

January 7, 1998

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## AXIAL LEADED HERMETICALLY SEALED SUPERFAST RECTIFIER DIODE

## QUICK REFERENCE DATA

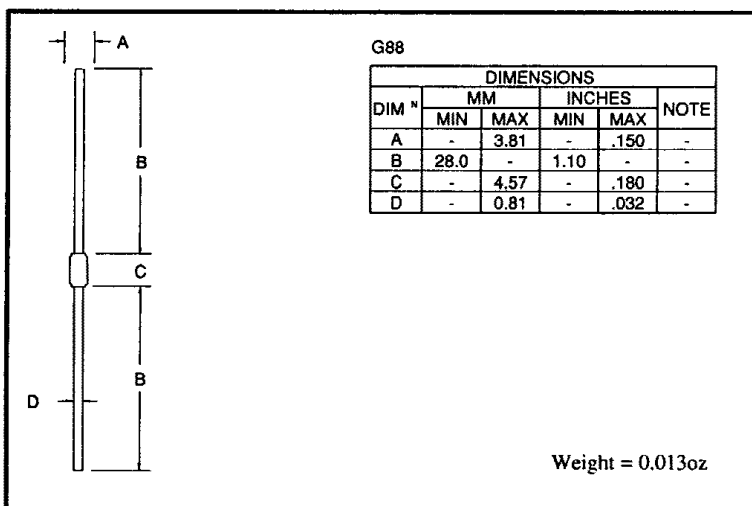
- Very low reverse recovery time
- Glass passivated for hermetic sealing
- Low switching losses
- Soft, non-snap off, recovery characteristics
- Low forward voltage drop

- $V_R = 50 - 200V$
- $I_F = 2.6A$
- $t_{rr} = 25nS$
- $V_F = 0.97V$

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

|                                                                          | Symbol      | 2PFT05          | 2PFT1 | 2PFT15 | 2PFT2 | Unit |
|--------------------------------------------------------------------------|-------------|-----------------|-------|--------|-------|------|
| Working reverse voltage                                                  | $V_{RWM}$   | 50              | 100   | 150    | 200   | V    |
| Repetitive reverse voltage                                               | $V_{RRM}$   | 50              | 100   | 150    | 200   | V    |
| Average forward current<br>(@ 55°C, lead length = 0.375")                | $I_{F(AV)}$ | ← 2.6 →         |       |        |       | A    |
| Repetitive surge current<br>(@ 55°C in free air, lead length 0.375")     | $I_{FRM}$   | ← 15.0 →        |       |        |       | A    |
| Non-repetitive surge current<br>( $t_p = 8.3mS$ , @ $V_R$ & $T_{jmax}$ ) | $I_{FSM}$   | ← 50.0 →        |       |        |       | A    |
| Storage temperature range                                                | $T_{STG}$   | ← -65 to +175 → |       |        |       | °C   |
| Operating temperature range                                              | $T_{OP}$    | ← -65 to +175 → |       |        |       | °C   |

## MECHANICAL



These products are qualified in Europe to DEF STAN 59-61 (PART 80)/043 available to F and FX levels.

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## ELECTRICAL CHARACTERISTICS (@ 25°C unless otherwise specified)

