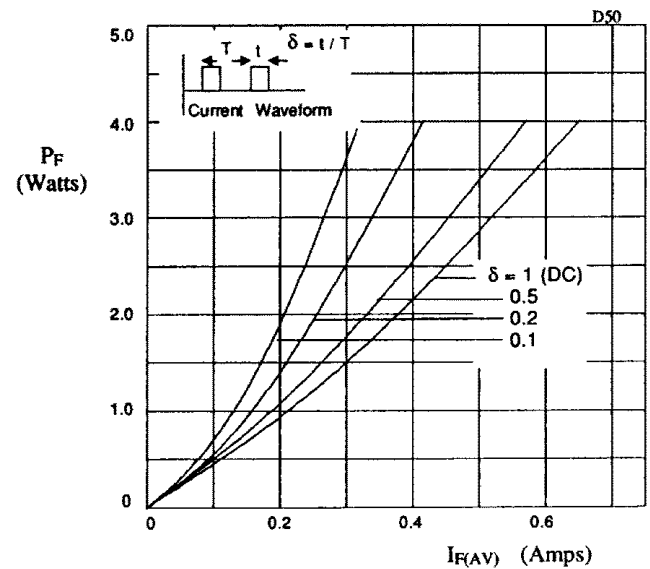


Fig 4. Forward power dissipation as a function of forward current, for square wave operation.