

January 7, 1998

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

AXIAL LEADED HERMETICALLY SEALED FAST RECTIFIER DIODE

QUICK REFERENCE DATA

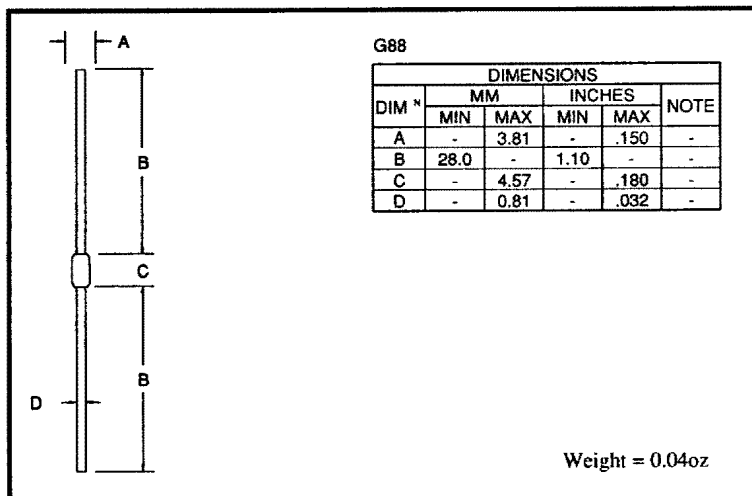
- Low reverse recovery time
- Glass passivated for hermetic sealing
- Low switching losses
- Soft, non-snap off, recovery characteristics
- Avalanche capability

- $V_R = 1000V$
- $I_F = 1.6A$
- $t_{rr} = 150nS$
- $I_R = 1\mu A$

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

| | Symbol | PFR0 | Unit |
|--|-------------|-------------|------|
| Working reverse voltage | V_{RWM} | 1000 | V |
| Repetitive reverse voltage | V_{RRM} | 1000 | V |
| Surge reverse voltage | V_{RSM} | 1100 | V |
| Average forward current (@ 55°C, lead length 0.375") | $I_{F(AV)}$ | 1.6 | A |
| Repetitive surge current (@ 55°C in free air, lead length 0.375") | I_{FRM} | 11 | A |
| Non-repetitive surge current ($t_p = 8.3mS$, @ V_R & T_{jmax}) | I_{FSM} | 32 | A |
| Storage temperature range | T_{STG} | -65 to +175 | °C |
| Operating temperature range | T_{OP} | -65 to +175 | °C |

MECHANICAL



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ELECTRICAL CHARACTERISTICS (@ 25°C unless otherwise specified)

| | Symbol | PFR0 | Unit |
|--|--------------------|------|------------------|
| Average forward current max. (pcb mounted; T _A = 55°C) for sine wave | I _{F(AV)} | 0.85 | A |
| | I _{F(AV)} | 0.90 | A |
| Average forward current max. (T _L = 55°C; L = 3/8") for sine wave | I _{F(AV)} | 1.50 | A |
| | I _{F(AV)} | 1.60 | A |
| I ² t for fusing (t = 8.3mS) max. | I ² t | 4.25 | A ² S |
| Forward voltage drop max. @ I _F = 1.0A, T _j = 25°C | V _F | 1.45 | V |
| Reverse current max. @ V _{RWM} , T _j = 25°C | I _R | 1.0 | μA |
| | I _R | 25 | μA |
| Reverse recovery time max. 0.5A I _F to 1.0A I _R . Recovers to 0.25A I _{RR} . | t _{rr} | 150 | nS |
| Junction capacitance typ. @ V _R = 5V, f = 1MHz | C _j | 22 | pF |

THERMAL CHARACTERISTICS

| | Symbol | PFR0 | Unit |
|--|------------------|------|------|
| Thermal resistance - junction to lead Lead length = 0" | R _{θJL} | 19 | °C/W |
| | R _{θJL} | 47 | °C/W |
| Thermal resistance - junction to amb. on 0.06" thick pcb. 1 oz. copper. | R _{θJA} | 100 | °C/W |

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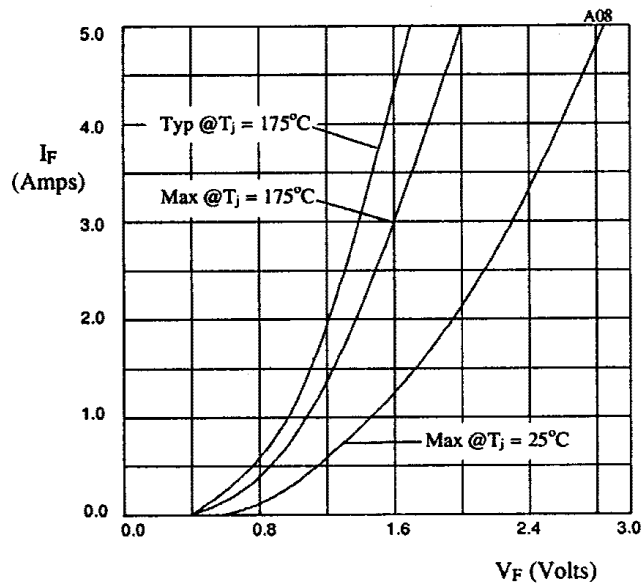


Fig 1. Forward voltage drop as a function of forward current.

