

January 7, 1998

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

AXIAL LEADED HERMETICALLY SEALED HIGH VOLTAGE FAST RECTIFIER DIODE

QUICK REFERENCE DATA

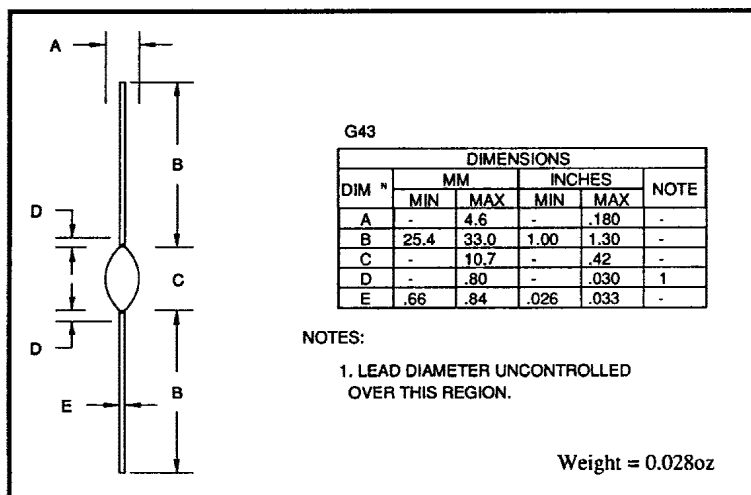
- Low reverse recovery time
- High thermal shock resistance
- Hermetically sealed with Metoxilite metal oxide
- Low switching losses
- Soft, non-snap off, recovery characteristics

- $V_R = 7.5 - 10kV$
- $I_F = 290mA$
- $t_{rr} = 300nS$
- $I_R = 1\mu A$

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

	Symbol	SM75F	SM100F	Unit
Working reverse voltage	V_{RWM}	7500	10000	V
Repetitive reverse voltage	V_{RRM}	7500	10000	V
Average forward current (@ 55°C in oil)	$I_{F(AV)}$	← 0.29 →		A
Repetitive surge current (@ 55°C)	I_{FRM}	← 1.00 →		A
Non-repetitive surge current ($t_p = 8.3mS$, @ V_R & T_{jmax})	I_{FSM}	← 14.0 →		A
Storage temperature range	T_{STG}	← -65 to +175 →		°C
Operating temperature range	T_{OP}	← -65 to +175 →		°C

MECHANICAL

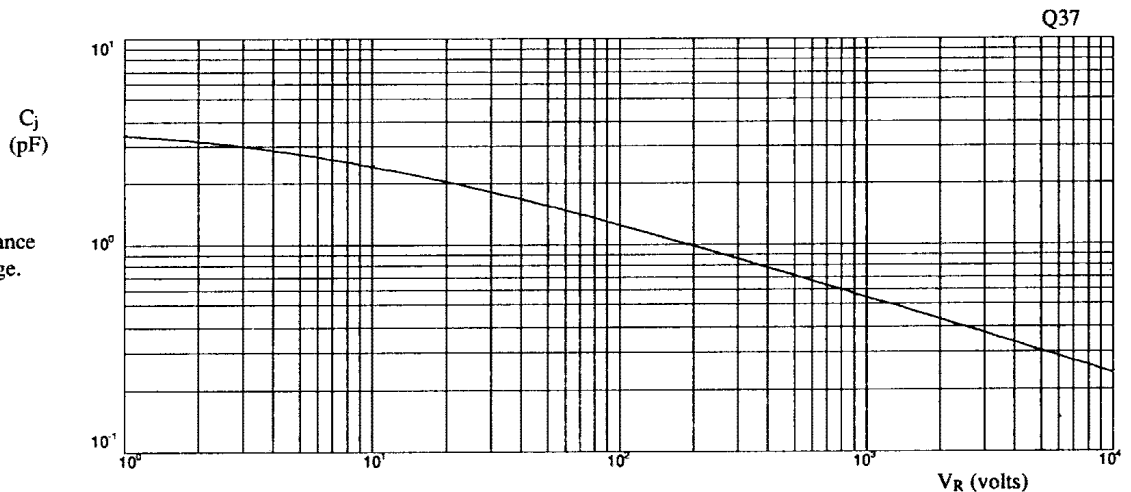


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CHARACTERISTICS (@ 25°C unless otherwise specified)

	Symbol	SM75F	SM100F	Unit
Average forward current max. (pcb mounted; T _A = 55°C) for sine wave	I _{F(AV)}	← 0.11 →	← 0.12 →	A
	I _{F(AV)}	← 0.12 →	← 0.12 →	A
Average forward current max. (unstirred oil at 55°C) for sine wave	I _{F(AV)}	← 0.27 →	← 0.29 →	A
	I _{F(AV)}	← 0.29 →	← 0.29 →	A
I ² t for fusing (t = 8.3mS) max.	I ² t	← 0.81 →	← 0.81 →	A ² S
Forward voltage drop max. @ I _F = 100mA, T _j = 25°C	V _F	← 12.0 →	← 12.0 →	V
Reverse current max. @ V _{RWM} , T _j = 25°C	I _R	← 1.0 →	← 1.0 →	μA
	I _R	← 20 →	← 20 →	μA
Reverse recovery time max. 50mA I _F to 100mA I _R . Recover to 25mA I _{RR}	t _{rr}	← 300 →	← 300 →	nS
	C _j	← 3.0 →	← 3.0 →	pF
Thermal resistance - junction to oil Stirred oil	R _{θJO}	← 20 →	← 20 →	°C/W
	R _{θJO}	← 28 →	← 28 →	°C/W
Thermal resistance - junction to amb. on 0.06" thick pcb. 1oz copper.	R _{θJA}	← 91 →	← 91 →	°C/W

Fig 1 Junction capacitance against reverse voltage.



