

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

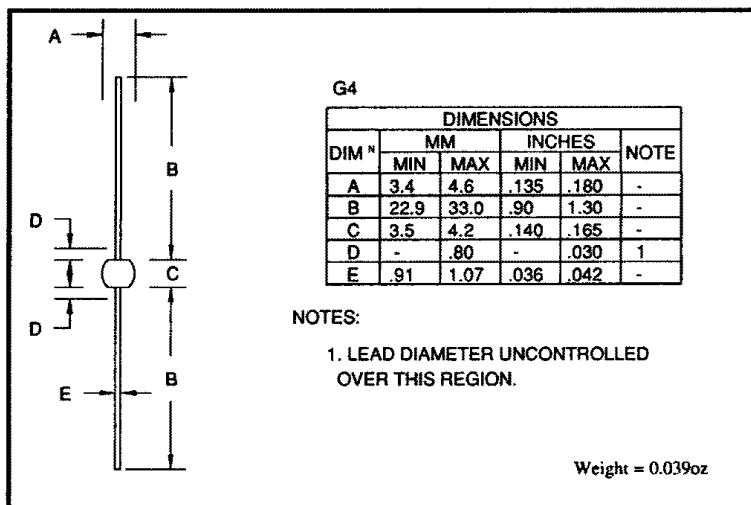
QUICK REFERENCE DATA

- $V_R = 50 - 150V$
- $I_F = 5.0A$
- $t_{rr} = 30nS$
- $V_F = 0.97V$

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

	Symbol	1N6079 5FF05	1N6080 5FF10	1N6081 5FF15	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")	$I_{F(av)}$	← 5.0 →			A
Repetitive surge current (@ 55°C in free air, lead length 0.375")	I_{FRM}	← 24 →			A
Non-repetitive surge current ($t_p = 8.3mS$, @ V_R & T_{jmax})	I_{FSM}	← 175 →			A
Storage temperature range	T_{STG}	← -65 to +150 →			°C
Operating temperature range	T_{OP}	← -65 to +150 →			°C

MECHANICAL



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)/030 available to F and FX levels.

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ELECTRICAL CHARACTERISTICS (@ 25°C unless otherwise specified)

	Symbol	1N6079 5FF05	1N6080 5FF10	1N6081 5FF15	Unit
Average forward current max. $T_A = 55^\circ\text{C}$ for sine wave	$I_F(\text{AV})$	← 2.0 →			A
Average forward current max. $T_L = 70^\circ\text{C}; L = 0"$ $T_L = 55^\circ\text{C}; L = 3/8"$ for sine wave	$I_F(\text{AV})$	← 12.0 →			A
for square wave	$I_F(\text{AV})$	← 4.8 →			A
	$I_F(\text{AV})$	← 5.0 →			A
I^2t for fusing ($t = 8.3\text{ms}$) max.	I^2t	← 127 →			A ² S
Forward voltage drop max. @ $I_F = 5.0\text{A}$, $T_j = 25^\circ\text{C}$	V_F	← 0.97 →			V
Reverse current max. @ V_{RWM} , $T_j = 25^\circ\text{C}$	I_R	← 10 →			μA
@ V_{RWM} , $T_j = 100^\circ\text{C}$	I_R	← 500 →			μA
Reverse recovery time max. 0.5A I_F to 1.0A I_R . Recovers to 0.25A I_{RR} .	t_{rr}	← 30 →			nS
Junction capacitance typ. @ $V_R = 5\text{V}$, $f = 1\text{MHz}$	C_j	← 230 →			pF

THERMAL CHARACTERISTICS

	Symbol	1N6079 5FF05	1N6080 5FF10	1N6081 5FF15	Unit
Thermal resistance - junction to lead Lead length = 0.375"	$R_{\theta\text{JL}}$	← 23.5 →			°C/W
Lead length = 0.0"	$R_{\theta\text{JL}}$	← 5 →			°C/W
Thermal resistance - junction to amb. on 0.06" thick pcb. 1 oz. copper.	$R_{\theta\text{JA}}$	← 75 →			°C/W

