

January 7, 1998

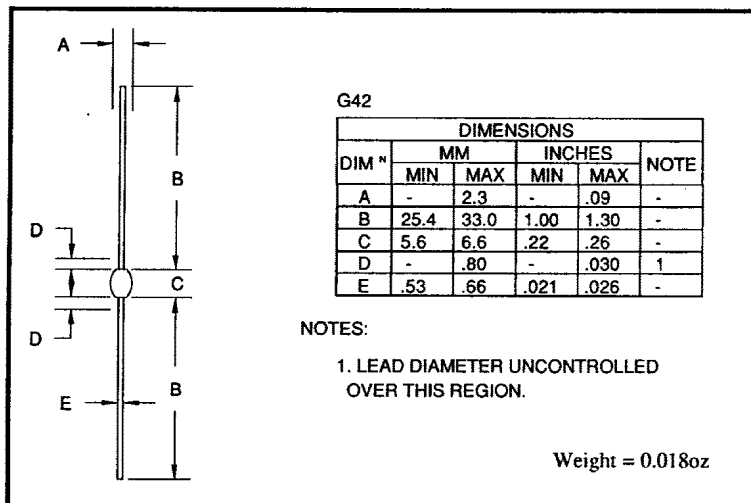
TEL:805-498-2111 FAX:805-498-3804 WEB:<http://www.semtech.com>**AXIAL LEADED HERMETICALLY SEALED HIGH
VOLTAGE FAST RECTIFIER DIODE****QUICK REFERENCE
DATA**

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

- $V_R = 4 - 6kV$
- $I_F = 0.25A$
- $t_{rr} = 300ns$
- $I_R = 1\mu A$

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

	Symbol	F40A	F50A	F60A	Unit
Working reverse voltage	V_{RWM}	4000	5000	6000	V
Repetitive reverse voltage	V_{RRM}	4000	5000	6000	V
Average forward current (@ 55°C in oil)	$I_{F(AV)}$	← 0.10 →			A
Repetitive surge current (@ 55°C)	I_{FRM}	← 0.75 →			A
Non-repetitive surge current ($t_p = 8.3ms$, @ V_R & T_{jmax})	I_{FSM}	← 2.50 →			A
Storage temperature range	T_{STG}	← -65 to +175 →			°C
Operating temperature range	T_{OP}	← -65 to +175 →			°C

MECHANICAL

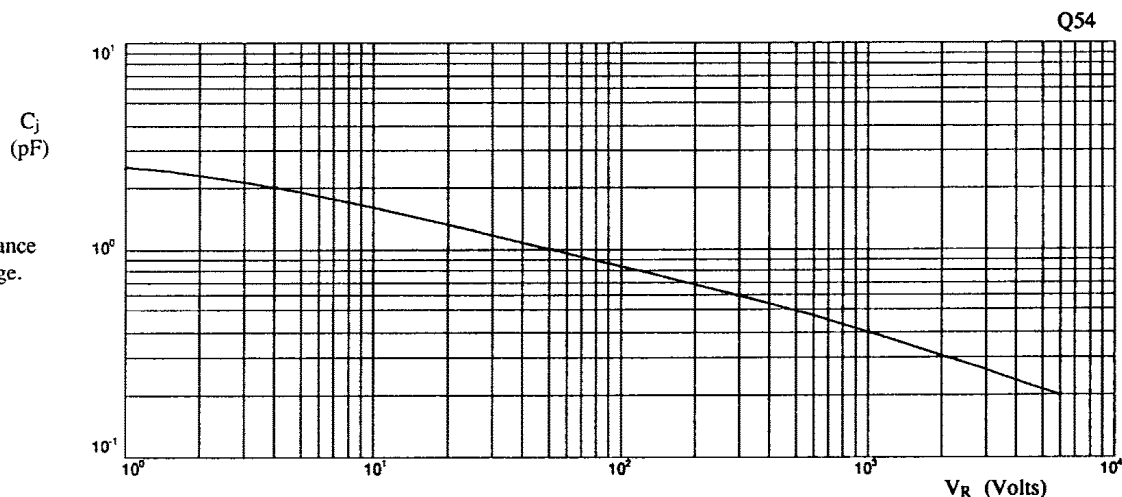
These products are available in Europe to DEF STAN 59-61 (PART 80)/034 to F and FX levels.

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CHARACTERISTICS (@ 25°C unless otherwise specified)

	Symbol	F40A	F50A	F60A	Unit
Average forward current max. (pcb mounted; $T_A = 55^\circ\text{C}$) for sine wave	$I_{F(av)}$	← 0.12 →			A
for square wave (d = 0.5)	$I_{F(av)}$	← 0.13 →			A
Average forward current max. (unstirred oil at 55°C) for sine wave	$I_{F(av)}$	← 0.23 →			A
for square wave	$I_{F(av)}$	← 0.25 →			A
I^2t for fusing (t = 8.3mS) max.	I^2t	← 0.026 →			A ² S
Forward voltage drop max. @ $I_F = 50\text{mA}$, $T_j = 25^\circ\text{C}$	V_F	← 8.0 →			V
Reverse current max. @ V_{RWM} , $T_j = 25^\circ\text{C}$	I_R	← 1.0 →			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}	← 300 →			nS
Junction capacitance typ. @ $V_R = 5\text{V}$, $f = 1\text{MHz}$	C_j	← 2.0 →			pF
Thermal resistance - junction to oil Stirred oil	$R_{\theta JO}$	← 26 →			°C/W
Unstirred oil	$R_{\theta JO}$	← 40 →			°C/W
Thermal resistance - junction to amb. on 0.06" thick pcb. 1oz copper.	$R_{\theta JA}$	← 95 →			°C/W

Fig 1 Junction capacitance
against reverse voltage.



