January 7, 1998 TEL:805-498-2111 FAX:805-498-3804 WEB:http://www.semtech.com

AXIAL LEADED HERMETICALLY SEALED SUPERFAST RECTIFIER DIODE

- Very low reverse recovery time
- Hermetically sealed in Metoxilite fused metal oxide
- Low switching losses
- Low forward voltage drop
- Soft, non-snap off, recovery characteristics

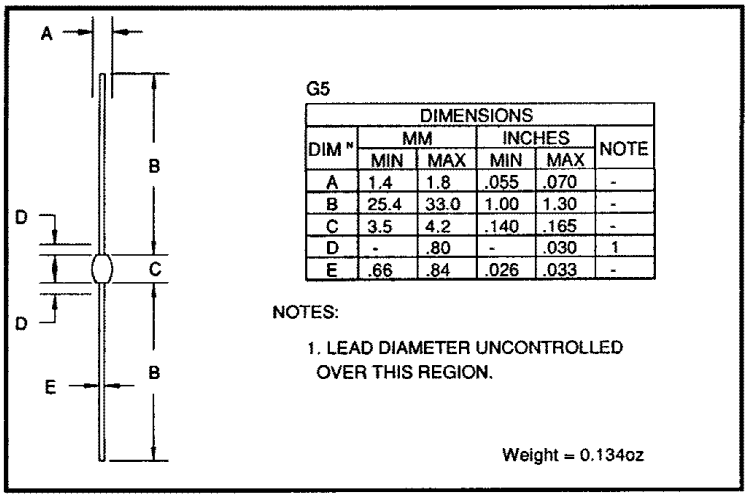
QUICK REFERENCE DATA

- V_R = 50 - 150V
- I_F = 1.8A
- t_{rr} = 30nS
- V_F = 1.2V

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

	Symbol	1N6073 FF05	1N6074 FF10	1N6075 FF15	Unit
Working reverse voltage	V_{RWM}	50	100	150	V
Repetitive reverse voltage	V_{RRM}	50	100	150	V
Average forward current (@ 55°C, lead length = 0.375")	$I_{F(AV)}$	←	1.8	→	A
Repetitive surge current (@ 55°C, lead length = 0.375")	I_{FRM}	←	14.0	→	A
Non-repetitive surge current (tp = 8.3ms, @ V_R & T_{jmax})	I_{FSM}	←	35.0	→	A
Storage temperature range	T_{STG}	←	-65 to +150	→	°C
Operating temperature range	T_{OP}	←	-65 to +150	→	°C

MECHANICAL



G5

DIMENSIONS					
DIM "	MM		INCHES		NOTE
	MIN	MAX	MIN	MAX	
A	1.4	1.8	.055	.070	-
B	25.4	33.0	1.00	1.30	-
C	3.5	4.2	.140	.165	-
D	-	.80	-	.030	1
E	.66	.84	.026	.033	-

NOTES:

1. LEAD DIAMETER UNCONTROLLED OVER THIS REGION.

Weight = 0.134oz

These products are qualified to MIL-S-19500/503.
They can be supplied fully released as JAN, JANTX, and JANTXV versions.

These products are qualified in Europe to DEF STAN 59-61 (PART 80)/029 available to F and FX levels.

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ELECTRICAL CHARACTERISTICS (@ 25°C unless otherwise specified)

	Symbol	1N6073 FF05	1N6074 FF10	1N6075 FF15	Unit
Average forward current max. (pcb mounted; T_A = 55°C)					
for sine wave	$I_{F(AV)}$		0.85		A
for square wave (d = 0.5)	$I_{F(AV)}$		0.90		A
Average forward current max.					
T_L = 70°C; L = 0".	$I_{F(AV)}$		3.0		A
T_L = 55°C; L = 3/8"					
for sine wave	IF(AV)		1.7		A
for square wave	$I_{F(AV)}$		1.8		A
I^2t for fusing (t = 8.3mS) max.	I^2t		5.0		A^2S
Forward voltage drop max. @ I_F = 1.5A, T_j = 25°C	V_F		1.2		V
Reverse current max.					
@ V_{RWM}, T_j = 25°C	I_R		1.0		µA
@ V_{RWM}, T_j = 100°C	IR		50		µA
Reverse recovery time 0.5A I_F, 1.0A I_R, 0.25A I_{RR}.	t_{rr}		30		nS
Junction capacitance typ. @ V_R = 5V , f = 1MHz	C_j		28		pF

THERMAL CHARACTERISTICS

	Symbol	1N6073 FF05	1N6074 FF10	1N6075 FF15	Unit
Thermal resistance - junction to lead					
Lead length = 0.375"	$R_{\theta JL}$		46		°C/W
Lead length = 0.0"	$R_{\theta JL}$		13		°C/W
Thermal resistance - junction to amb. on 0.06" thick pcb. 1 oz. copper.	$R_{\theta JA}$		95		°C/W