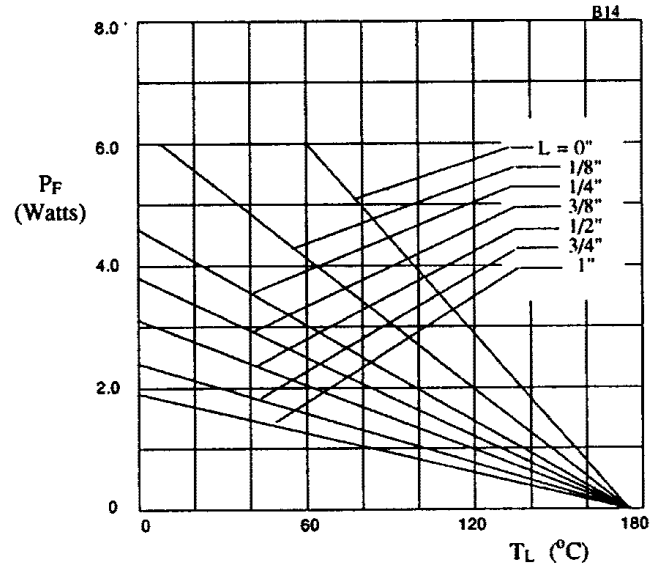


Fig 2. Maximum power versus lead temperature.

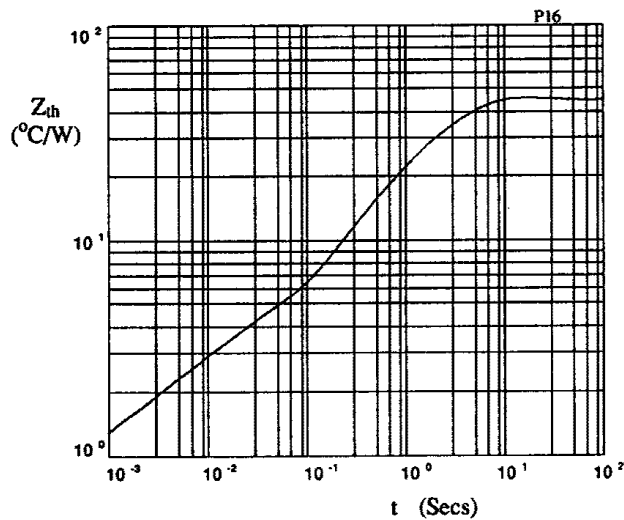


Fig 3. Transient thermal impedance characteristic.

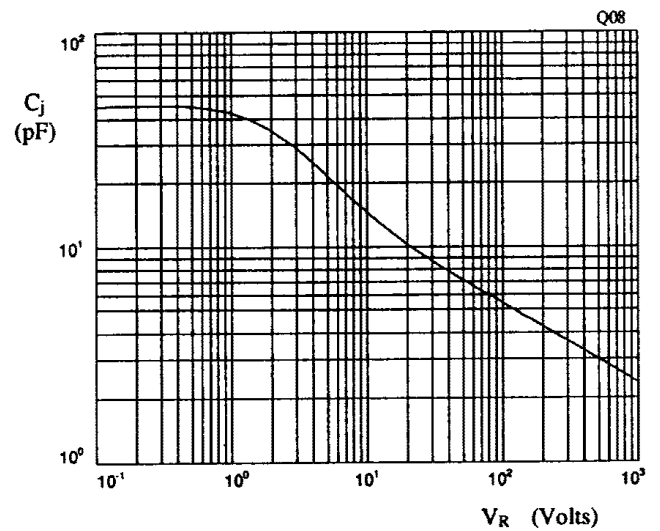


Fig 4. Typical junction capacitance as a function of reverse voltage.

