

January 7, 1998

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## AXIAL LEADED HERMETICALLY SEALED SUPERFAST RECTIFIER DIODE

## QUICK REFERENCE DATA

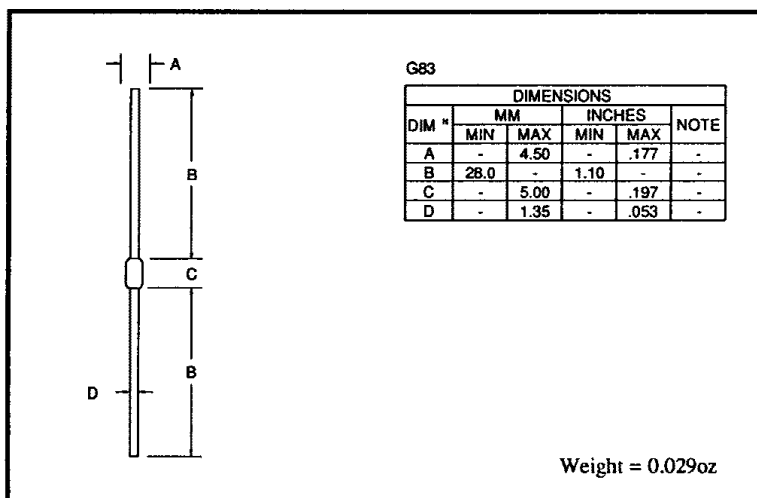
- Very low reverse recovery time
- Low forward voltage drop
- Glass passivated for hermetic sealing
- Low switching losses
- Soft, non-snap off, recovery characteristics

- $V_R = 50 - 200V$
- $I_F = 4.0A$
- $t_{rr} = 30ns$
- $V_F = 1.05V$

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

	Symbol	3PFT05	3PFT1	3PFT15	3PFT2	Unit
Working reverse voltage	$V_{RWM}$	50	100	150	200	V
Repetitive reverse voltage	$V_{RRM}$	50	100	150	200	V
Average forward current (@ 55°C, lead length 0.375")	$I_{F(AV)}$	← 4.0 →				A
Repetitive surge current (@ 55°C in free air, lead length 0.375")	$I_{FRM}$	← 25 →				A
Non-repetitive surge current ( $t_p = 8.3ms$ , @ $V_R$ & $T_{jmax}$ )	$I_{FSM}$	← 90 →				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)/029 available to F and FX levels.

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

	Symbol	3PFT05	3PFT1	3PFT15	3PFT2	Unit
Average forward current max. (pcb mounted; T <sub>A</sub> = 55°C) for sine wave	I <sub>F(AV)</sub>	← 1.8 →				A
	I <sub>F(AV)</sub>	← 1.9 →				A
Average forward current max. (T <sub>L</sub> = 55°C; L = 3/8") for sine wave	I <sub>F(AV)</sub>	← 3.8 →				A
	I <sub>F(AV)</sub>	← 4.0 →				A
I <sup>2</sup> t for fusing (t = 8.3mS) max.	I <sup>2</sup> t	← 33 →				A <sup>2</sup> S
Forward voltage drop max. @ I <sub>F</sub> = 3.5A, T <sub>j</sub> = 25°C	V <sub>F</sub>	← 1.05 →				V
Reverse current max. @ V <sub>RWM</sub> , T <sub>j</sub> = 25°C	I <sub>R</sub>	← 1.0 →				μA
	I <sub>R</sub>	← 10 →				μA
Reverse recovery time max. 0.5A I <sub>F</sub> to 1.0A I <sub>R</sub> . Recovers to 0.25A I <sub>RR</sub> .	t <sub>rr</sub>	← 30 →				nS
Junction capacitance typ. @ V <sub>R</sub> = 5V, f = 1MHz	C <sub>j</sub>	← 92 →				ρF

**THERMAL CHARACTERISTICS**

	Symbol	3PFT05	3PFT1	3PFT15	3PFT2	Unit
Thermal resistance - junction to lead Lead length = 0.375"	R <sub>θJL</sub>	← 26 →				°C/W
	R <sub>θJL</sub>	← 12 →				°C/W
Thermal resistance - junction to amb. on 0.06" thick pcb. 1 oz. copper.	R <sub>θJA</sub>	← 75 →				°C/W

