

January 7, 1998

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AXIAL LEADED HERMETICALLY SEALED SUPERFAST RECTIFIER DIODE

QUICK REFERENCE DATA

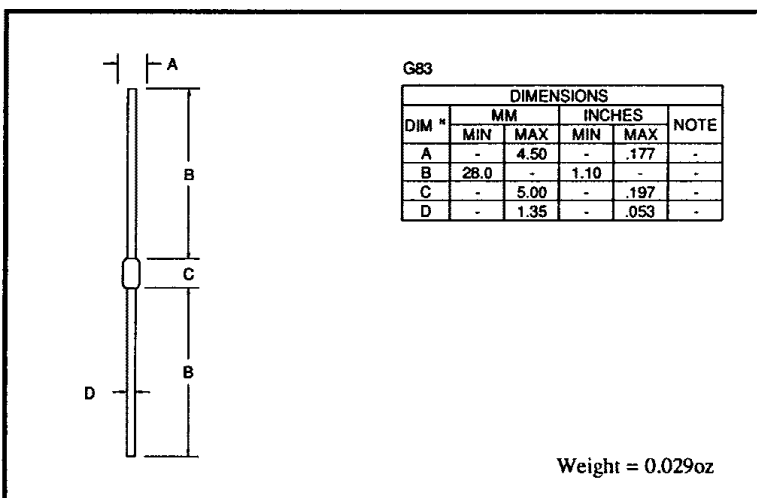
- Very low reverse recovery time
- Low forward voltage drop
- Glass passivated for hermetic sealing
- Low switching losses
- Soft, non-snap off, recovery characteristics

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

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; $T_A = 55^\circ\text{C}$) for sine wave	$I_{F(AV)}$	←	1.8	→		A
for square wave ($d = 0.5$)	$I_{F(AV)}$	←	1.9	→		A
Average forward current max. ($T_L = 55^\circ\text{C}$; $L = 3/8"$) for sine wave	$I_{F(AV)}$	←	3.8	→		A
for square wave	$I_{F(AV)}$	←	4.0	→		A
I^2t for fusing ($t = 8.3\text{mS}$) max.	I^2t	←	33	→		A^2S
Forward voltage drop max. @ $I_F = 3.5\text{A}$, $T_j = 25^\circ\text{C}$	V_F	←	1.05	→		V
Reverse current max. @ V_{RWM} , $T_j = 25^\circ\text{C}$	I_R	←	1.0	→		μA
@ V_{RWM} , $T_j = 100^\circ\text{C}$	I_R	←	10	→		μA
Reverse recovery time max. 0.5A I_F to 1.0A I_R . Recovers to 0.25A I_{RR} .	t_{rr}	←	30	→		nS
Junction capacitance typ. @ $V_R = 5\text{V}$, $f = 1\text{MHz}$	C_j	←	92	→		pF

THERMAL CHARACTERISTICS

	Symbol	3PFT05	3PFT1	3PFT15	3PFT2	Unit
Thermal resistance - junction to lead Lead length = 0.375"	$R_{\theta JL}$	←	26	→		$^\circ\text{C/W}$
Lead length = 0.0"	$R_{\theta JL}$	←	12	→		$^\circ\text{C/W}$
Thermal resistance - junction to amb. on 0.06" thick pcb. 1 oz. copper.	$R_{\theta JA}$	←	75	→		$^\circ\text{C/W}$

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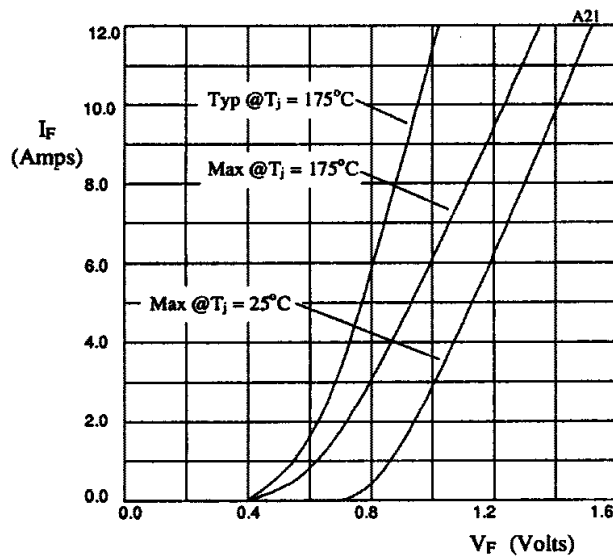


Fig 1. Forward voltage drops as a function of forward current.

