January 7, 1998

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

AXIAL LEADED HERMETICALLY SEALED SUPERFAST RECTIFIER DIODE

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

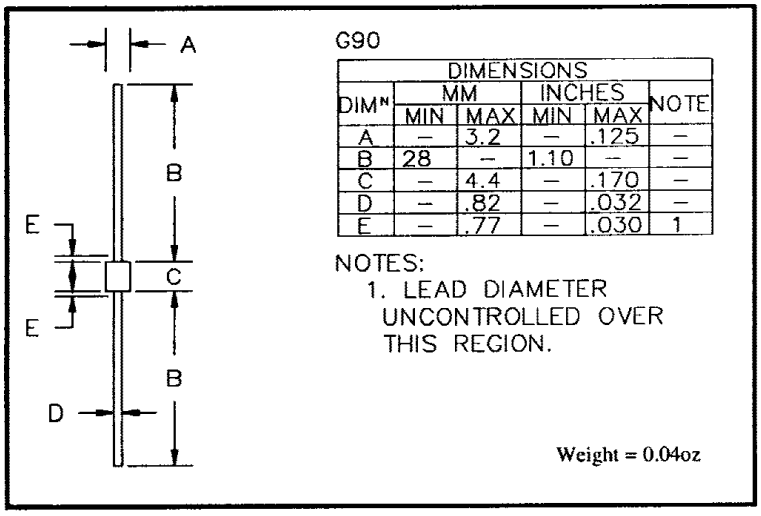
QUICK REFERENCE DATA

- V_R = 400V
- I_F = 2.1A
- t_{rr} = 50nS
- I_R = 1µA

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

	Symbol	2IPFF4	Unit
Working reverse voltage	V_{RWM}	400	V
Repetitive reverse voltage	V_{RRM}	400	V
Average forward current (@ 55°C, lead length 0.375")	$I_{F(AV)}$	2.1	A
Repetitive surge current (@ 55°C in free air, lead length 0.375")	I_{FRM}	12.0	A
Non-repetitive surge current (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



G90

DIMENSIONS					
DIM	MM		INCHES		NOTE
	MIN	MAX	MIN	MAX	
A	–	3.2	–	.125	–
B	28	–	1.10	–	–
C	–	4.4	–	.170	–
D	–	.82	–	.032	–
E	–	.77	–	.030	1

NOTES:
1. LEAD DIAMETER UNCONTROLLED OVER THIS REGION.

Weight = 0.04oz

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ELECTRICAL CHARACTERISTICS (@ 25°C unless otherwise specified)

	Symbol	2IPFF4	Unit
Average forward current max. (pcb mounted; T_A = 55°C)			
for sine wave	$I_{F(AV)}$	1.0	A
for square wave (d = 0.5)	$I_{F(AV)}$	1.1	A
Average forward current max. (T_L = 55°C; L = 3/8")			
for sine wave	$I_{F(AV)}$	2.0	A
for square wave	$I_{F(AV)}$	2.1	A
I^2t for fusing (t = 8.3mS) max.	I^2t	10	A^2S
Forward voltage drop max. @ I_F = 2.0A, T_j = 25°C	V_F	1.05	V
Reverse current max.			
@ V_{RWM}, T_j = 25°C	I_R	1.0	µA
@ V_{RWM}, T_j = 100°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}	50	nS
Junction capacitance typ. @ V_R = 5V , f = 1MHz	C_j	35	pF

THERMAL CHARACTERISTICS

	Symbol	2IPFF4	Unit
Thermal resistance - junction to lead			
Lead length = 0"	$R_{\theta JL}$	18	°C/W
Lead length = 0.375"	$R_{\theta JL}$	50	°C/W
Thermal resistance - junction to amb. on 0.06" thick pcb. 1 oz. copper.	$R_{\theta JA}$	105	°C/W

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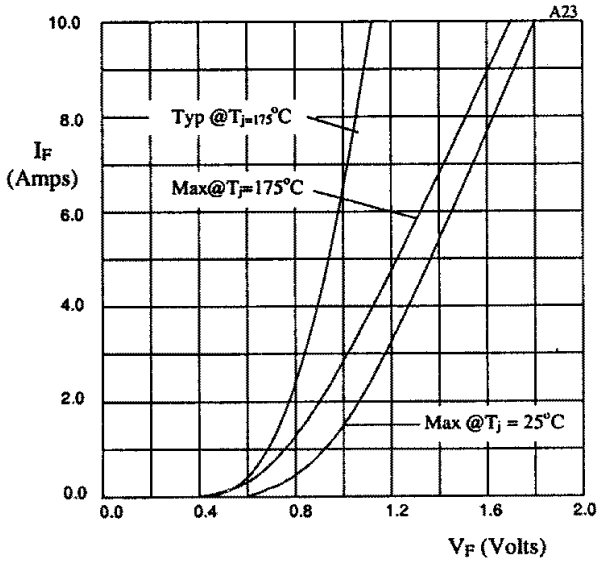

Fig 1. Forward voltage drop as a function of forward current.