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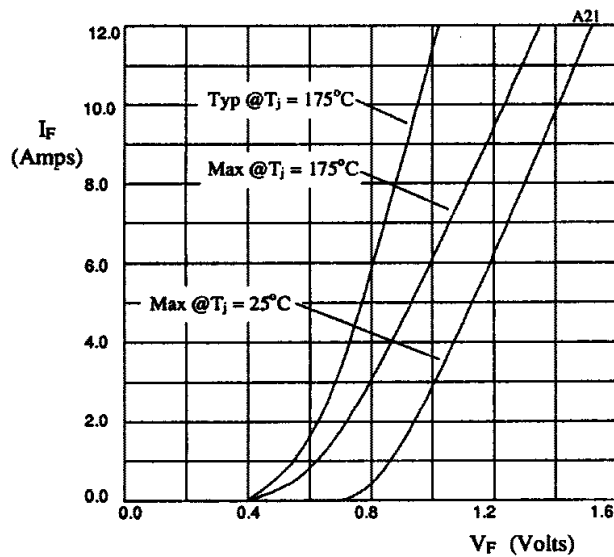


Fig 1. Forward voltage drops as a function of forward current.

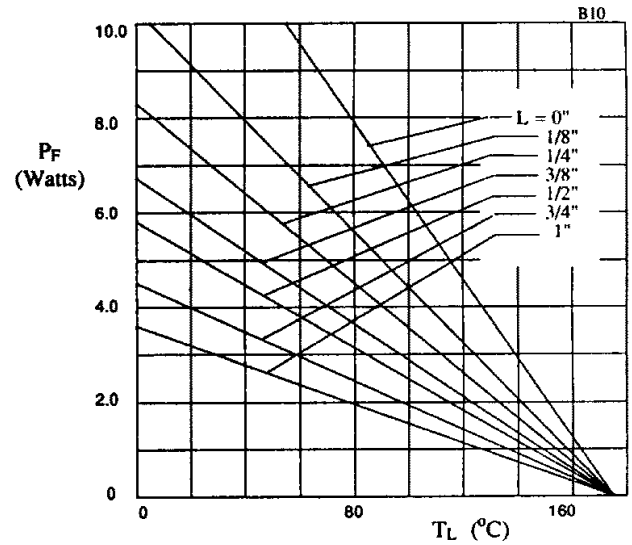


Fig 2. Maximum power versus lead temperature.

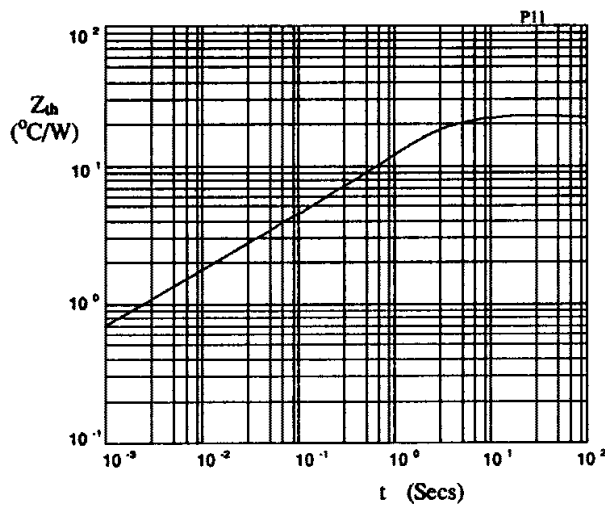


Fig 3. Transient thermal impedance characteristic.

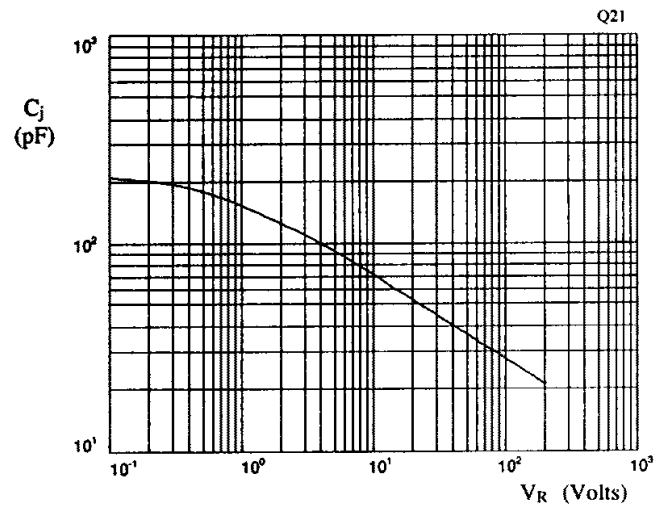


Fig 4. Typical junction capacitance as a function of reverse voltage.