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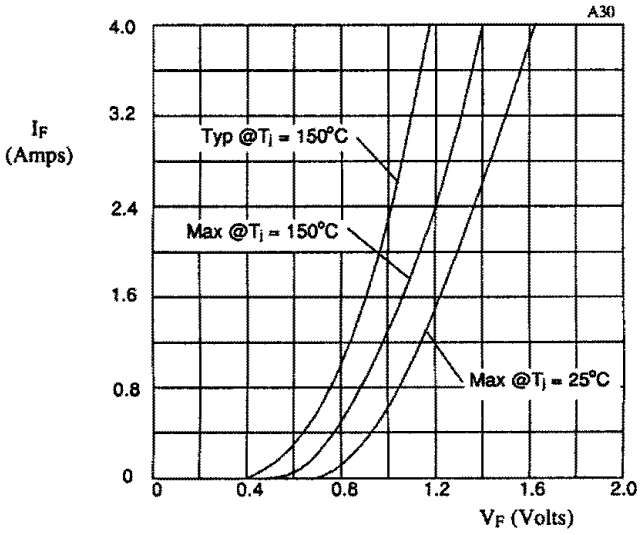

Fig 1. Forward voltage drop as a function of forward current.

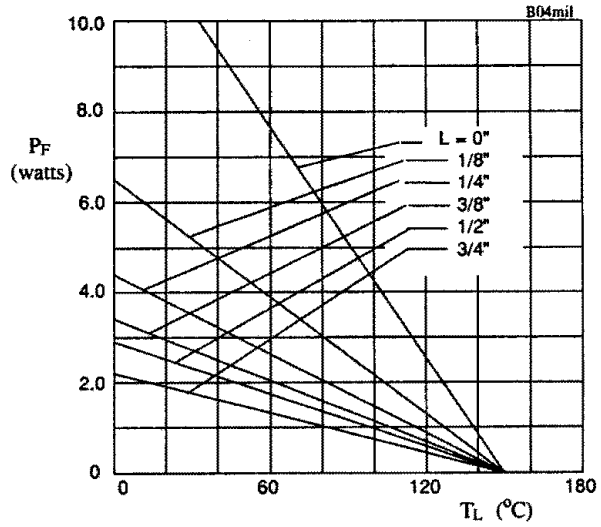

Fig 2. Maximum power versus lead temperature.

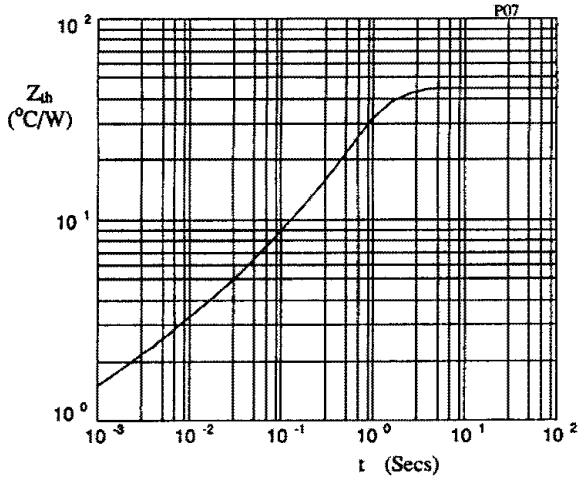

Fig 3. Transient thermal impedance characteristic.

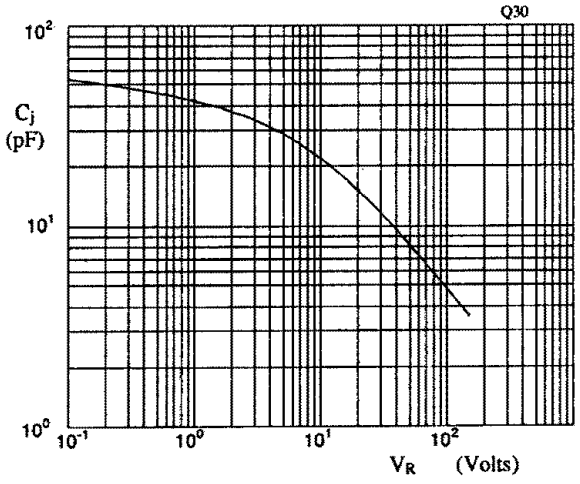

Fig 4. Typical junction capacitance as a function of reverse voltage.

