

January 7, 1998

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

QUICK REFERENCE DATA

- $V_R = 1500 - 3000V$
- $I_F = 0.35A$
- $t_{rr} = 250ns$
- $I_R = 0.25\mu A$

AXIAL LEADED HERMETICALLY SEALED HIGH VOLTAGE FAST RECTIFIER DIODE

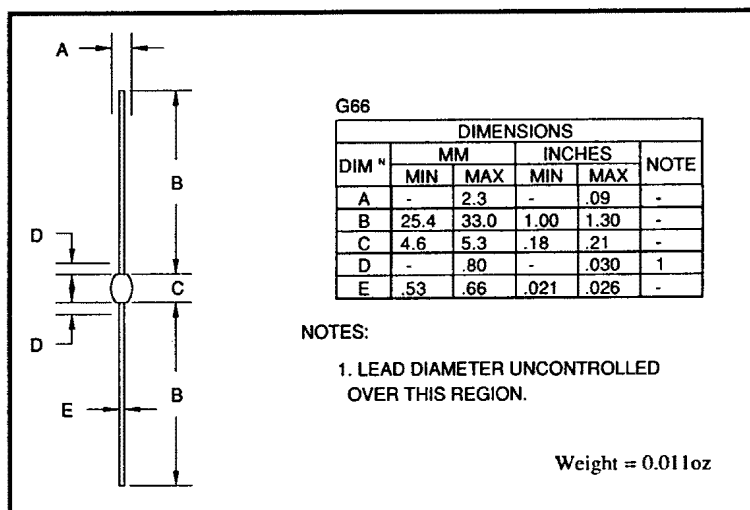
- Low reverse recovery time
- High thermal shock resistance
- Hermetically sealed with Metoxilite metal oxide
- Low switching losses
- Soft, non-snap off, recovery characteristics

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

	Symbol	F15	F20	F25	F30	Unit
Working reverse voltage	V_{RWM}	1500	2000	2500	3000	V
Repetitive reverse voltage	V_{RRM}	1500	2000	2500	3000	V
Average forward current (@ 55°C in oil)	$I_{F(AV)}$	← 0.35 →				A
Repetitive surge current (@ 55°C)	I_{FRM}	← 1.25 →				A
Non-repetitive surge current ($t_p = 8.3ms$, @ V_R & T_{jmax})	I_{FSM}	← 5.0 →				A
Storage temperature range	T_{STG}	← -65 to +175 →				°C
Operating temperature range	T_{OP}	← -65 to +175 →				°C

MECHANICAL

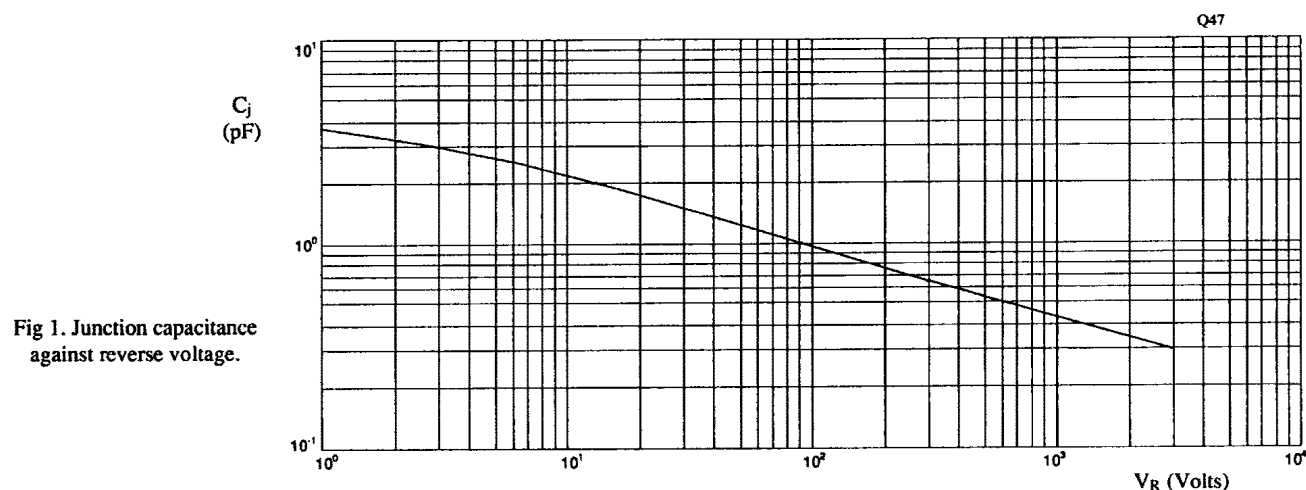
These products are available in Europe
to DEF STAN 59-61 (PART 80)/034
to F and FX levels.