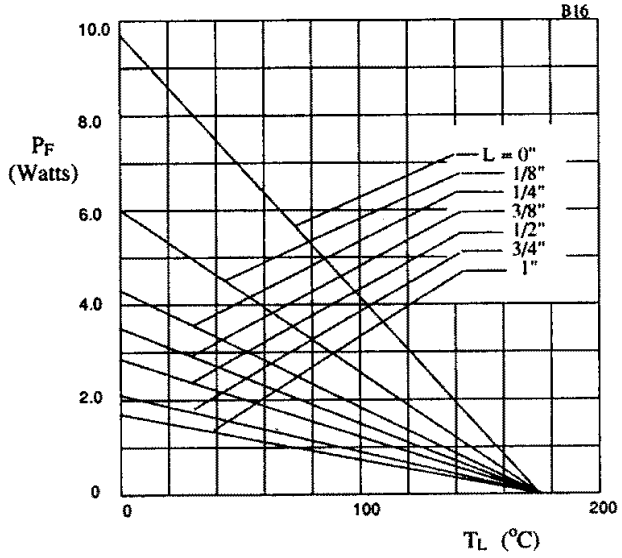

Fig 2. Maximum power versus lead temperature.

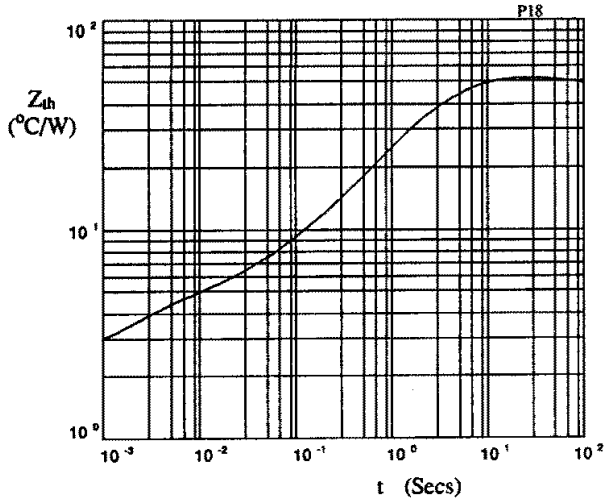

Fig 3. Transient thermal impedance characteristic.

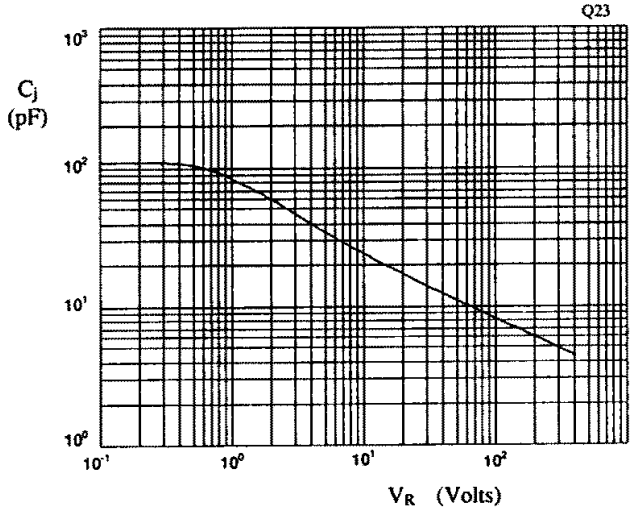

Fig 4. Typical junction capacitance as a function of reverse voltage.