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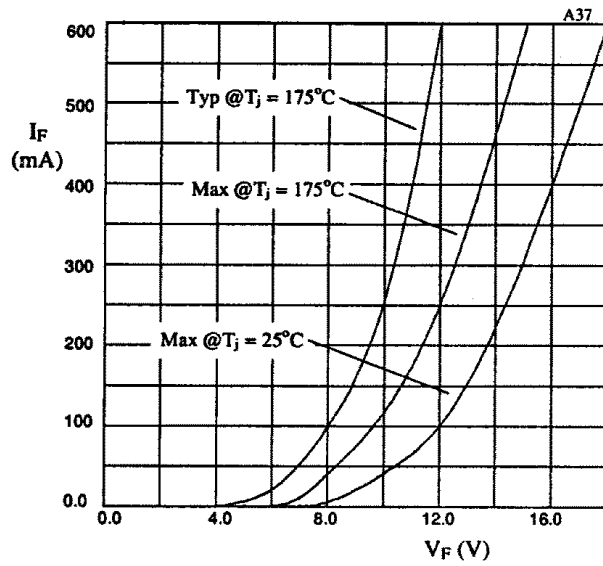


Fig 2. Forward voltage drop as a function of forward current.

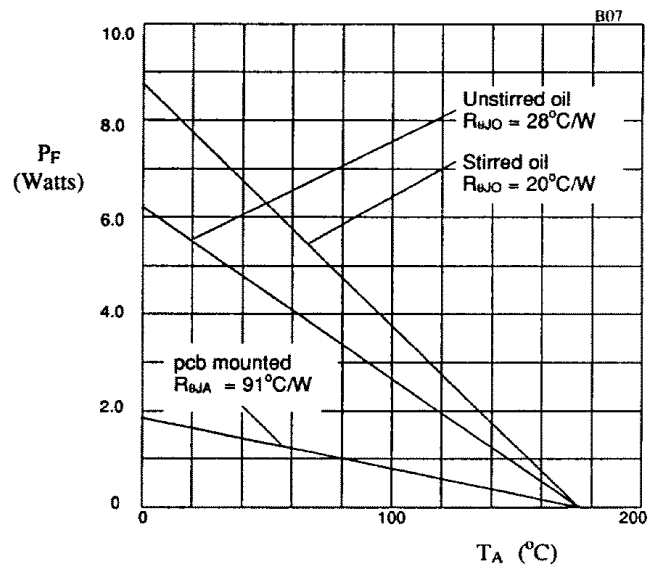


Fig 3. Power derating in air and oil.

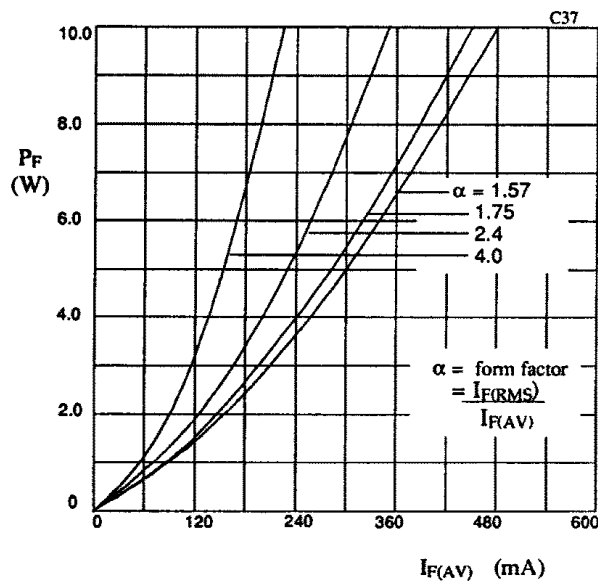


Fig 4. Forward power dissipation as a function of forward current, for sinusoidal operation.

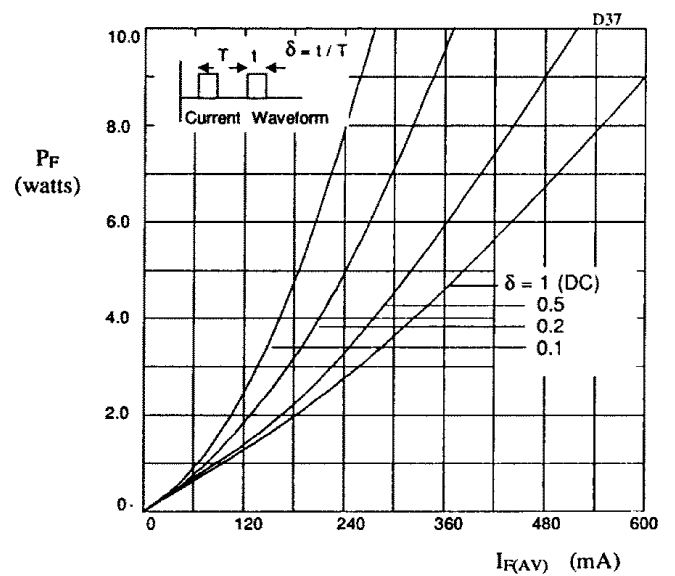


Fig 5. Forward power dissipation as a function of forward current, for square wave operation.