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CHARACTERISTICS (@ 25°C unless otherwise specified)

	Symbol	F15	F20	F25	F30	Unit
Average forward current max. (pcb mounted; $T_A = 55^\circ\text{C}$) for sine wave	$I_{F(AV)}$	←	0.16	→		A
for square wave ($d = 0.5$)	$I_{F(AV)}$	←	0.20	→		A
Average forward current max. (unstirred oil at 55°C) for sine wave	$I_{F(AV)}$	←	0.33	→		A
for square wave	$I_{F(AV)}$	←	0.35	→		A
I^2t for fusing ($t = 8.3\text{ms}$) max.	I^2t	←	0.10	→		A^2S
Forward voltage drop max. @ $I_F = 0.10\text{A}$, $T_j = 25^\circ\text{C}$	V_F	←	5.00	→		V
Reverse current max. @ V_{RWM} , $T_j = 25^\circ\text{C}$	I_R	←	0.25	→		μA
@ V_{RWM} , $T_j = 100^\circ\text{C}$	I_R	←	10	→		μA
Reverse recovery time max. 50mA I_F to 100mA I_R . Recover to 25mA I_{RR} .	t_{rr}	←	250	→		nS
Junction capacitance typ. @ $V_R = 5\text{V}$, $f = 1\text{MHz}$	C_j	←	2.5	→		pF
Thermal resistance - junction to oil Stirred oil	$R_{\theta JO}$	←	30	→		$^\circ\text{C/W}$
Unstirred oil	$R_{\theta JO}$	←	48	→		$^\circ\text{C/W}$
Thermal resistance - junction to amb. on 0.06" thick pcb. 1oz copper.	$R_{\theta JA}$	←	120	→		$^\circ\text{C/W}$



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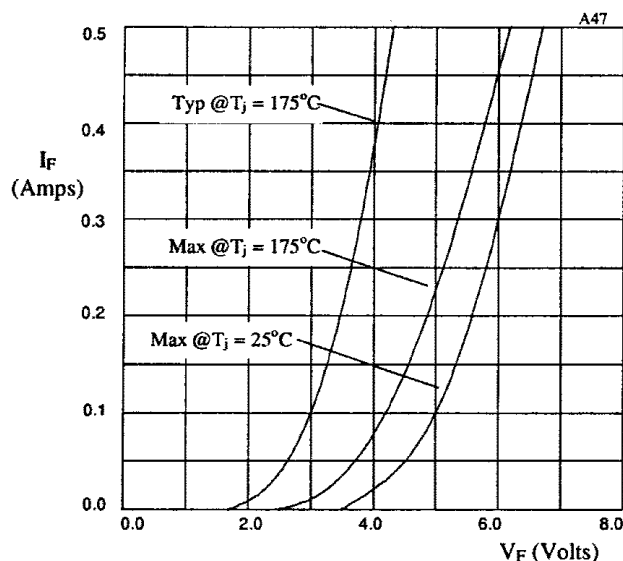


Fig 2. Forward voltage drop as a function of forward current.

