

January 7, 1998

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

AXIAL LEADED HERMETICALLY SEALED HIGH VOLTAGE SUPERFAST RECTIFIER DIODE

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

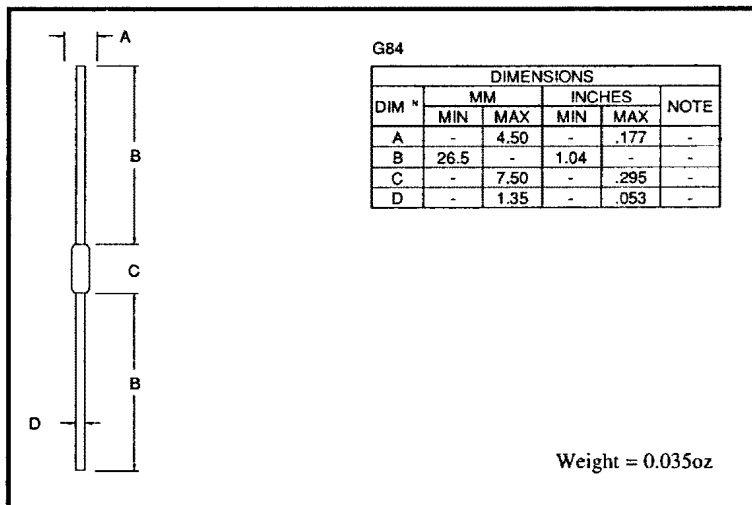
QUICK REFERENCE DATA

- $V_R = 5000V$
- $I_F = 0.36A$
- $t_{rr} = 30ns$
- $I_R = 0.1\mu A$

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

	Symbol	PFF50	Unit
Working reverse voltage	V_{RWM}	5000	V
Repetitive reverse voltage	V_{RRM}	5000	V
Average forward current (@ 55°C, lead length 0.375")	$I_{F(AV)}$	0.36	A
Repetitive surge current (@ 55°C in oil, lead length 0.375")	I_{FRM}	5.0	A
Non-repetitive surge current ($t_p = 8.3ms$, @ V_R & T_{jmax})	I_{FSM}	22	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)/045 available to F and FX levels.

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ELECTRICAL CHARACTERISTICS (@ 25°C unless otherwise specified)

	Symbol	PFF50	Unit
Average forward current max. (pcb mounted; T _A = 55°C) for sine wave	I _{F(AV)}	0.14	A
for square wave (d = 0.5)	I _{F(AV)}	0.15	A
Average forward current max. (oil at 55°C) for sine wave	I _{F(AV)}	0.34	A
for square wave	I _{F(AV)}	0.36	A
I ² t for fusing (t = 8.3mS) max.	I ² t	2.00	A ² S
Forward voltage drop max. @ I _F = 0.2A, T _j = 25°C	V _F	12.5	V
Reverse current max. @ V _{RWM} , T _j = 25°C	I _R	0.1	μA
@ V _{RWM} , T _j = 100°C	I _R	5.0	μA
Reverse recovery time max. 50mA I _F to 100mA I _R . Recover to 25mA I _{RR} .	t _{rr}	30	nS
Junction capacitance typ. @ V _R = 5V, f = 1MHz	C _j	4.5	pF

THERMAL CHARACTERISTICS

	Symbol	PFF50	Unit
Thermal resistance - junction to oil Unstirred	R _{θJO}	24	°C/W
Stirred	R _{θJO}	18	°C/W
Thermal resistance - junction to amb. on 0.06" thick pcb. 1 oz. copper.	R _{θJA}	80	°C/W

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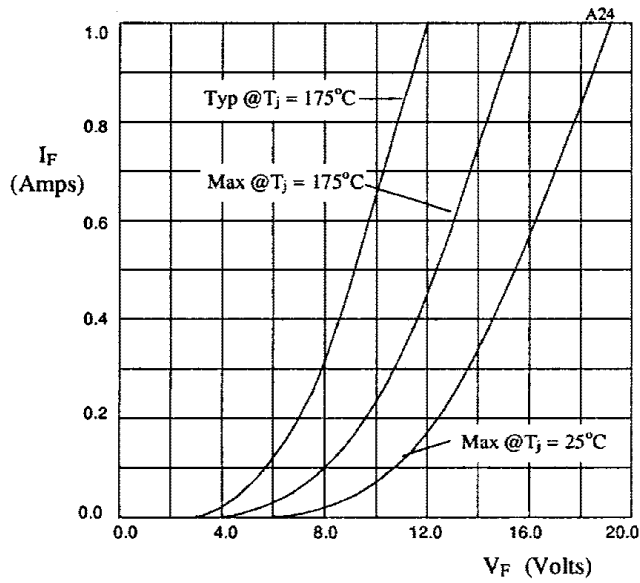


Fig 1. Forward voltage drop as a function of forward current.

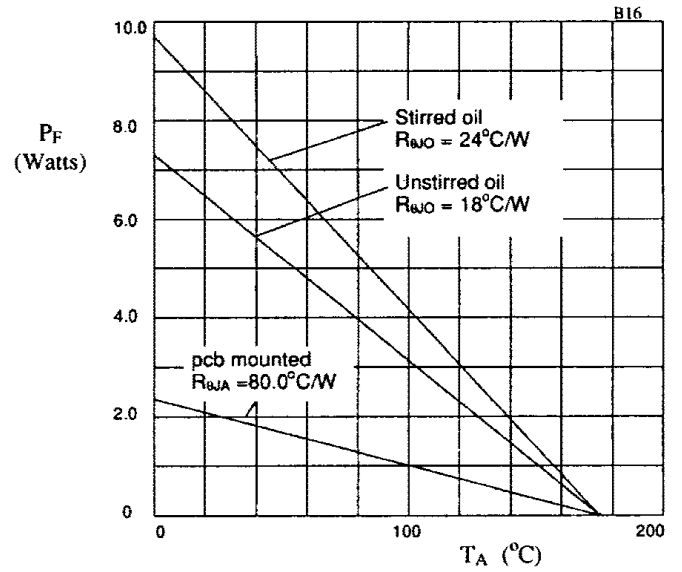


Fig 2. Power derating in oil and when pcb mounted.

