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

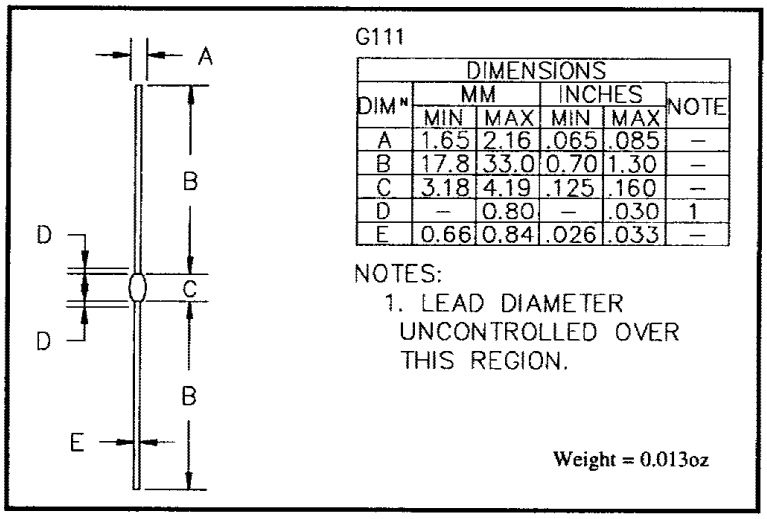
QUICK REFERENCE DATA

- V_R = 50 - 150V
- I_F = 2.5A
- t_{rr} = 25nS
- I_R = 1µA

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

	Symbol	1N5802	1N5804	1N5806	Unit
Working reverse voltage	V_{RWM}	50	100	150	V
Repetitive reverse voltage	V_{RRM}	50	100	150	V
Average forward current (@ 75°C, lead length = 0.375")	$I_{F(AV)}$	←	2.5	→	A
Repetitive surge current (@ 55°C in free air, lead length 0.375")	I_{FRM}	←	14	→	A
Non-repetitive surge current (t_p = 8.3mS, @ V_R & T_{jmax})	I_{FSM}	←	35	→	A
Storage temperature range	T_{STG}	←	-65 to +200	→	°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	1.65	2.16	.065	.085	–
B	17.8	33.0	0.70	1.30	–
C	3.18	4.19	.125	.160	–
D	–	0.80	–	.030	1
E	0.66	0.84	.026	.033	–

NOTES:
1. LEAD DIAMETER UNCONTROLLED OVER THIS REGION.

Weight = 0.013oz

These products are qualified to MIL-S-19500/477 and are preferred parts as listed in MIL-STD-701.
They can be supplied fully released as JANTX, and JANTXV versions.

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ELECTRICAL CHARACTERISTICS (@ 25°C unless otherwise specified)

	Symbol	1N5802	1N5804	1N5806	Unit
Average forward current max. (pcb mounted; T_A = 55°C)					
for sine wave	$I_{F(AV)}$	←	1.3	→	A
for square wave (d = 0.5)	$I_{F(AV)}$	←	1.4	→	A
Average forward current max. (T_L = 55°C; L = 3/8")					
for sine wave	$I_{F(AV)}$	←	3.1	→	A
for square wave	$I_{F(AV)}$	←	3.3	→	A
I^2t for fusing (t = 8.3mS) max.	I^2t	←	10.0	→	A^2S
Forward voltage drop max. @ I_F = 1.0A, T_j = 25°C	V_F	←	0.875	→	V
Reverse current max.					
@ V_{RWM}, T_j = 25°C	I_R	←	1.0	→	µA
@ V_{RWM}, T_j = 100°C	I_R	←	50	→	µA
Reverse recovery time max. 1.0A I_F to 1.0A I_R. Recovers to 0.1A I_{RR}.	t_{rr}	←	25	→	nS
Junction capacitance typ. @ V_R = 5V , f = 1MHz	C_j	←	25	→	ρF

THERMAL CHARACTERISTICS

	Symbol	1N5802	1N5804	1N5806	Unit
Thermal resistance - junction to lead Lead length = 0.75"	$R_{\theta JL}$	←	59	→	°C/W
Thermal resistance - junction to amb. on 0.06" thick pcb. 1 oz. copper.	$R_{\theta JA}$	←	100	→	°C/W

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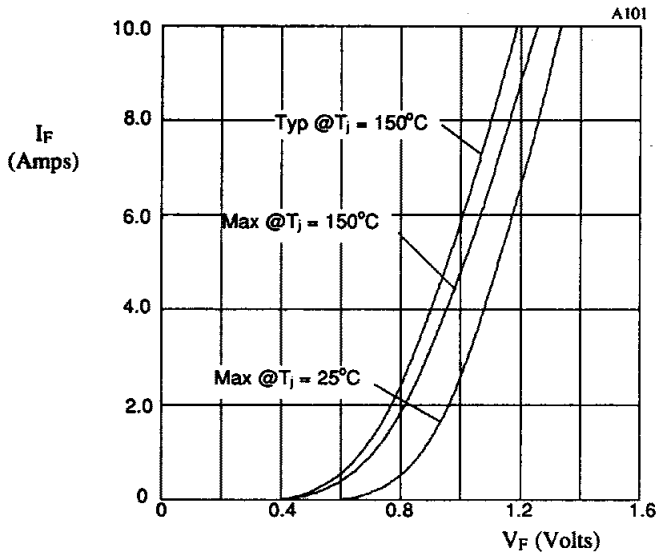

Fig 1. Forward voltage drop as a function of forward current.

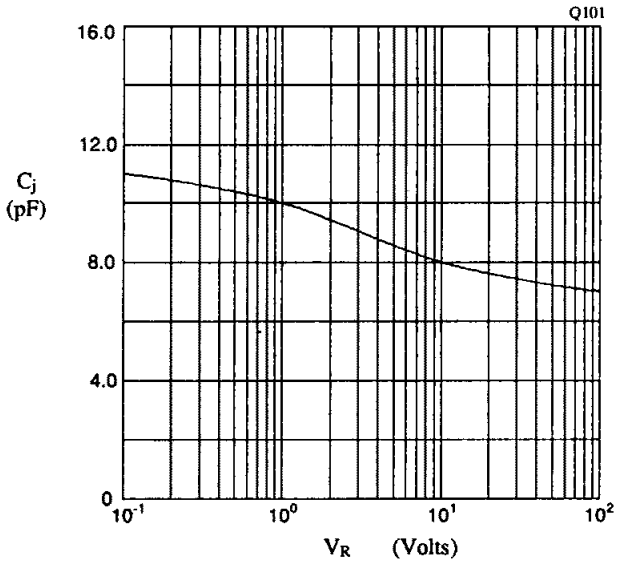

Fig 2. Typical junction capacitance as a function of reverse voltage.