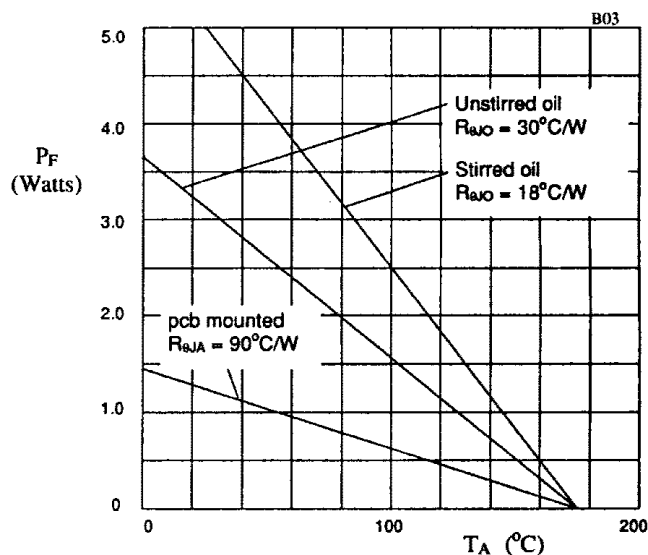


Fig 3. Power derating in air and oil.

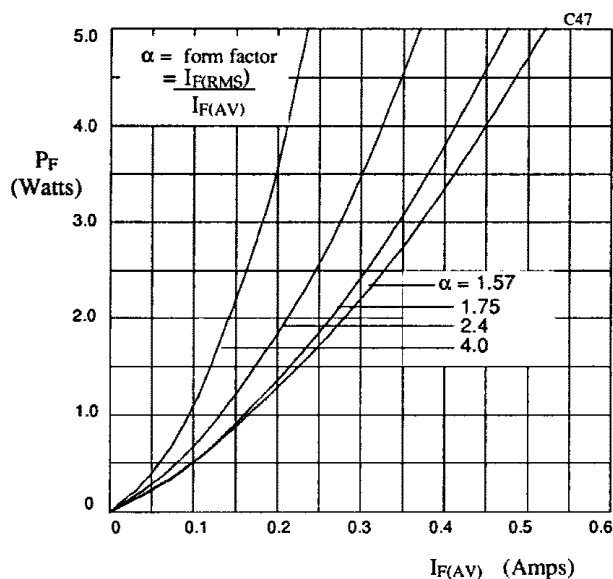


Fig 4. Forward power dissipation as a function of forward current, for sinusoidal operation.

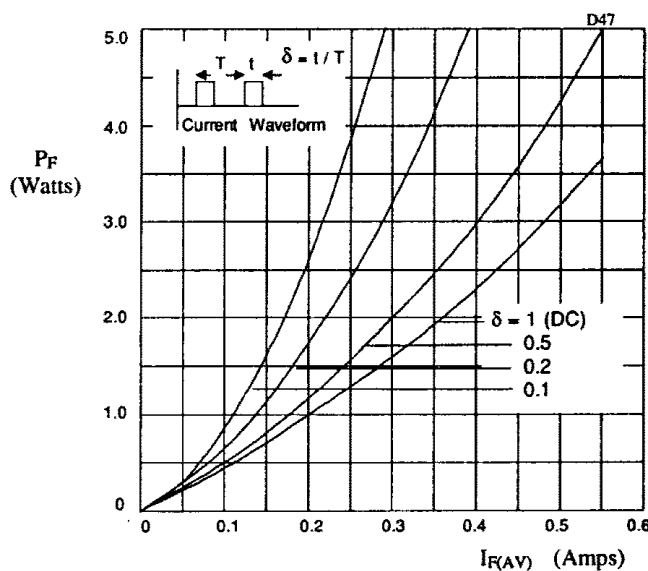


Fig 5. Forward power dissipation as a function of forward current, for square wave operation.

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