January 7, 1998

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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

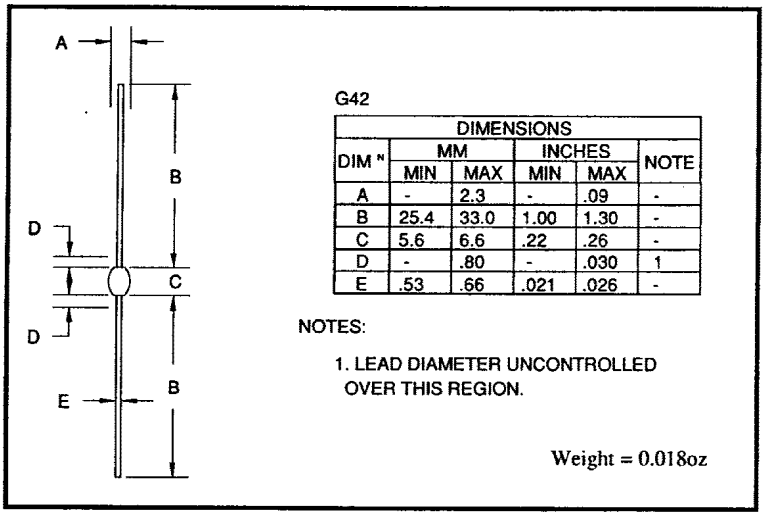
QUICK REFERENCE DATA

- V_R = 4 - 6kV
- I_F = 0.25A
- t_{rr} = 300nS
- I_R = 1µA

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



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DIM "	DIMENSIONS MM MIN	MM MAX	INCHES MIN	INCHES MAX	NOTE
A	-	2.3	-	.09	-
B	25.4	33.0	1.00	1.30	-
C	5.6	6.6	.22	.26	-
D	-	.80	-	.030	1
E	.53	.66	.021	.026	-

NOTES:

1. LEAD DIAMETER UNCONTROLLED OVER THIS REGION.

Weight = 0.018oz

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°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^2S
Forward voltage drop max. @ I_F = 50mA, T_j = 25°C	V_F	←	8.0	→	V
Reverse current max.					
@ V_{RWM}, T_j = 25°C	I_R	←	1.0	→	µA
@ V_{RWM}, T_j = 100°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 = 5V , f = 1MHz	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

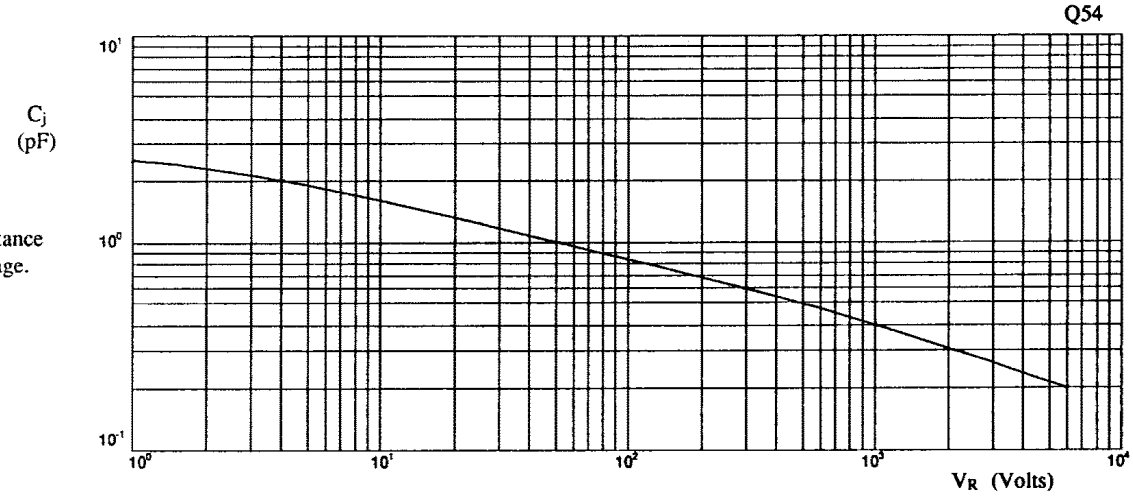

Fig 1 Junction capacitance against reverse voltage.