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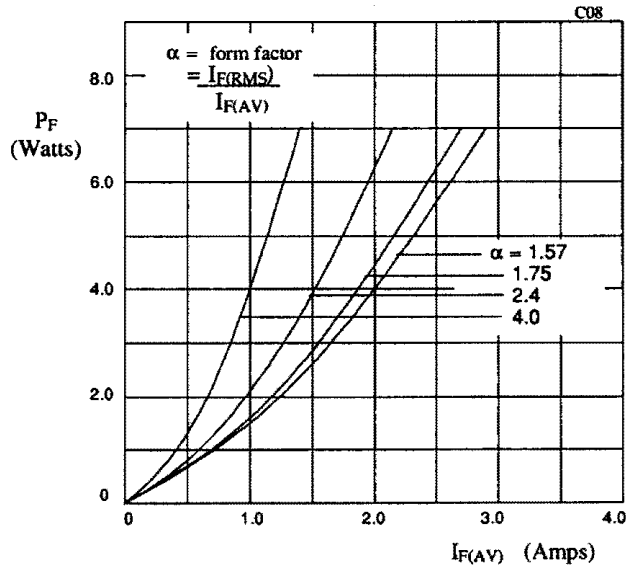


Fig 5. Forward power dissipation as a function of forward current, for sinusoidal operation.

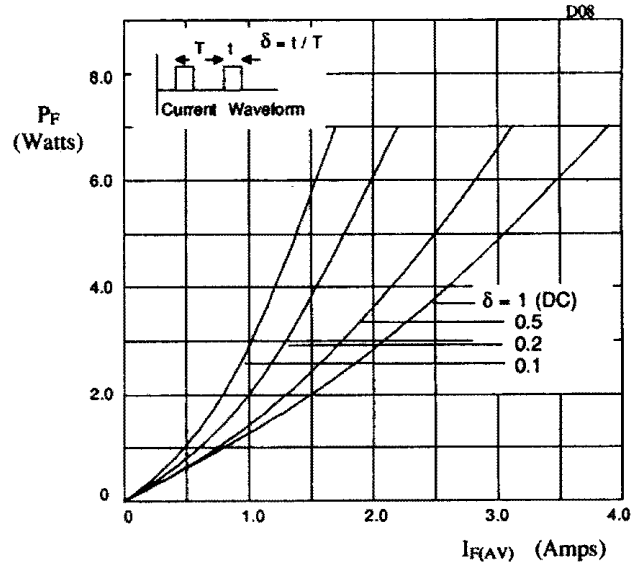


Fig 6. Forward power dissipation as a function of forward current, for square wave operation.

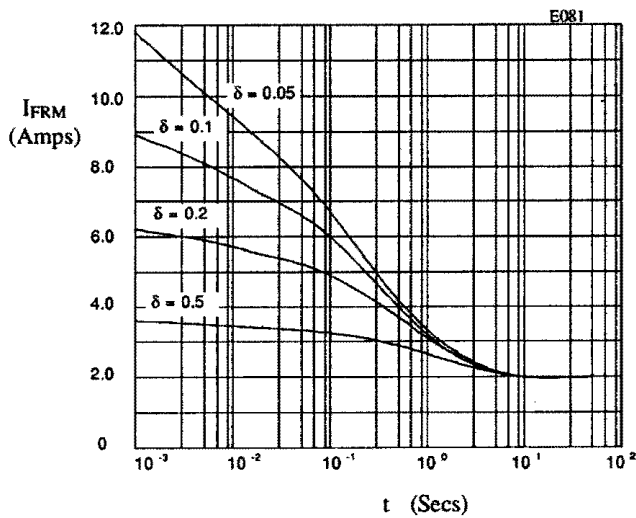


Fig 7. Typical repetitive forward current as a function of pulse width at 55°C; $R_{\theta JL} = 45 \text{ } ^\circ\text{C/W}$; V_{RWM} during $1 - \delta$.

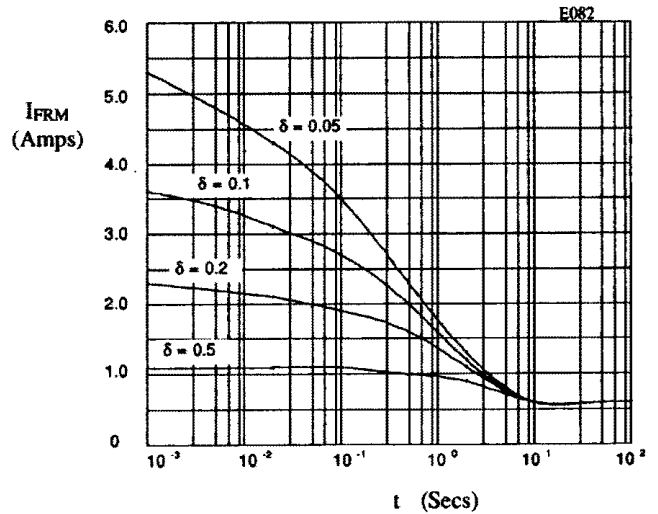


Fig 8. Typical repetitive forward current as a function of pulse width at 100°C; $R_{\theta JL} = 100 \text{ } ^\circ\text{C/W}$; V_{RWM} during $1 - \delta$.