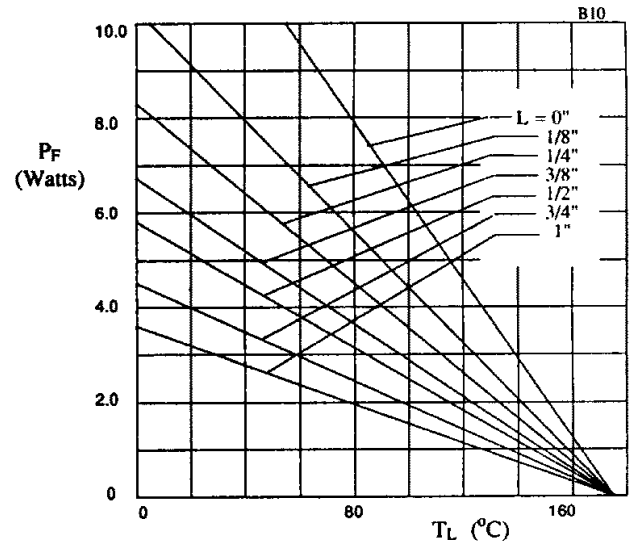


Fig 2. Maximum power versus lead temperature.

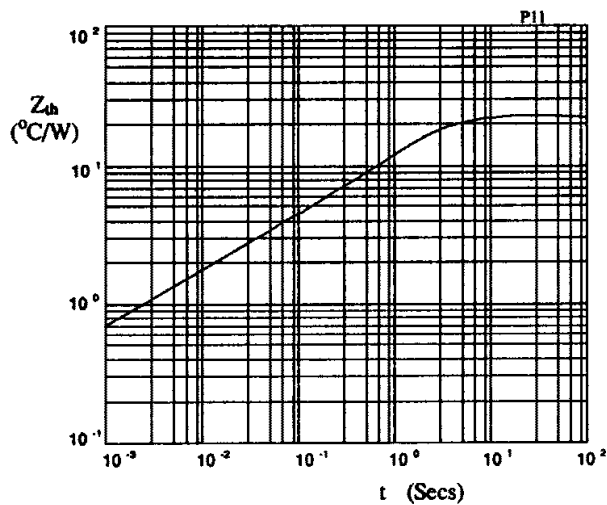


Fig 3. Transient thermal impedance characteristic.

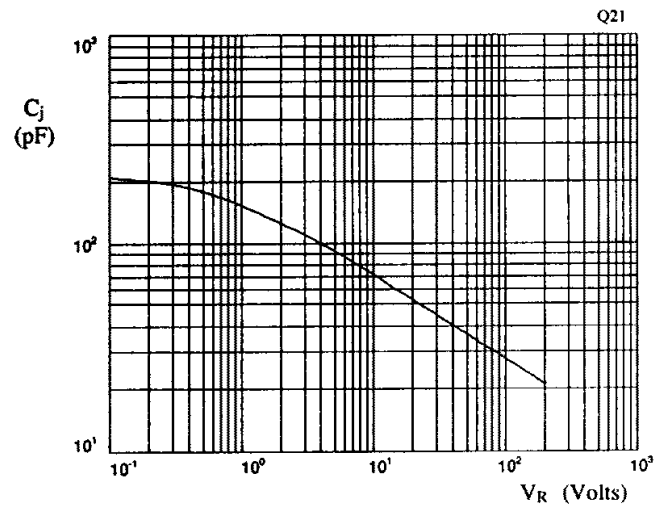


Fig 4. Typical junction capacitance as a function of reverse voltage.

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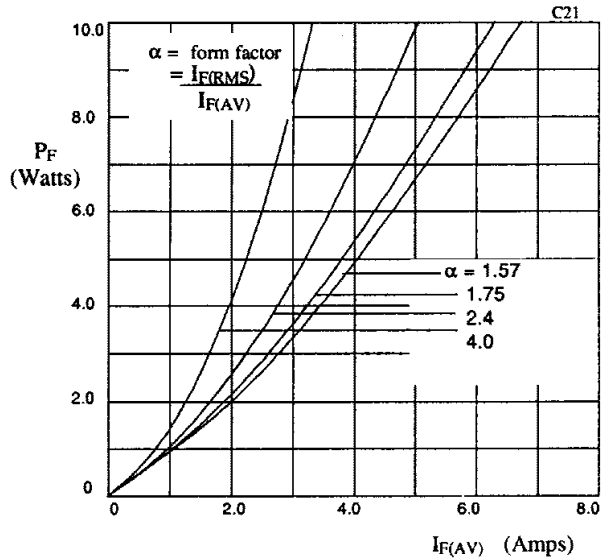


Fig 5. Forward power dissipation as a function of forward current, for sinusoidal operation.