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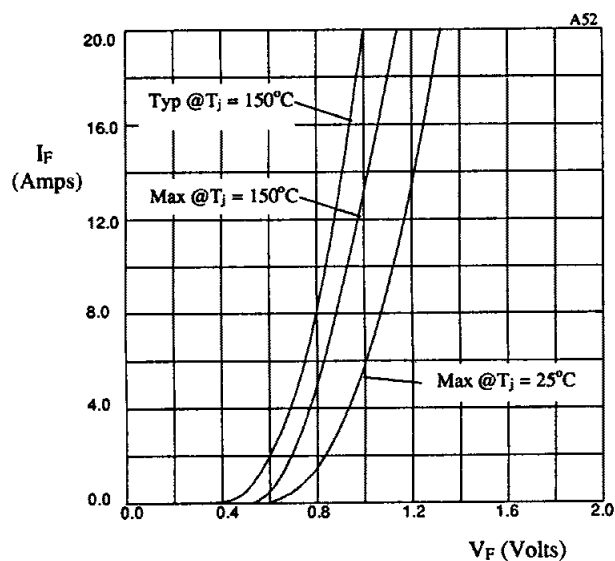


Fig 1. Forward voltage drop as a function of forward current

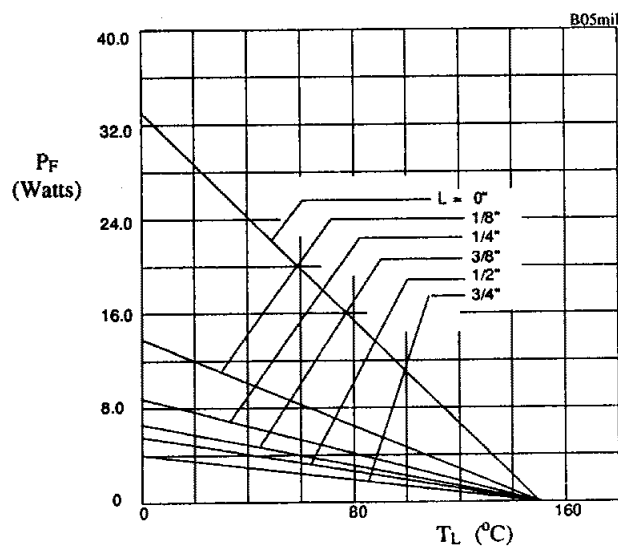


Fig 2. Maximum power versus lead temperature

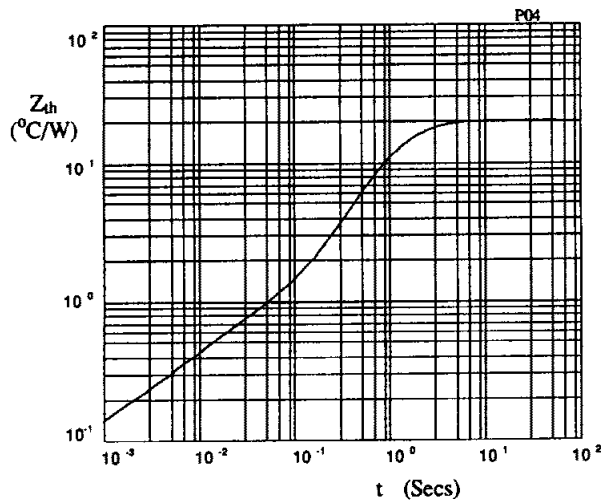


Fig 3. Transient thermal impedance characteristic.

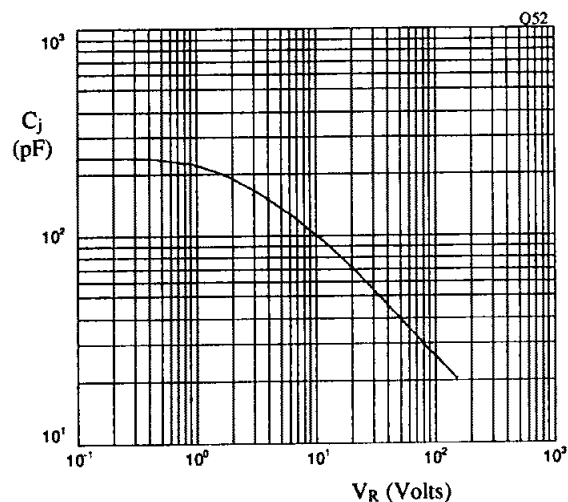


Fig 4. Typical junction capacitance as a function of reverse voltage.

