SEMTECH

RECTIFIER, 5kV, 360mA, 30ns

PFF50

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

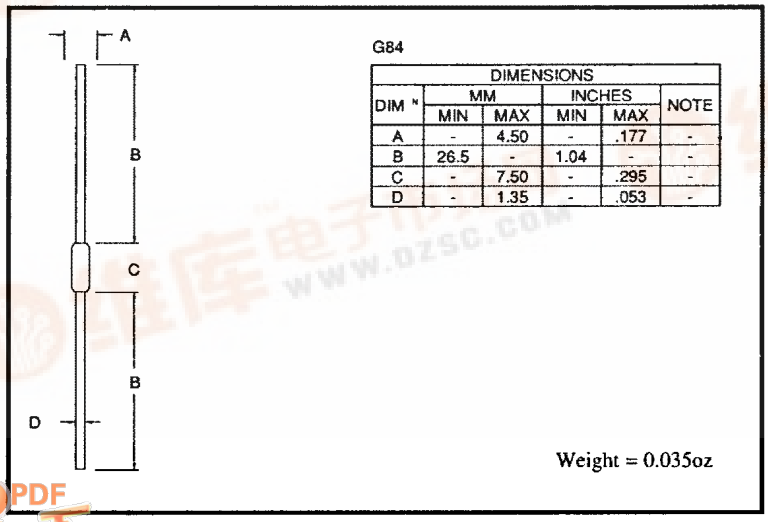
QUICK REFERENCE DATA

- V_R = 5000V
- I_F = 0.36A
- t_{rr} = 30nS
- I_R = 0.1µA

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



G84

DIM	DIMENSIONS MM MIN	MM MAX	INCHES MIN	INCHES MAX	NOTE
A	-	4.50	-	.177	-
B	26.5	-	1.04	-	-
C	-	7.50	-	.295	-
D	-	1.35	-	.053	-

Weight = 0.035oz

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^2t for fusing (t = 8.3mS) max.	I^2t	2.00	A^2S
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	$R_{\theta JO}$	24	°C/W
Stirred	$R_{\theta JO}$	18	°C/W
Thermal resistance - junction to amb. on 0.06" thick pcb. 1 oz. copper.	$R_{\theta JA}$	80	°C/W

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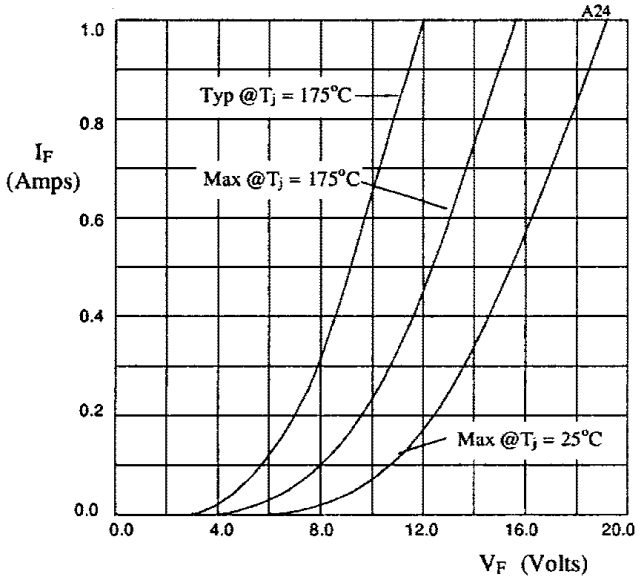

Fig 1. Forward voltage drop as a function of forward current.

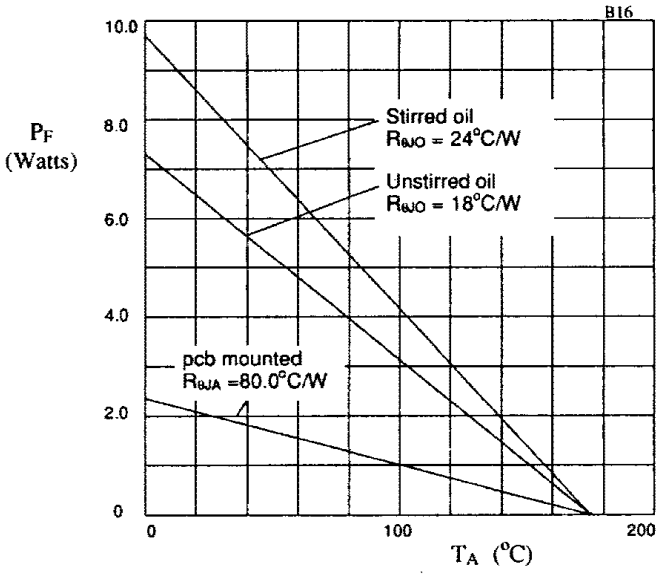

Fig 2. Power derating in oil and when pcb mounted.