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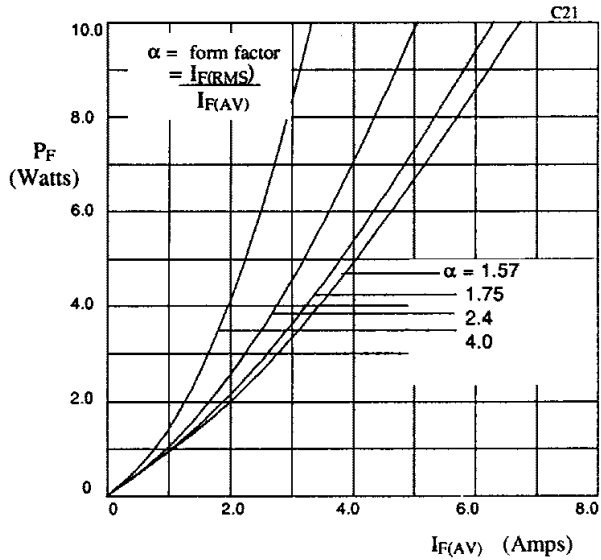


Fig 5. Forward power dissipation as a function of forward current, for sinusoidal operation.

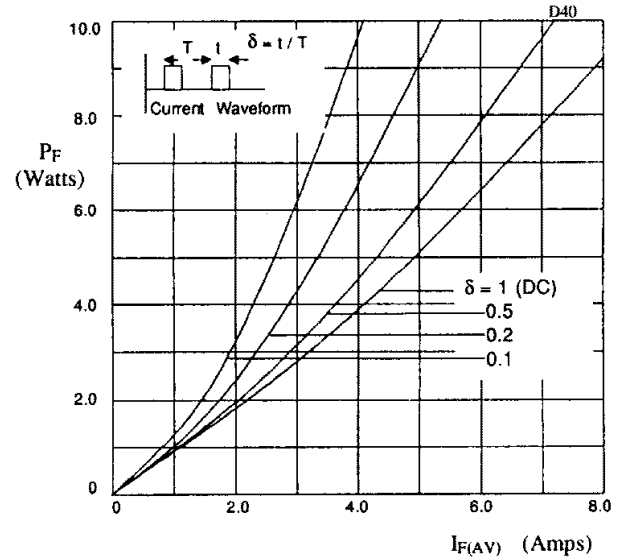


Fig 6. Forward power dissipation as a function of forward current, for square wave operation.

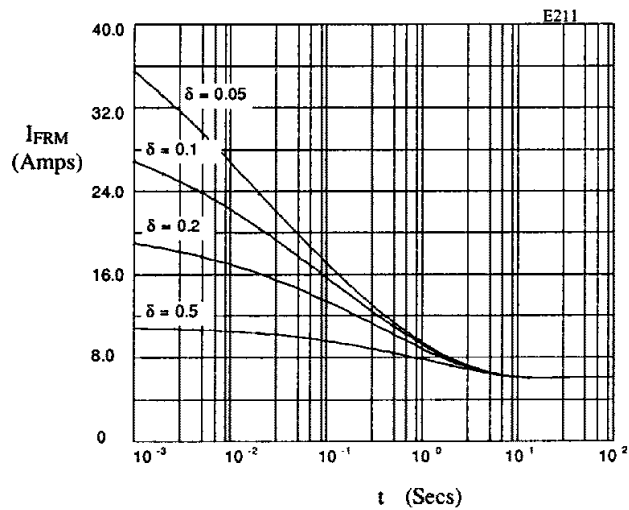


Fig 7. Typical repetitive forward current as a function of pulse width at 55°C;  $R_{\theta JL} = 22^\circ\text{C/W}$ ;  $V_{RWM}$  during  $1 - \delta$ .

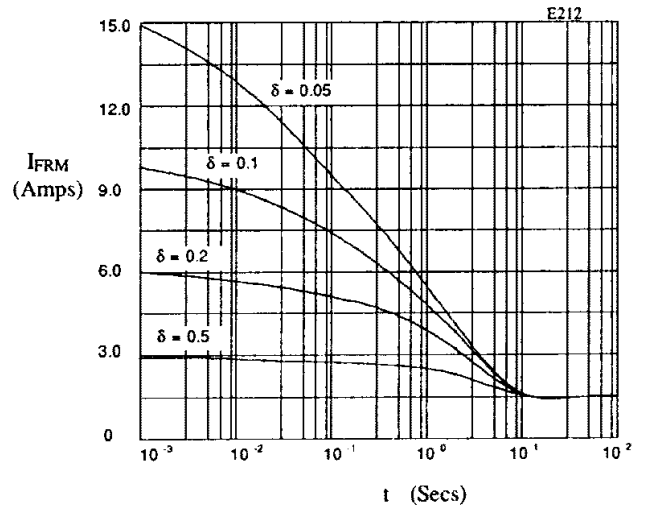


Fig 8. Typical repetitive forward current as a function of pulse width at 100°C;  $R_{\theta JL} = 75^\circ\text{C/W}$ ;  $V_{RWM}$  during  $1 - \delta$ .