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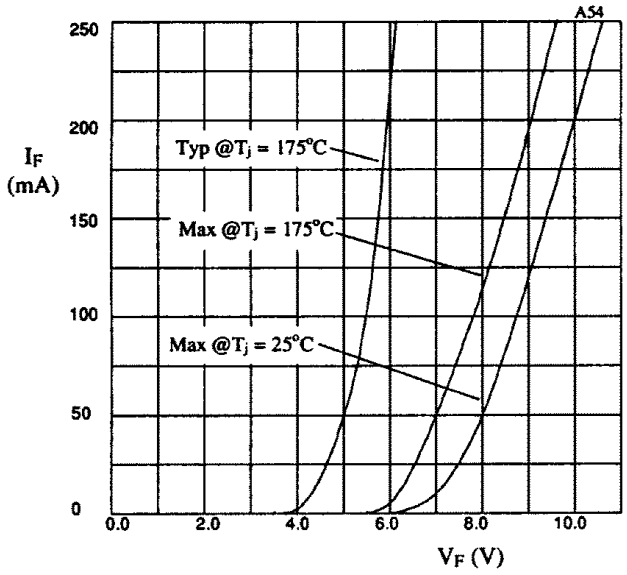

Fig 2. Forward voltage drop as a function of forward current.

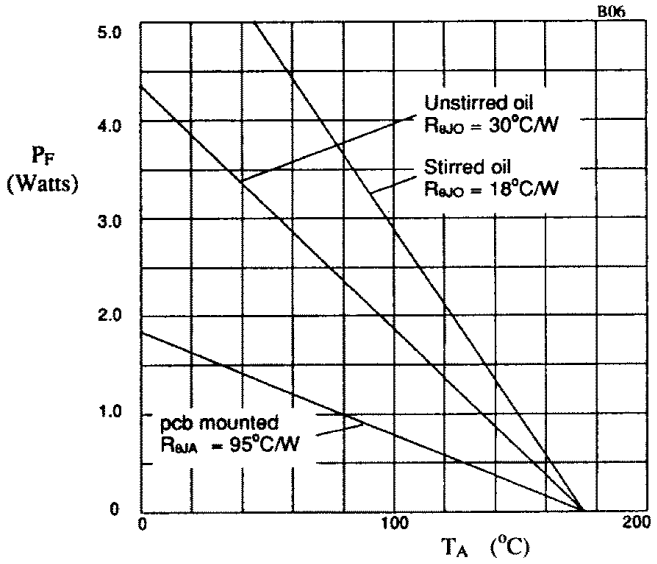

Fig 3. Power derating in air and oil.

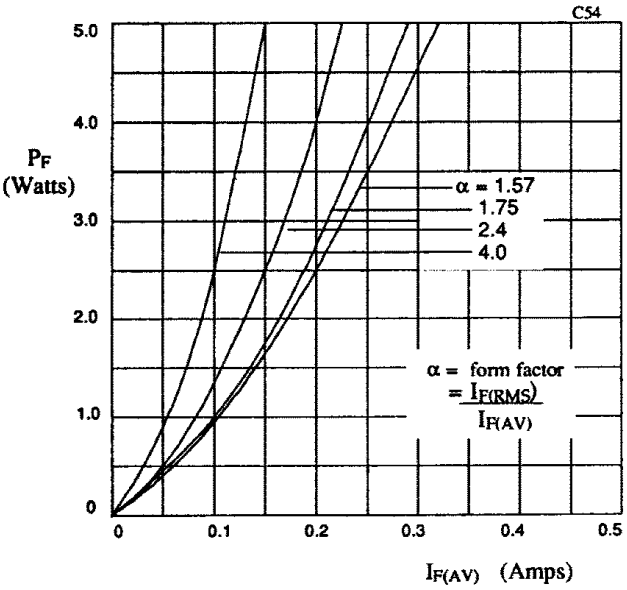

Fig 4. Forward power dissipation as a function of forward current, for sinusoidal operation.

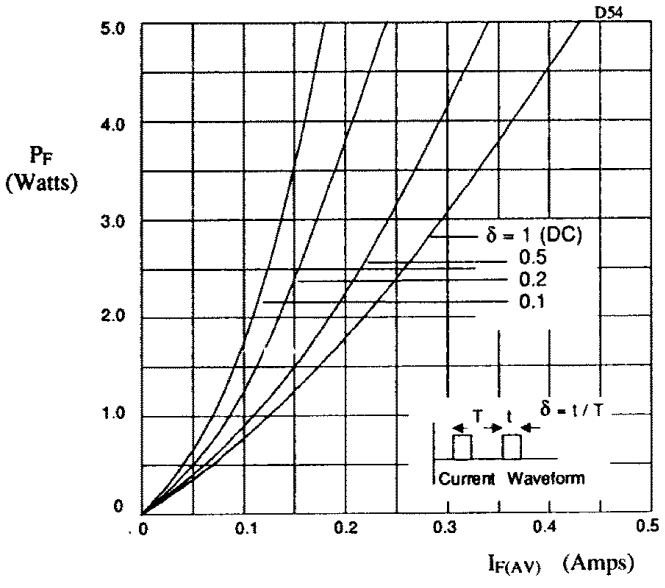

Fig 5. Forward power dissipation as a function of forward current, for square wave operation.