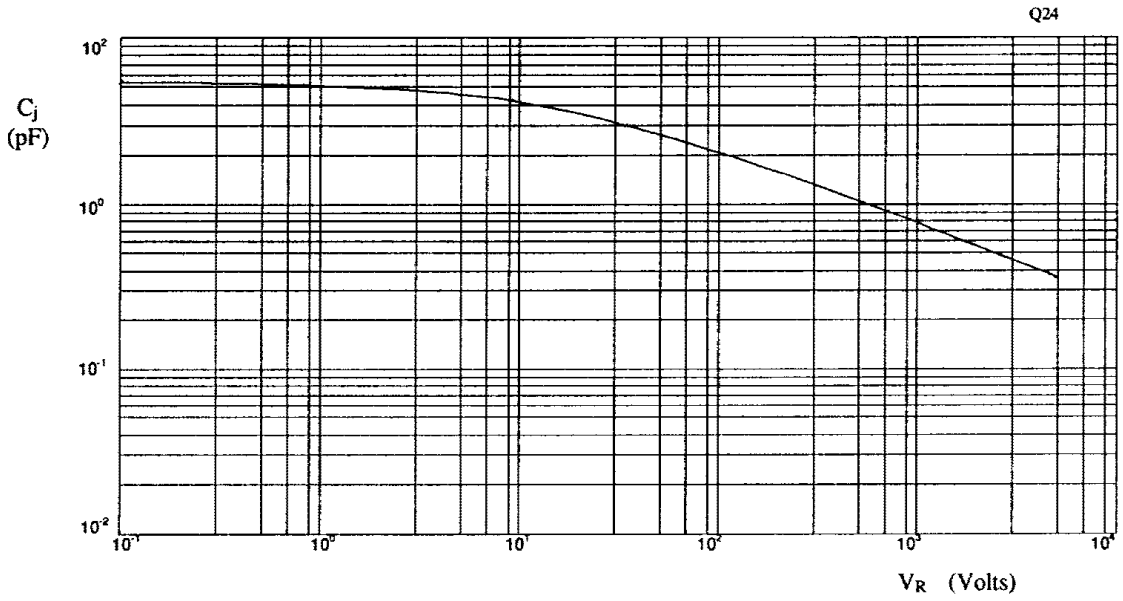

Fig 3. Typical junction capacitance as a function of reverse voltage.

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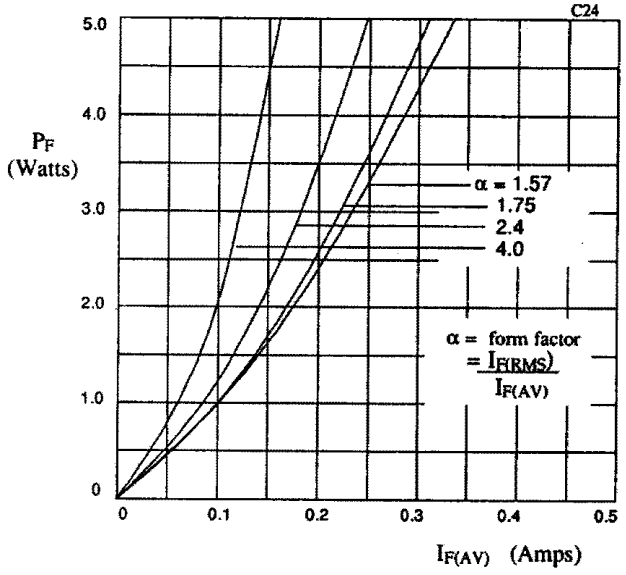

Fig 4. Forward power dissipation as a function of forward current, for sinusoidal operation.

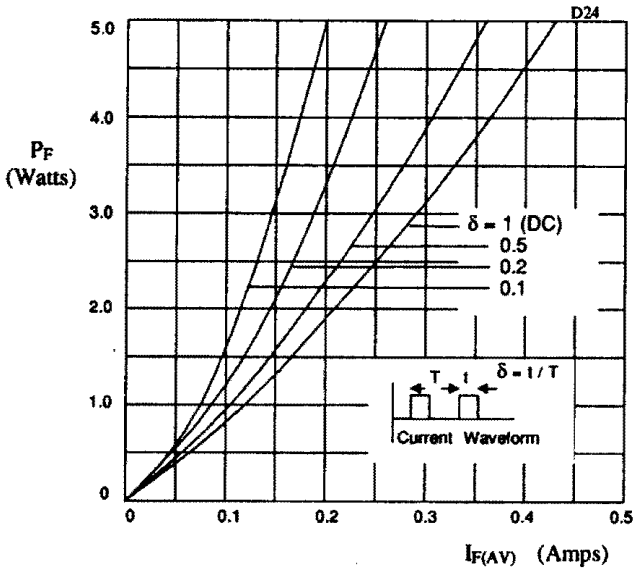

Fig 5. Forward power dissipation as a function of forward current, for square wave operation.