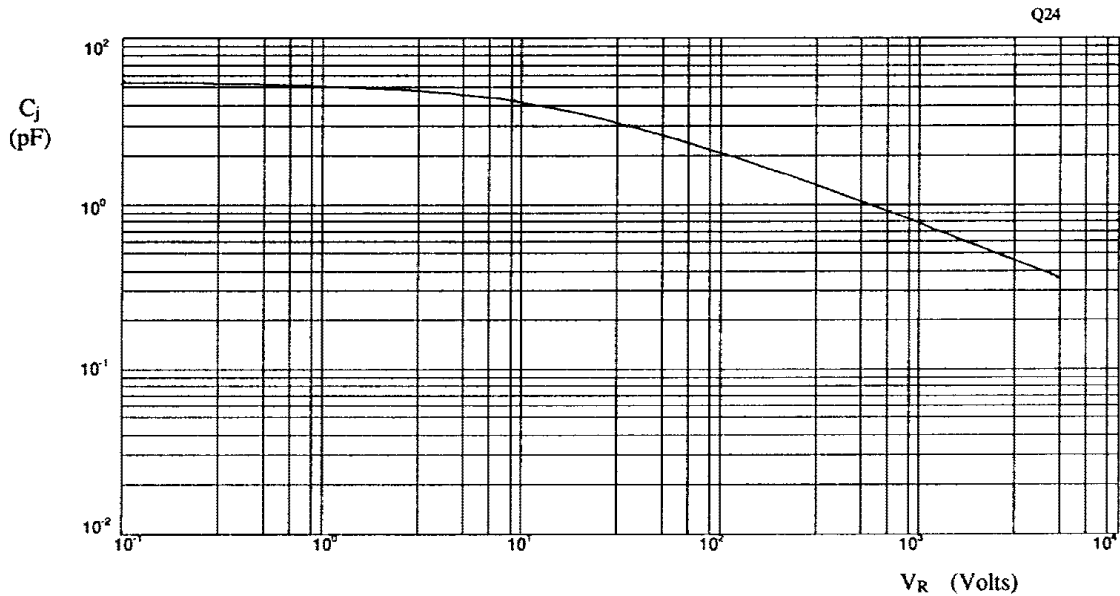


Fig 3. Typical junction capacitance as a function of reverse voltage.

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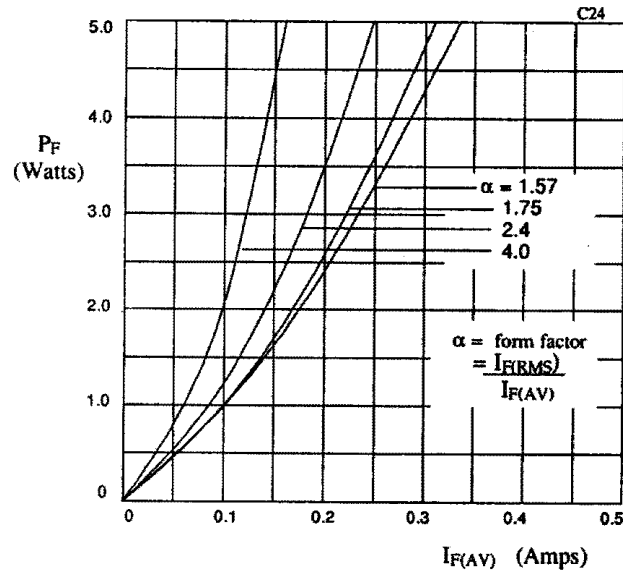


Fig 4. Forward power dissipation as a function of forward current, for sinusoidal operation.

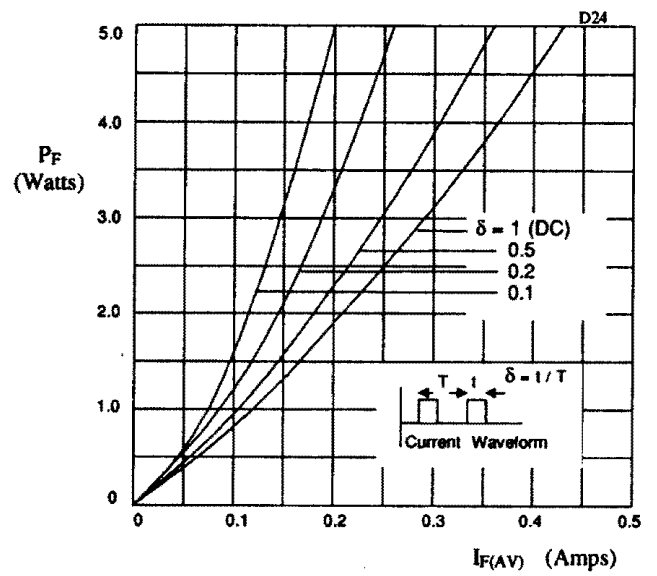


Fig 5. Forward power dissipation as a function of forward current, for square wave operation.