|                                                                                            | Symbol      | 2PFT05 | 2PFT1 | 2PFT15 | 2PFT2 | Unit                 |
|--------------------------------------------------------------------------------------------|-------------|--------|-------|--------|-------|----------------------|
| Average forward current max.<br>(pcb mounted; $T_A = 55^\circ\text{C}$ )<br>for sine wave  | $I_{F(AV)}$ | ←      | 1.35  | →      |       | A                    |
| for square wave ( $d = 0.5$ )                                                              | $I_{F(AV)}$ | ←      | 1.40  | →      |       | A                    |
| Average forward current max.<br>( $T_L = 55^\circ\text{C}$ ; $L = 3/8"$ )<br>for sine wave | $I_{F(AV)}$ | ←      | 2.4   | →      |       | A                    |
| for square wave                                                                            | $I_{F(AV)}$ | ←      | 2.6   | →      |       | A                    |
| $I^2t$ for fusing ( $t = 8.3\text{mS}$ ) max.                                              | $I^2t$      | ←      | 10.6  | →      |       | $\text{A}^2\text{S}$ |
| Forward voltage drop max.<br>@ $I_F = 2.0\text{A}$ , $T_j = 25^\circ\text{C}$              | $V_F$       | ←      | 0.97  | →      |       | V                    |
| Reverse current max.<br>@ $V_{RWM}$ , $T_j = 25^\circ\text{C}$                             | $I_R$       | ←      | 1.0   | →      |       | $\mu\text{A}$        |
| @ $V_{RWM}$ , $T_j = 100^\circ\text{C}$                                                    | $I_R$       | ←      | 10    | →      |       | $\mu\text{A}$        |
| Reverse recovery time max.<br>0.5A $I_F$ to 1.0A $I_R$ . Recovers to 0.25A $I_{RR}$ .      | $t_{rr}$    | ←      | 25    | →      |       | nS                   |
| Junction capacitance typ.<br>@ $V_R = 5\text{V}$ , $f = 1\text{MHz}$                       | $C_j$       | ←      | 45    | →      |       | pF                   |

## THERMAL CHARACTERISTICS

|                                                                            | Symbol          | 2PFT05 | 2PFT1 | 2PFT15 | 2PFT2 | Unit               |
|----------------------------------------------------------------------------|-----------------|--------|-------|--------|-------|--------------------|
| Thermal resistance - junction to lead<br>Lead length = 0.375"              | $R_{\theta JL}$ | ←      | 47    | →      |       | $^\circ\text{C/W}$ |
| Lead length = 0.0"                                                         | $R_{\theta JL}$ | ←      | 19    | →      |       | $^\circ\text{C/W}$ |
| Thermal resistance - junction to amb.<br>on 0.06" thick pcb. 1 oz. copper. | $R_{\theta JA}$ | ←      | 100   | →      |       | $^\circ\text{C/W}$ |

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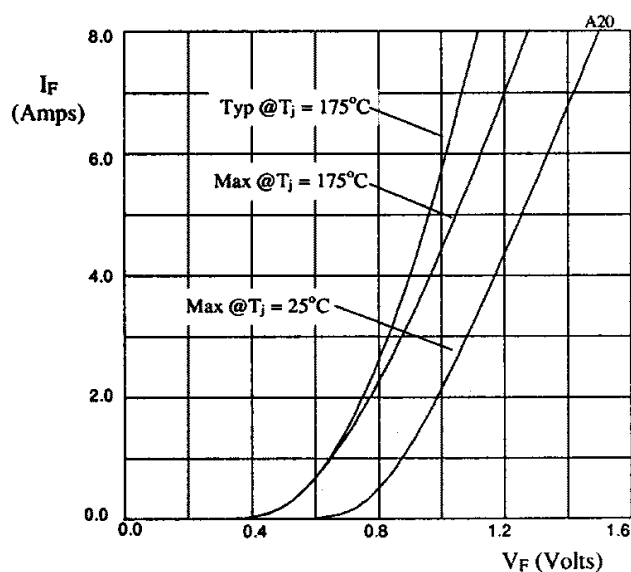


Fig 1. Forward voltage drops as a function of forward current.