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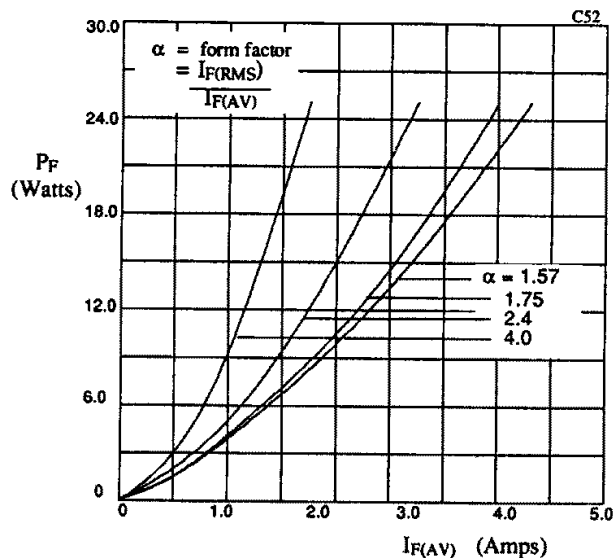


Fig 5. Forward power dissipation as a function of forward current, for sinusoidal operation.

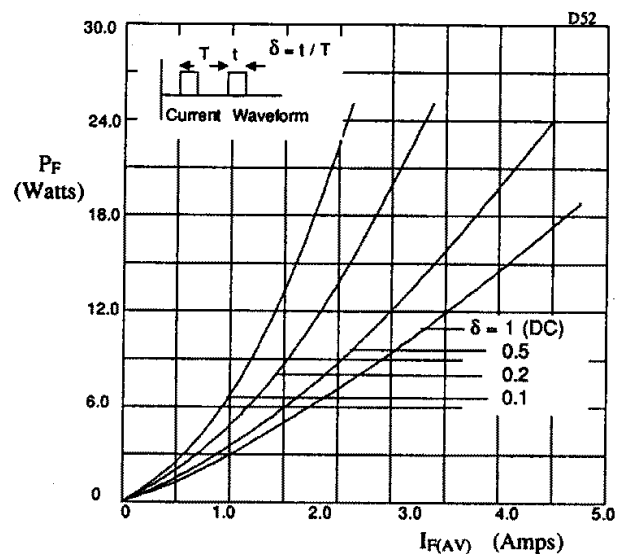


Fig 6. Forward power dissipation as a function of forward current, for square wave operation.

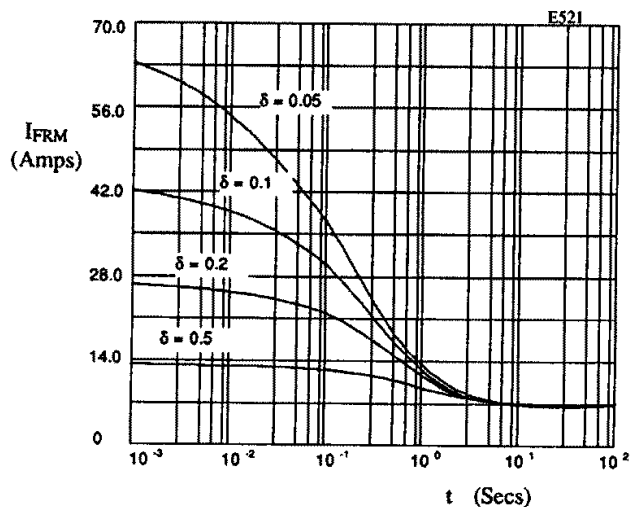


Fig 7. Maximum repetitive forward current as a function of pulse width at 55°C; $R_{\theta JL} = 20^\circ\text{C/W}$; V_{RWM} during $1 - \delta$.

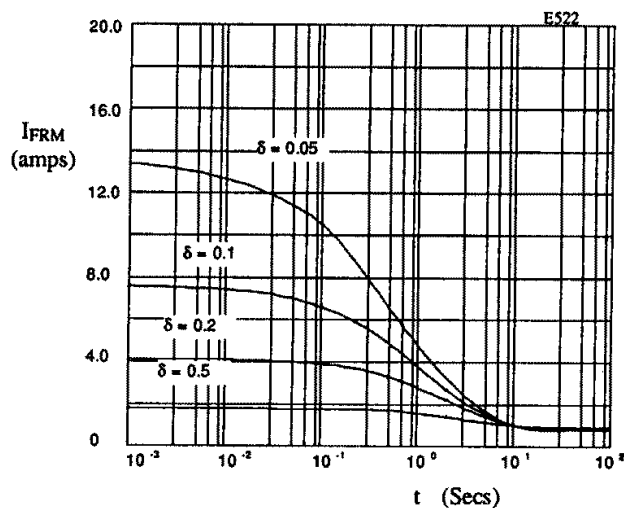


Fig 8. Maximum repetitive forward current as a function of pulse width at 100°C; $R_{\theta JL} = 80^\circ\text{C/W}$; V_{RWM} during $1 - \delta$.