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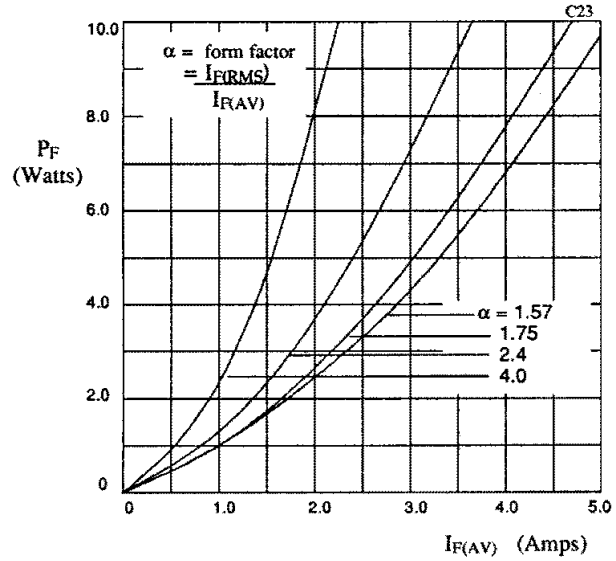

Fig 5. Forward power dissipation as a function of forward current, for sinusoidal operation.

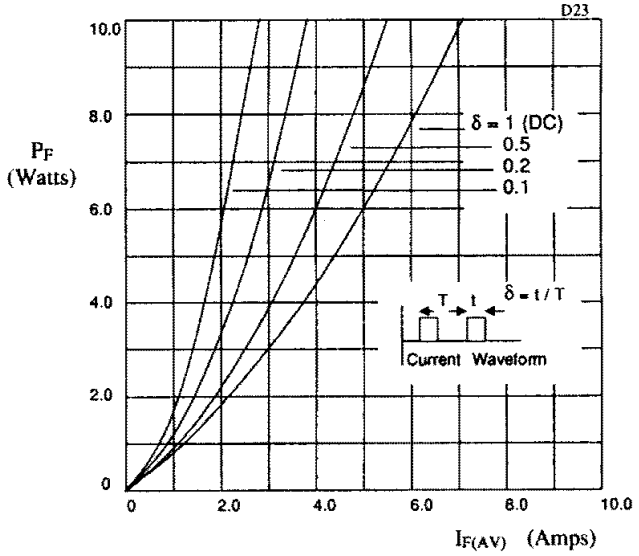

Fig 6. Forward power dissipation as a function of forward current, for square wave operation.

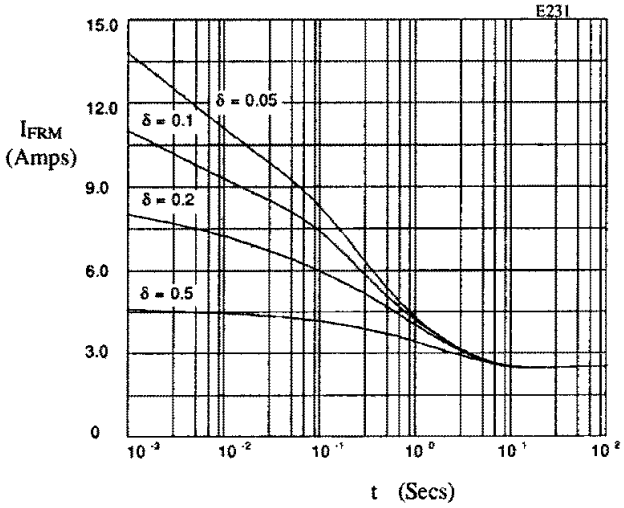

Fig 7. Typical repetitive forward current as a function of pulse width at 55°C; $R_{\theta JL}$ = 50 °C/W; V_{RWM} during 1 - δ.

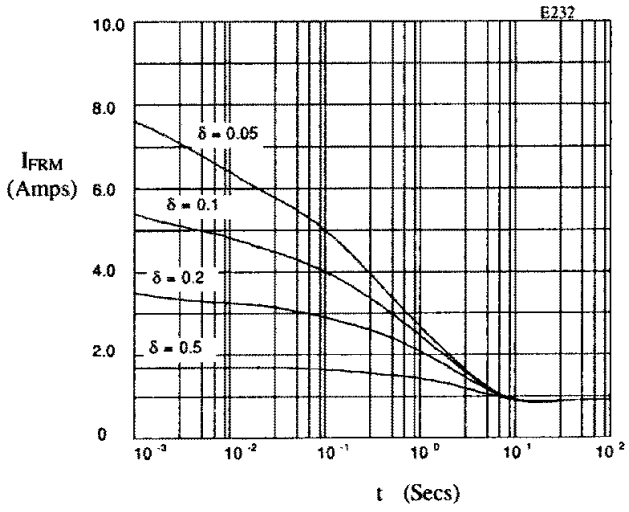

Fig 8. Typical repetitive forward current as a function of pulse width at 100°C; $R_{\theta JL}$ = 105 °C/W; V_{RWM} during 1 - δ.