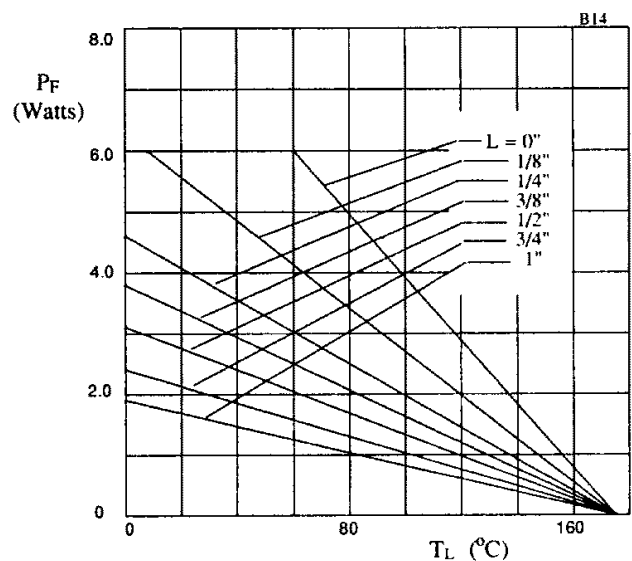


Fig 2. Maximum power versus lead temperature.

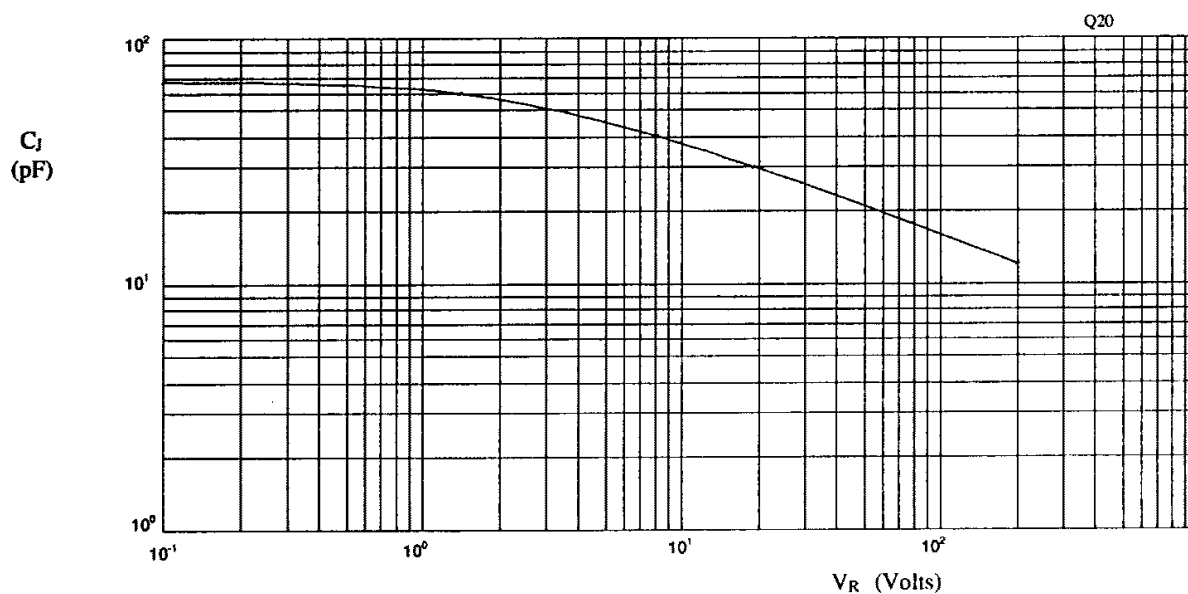


Fig 3. Typical junction capacitance as a function of reverse voltage.

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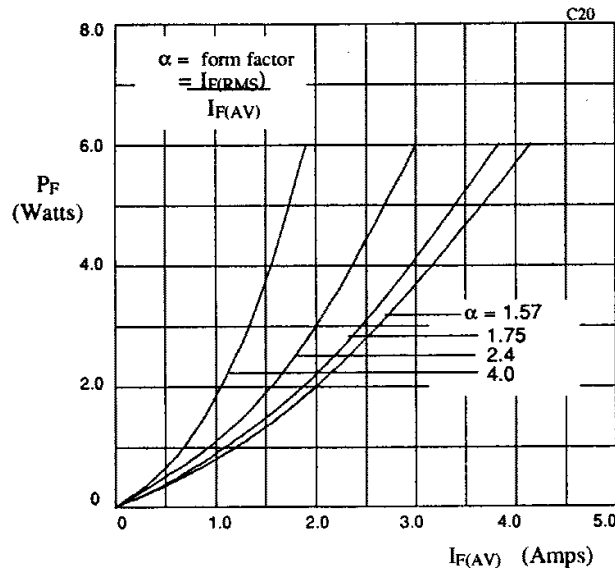


Fig 4. Forward power dissipation as a function of forward current, for sinusoidal operation.