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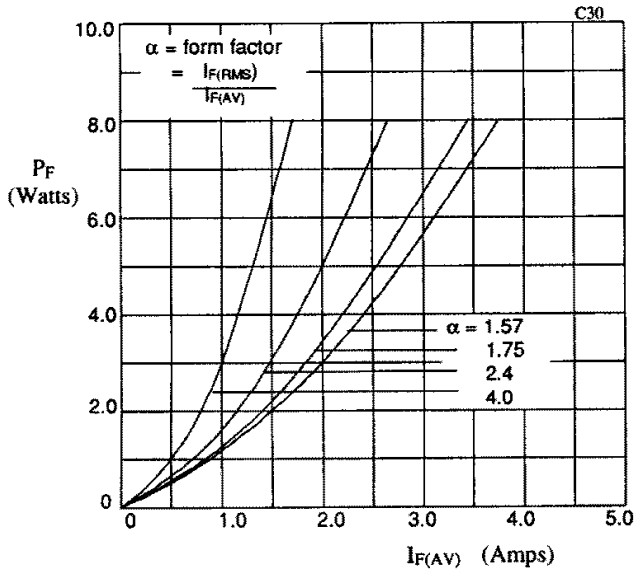

Fig 5. Forward power dissipation as a function of forward current, for sinusoidal operation.

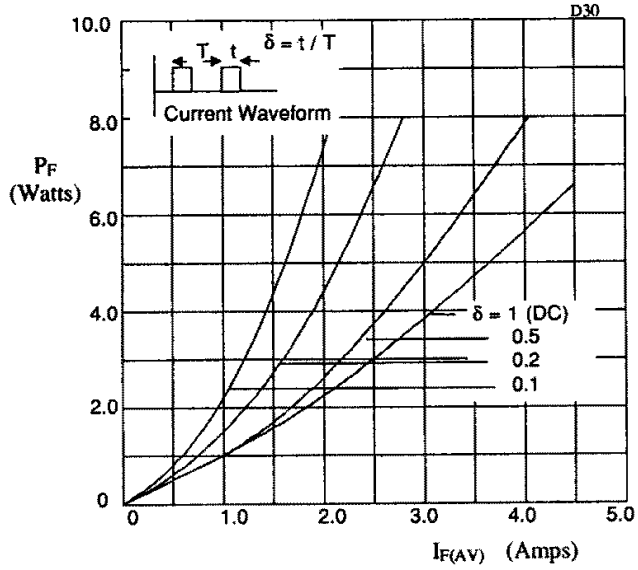

Fig 6. Forward power dissipation as a function of forward current, for square wave operation.

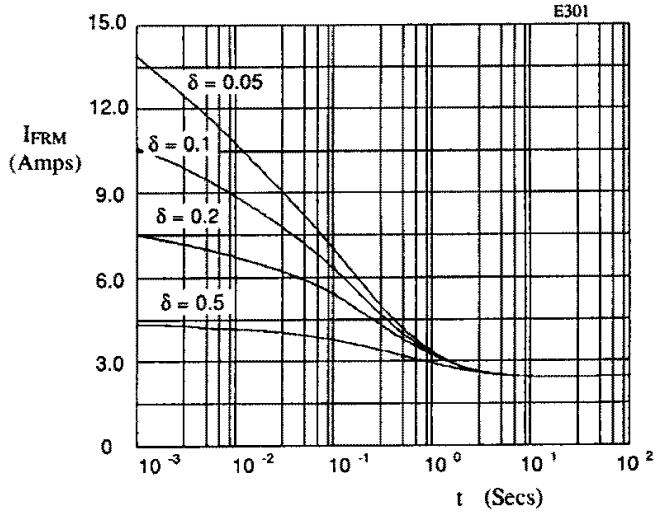

Fig 7. Maximum repetitive forward current as a function of pulse width at 55°C; $R_{\theta JL}$ = 45 °C/W; V_{RWM} during 1 - δ.

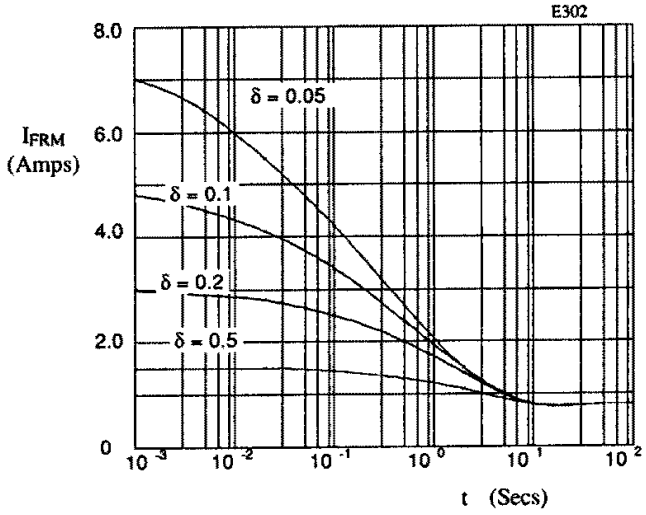

Fig 8. Maximum repetitive forward current as a function of pulse width at 100°C; $R_{\theta JL}$ = 110 °C/W; V_{RWM} during 1 - δ.