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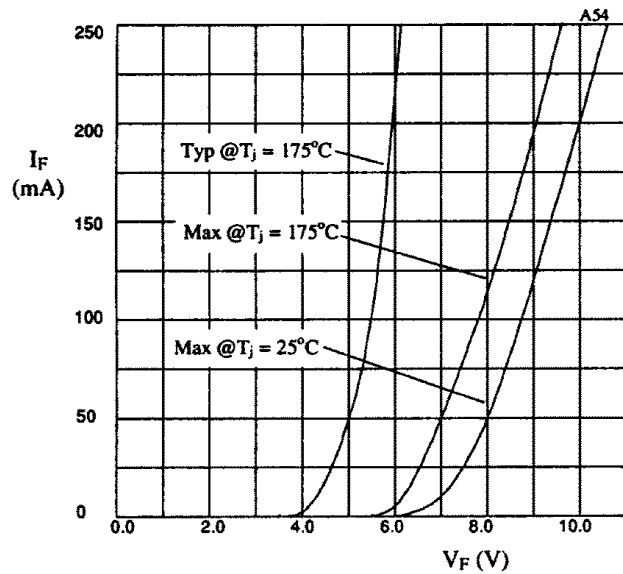


Fig 2. Forward voltage drop as a function of forward current.

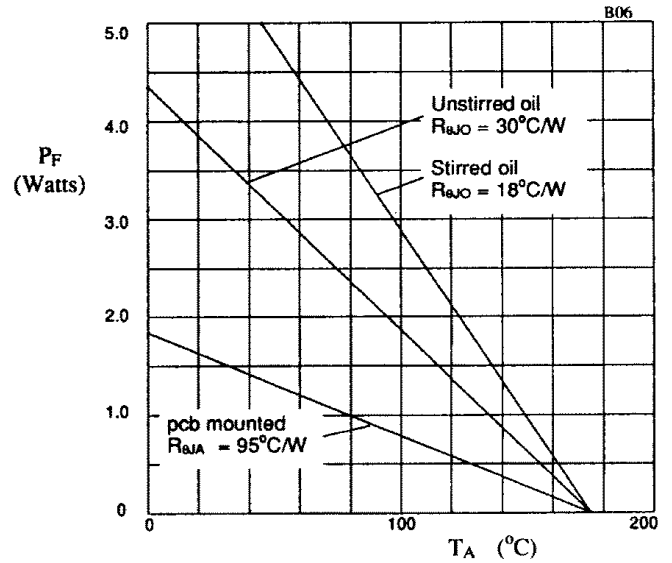


Fig 3. Power derating in air and oil.

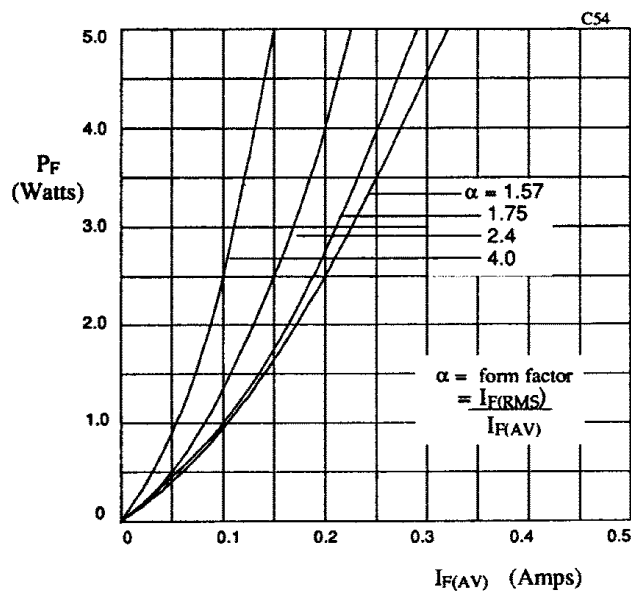


Fig 4. Forward power dissipation as a function of forward current, for sinusoidal operation.

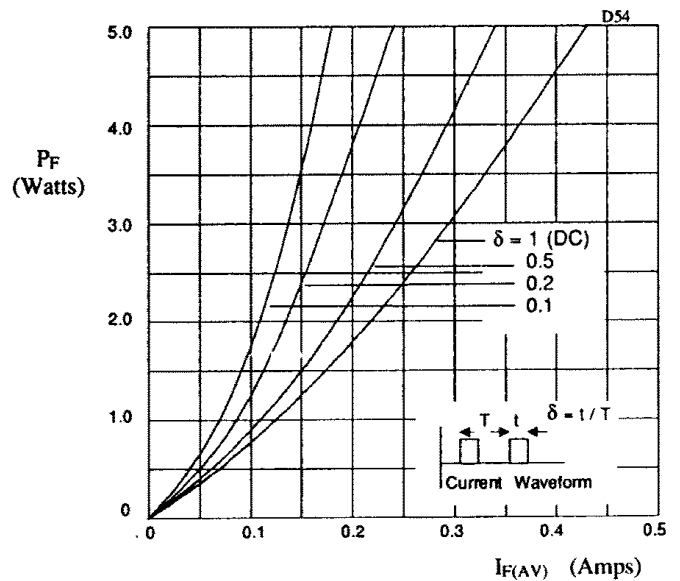


Fig 5. Forward power dissipation as a function of forward current, for square wave operation.

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