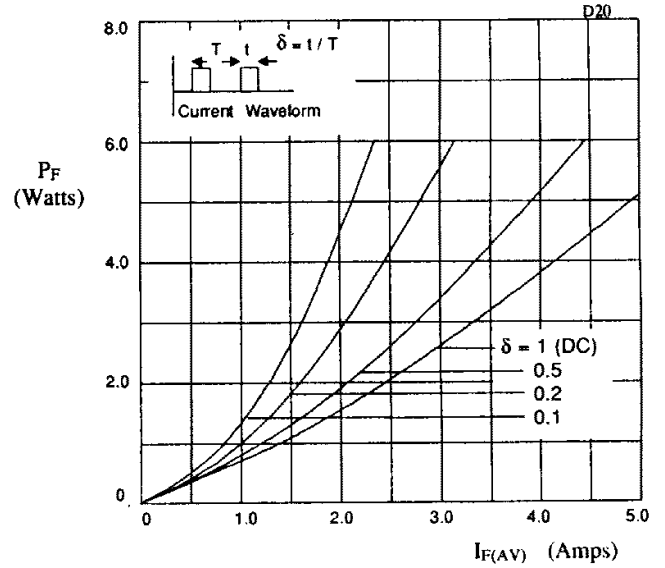


Fig 5. Forward power dissipation as a function of forward current, for square wave operation.

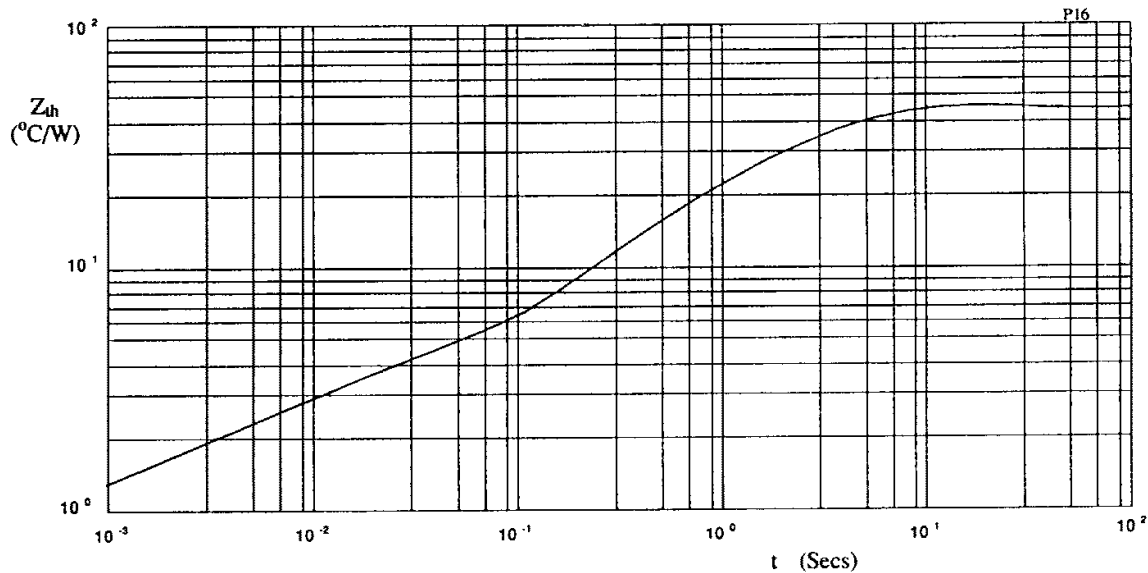


Fig 6. Transient thermal impedance characteristic.