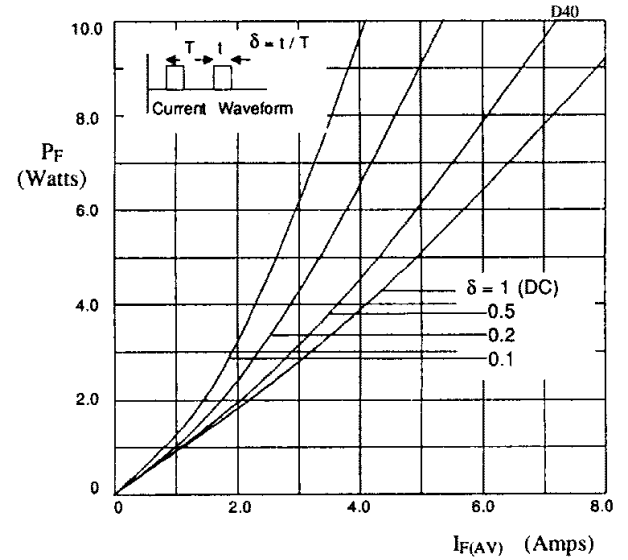


Fig 6. Forward power dissipation as a function of forward current, for square wave operation.

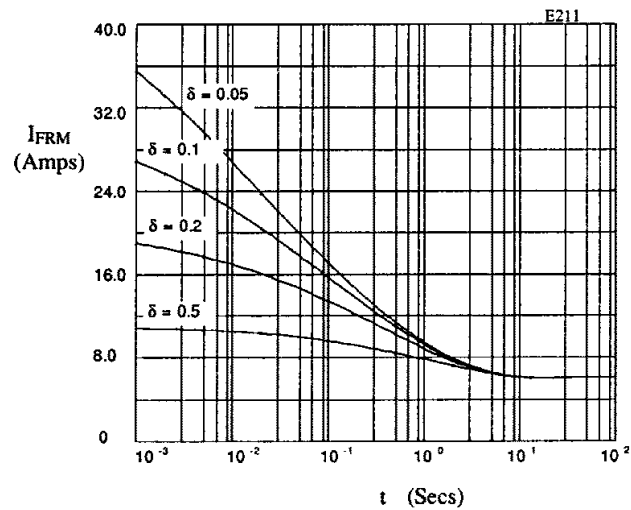


Fig 7. Typical repetitive forward current as a function of pulse width at 55°C; $R_{\theta J L} = 22^{\circ}\text{C/W}$; V_{RWM} during $1 - \delta$.

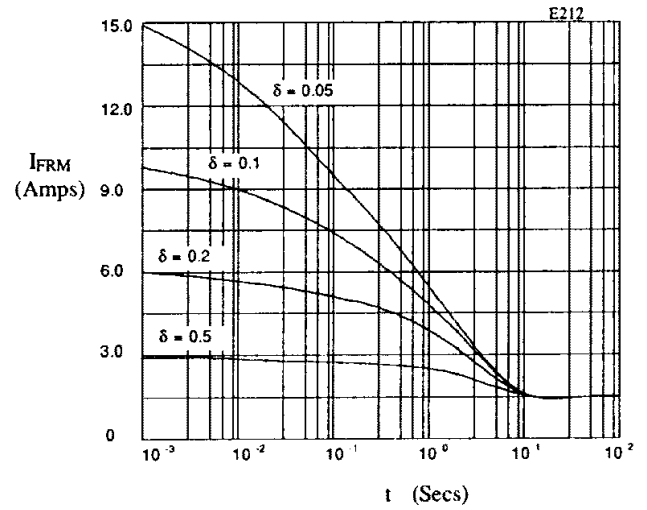


Fig 8. Typical repetitive forward current as a function of pulse width at 100°C; $R_{\theta J L} = 75^{\circ}\text{C/W}$; V_{RWM} during $1 - \delta$.