

January 7, 1998

TEL:805-498-2111 FAX:805-498-3804 WEB:<http://www.semtech.com>

AXIAL LEADED HERMETICALLY SEALED SUPERFAST RECTIFIER DIODE

QUICK REFERENCE DATA

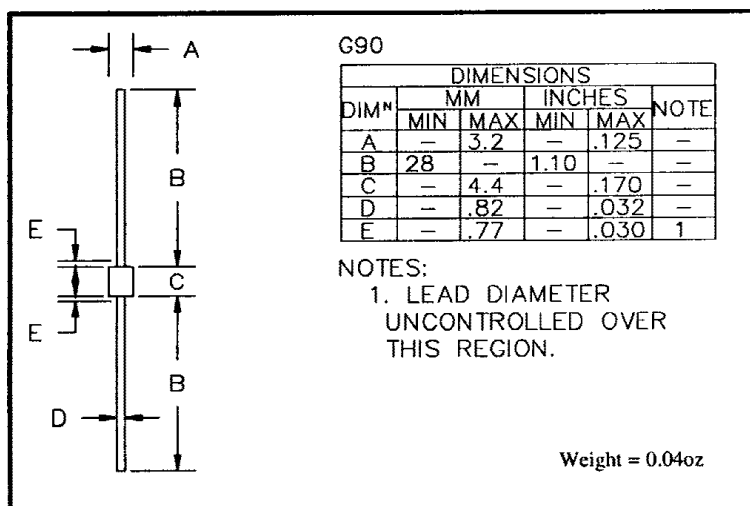
- Very low reverse recovery time
- Glass passivated for hermetic sealing
- Low switching losses
- Soft, non-snap off, recovery characteristics
- Avalanche capability

- $V_R = 400V$
- $I_F = 2.1A$
- $t_{rr} = 50ns$
- $I_R = 1\mu A$

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

	Symbol	2IPFF4	Unit
Working reverse voltage	V_{RWM}	400	V
Repetitive reverse voltage	V_{RRM}	400	V
Average forward current (@ 55°C, lead length 0.375")	$I_{F(AV)}$	2.1	A
Repetitive surge current (@ 55°C in free air, lead length 0.375")	I_{FRM}	12.0	A
Non-repetitive surge current ($t_p = 8.3ms$, @ V_R & T_{jmax})	I_{FSM}	50.0	A
Storage temperature range	T_{STG}	-65 to +175	°C
Operating temperature range	T_{OP}	-65 to +175	°C

MECHANICAL



January 7, 1998

ELECTRICAL CHARACTERISTICS (@ 25°C unless otherwise specified)

	Symbol	2IPFF4	Unit
Average forward current max. (pcb mounted; $T_A = 55^\circ\text{C}$) for sine wave	$I_{F(AV)}$	1.0	A
for square wave ($d = 0.5$)	$I_{F(AV)}$	1.1	A
Average forward current max. ($T_L = 55^\circ\text{C}$; $L = 3/8"$) for sine wave	$I_{F(AV)}$	2.0	A
for square wave	$I_{F(AV)}$	2.1	A
I^2t for fusing ($t = 8.3\text{ms}$) max.	I^2t	10	A^2S
Forward voltage drop max. @ $I_F = 2.0\text{A}$, $T_j = 25^\circ\text{C}$	V_F	1.05	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. 0.5A I_F to 1.0A I_R . Recovers to 0.25A I_{RR} .	t_{rr}	50	nS
Junction capacitance typ. @ $V_R = 5\text{V}$, $f = 1\text{MHz}$	C_j	35	pF

THERMAL CHARACTERISTICS

	Symbol	2IPFF4	Unit
Thermal resistance - junction to lead Lead length = 0"	$R_{\theta JL}$	18	$^\circ\text{C/W}$
Lead length = 0.375"	$R_{\theta JL}$	50	$^\circ\text{C/W}$
Thermal resistance - junction to amb. on 0.06" thick pcb. 1 oz. copper.	$R_{\theta JA}$	105	$^\circ\text{C/W}$

January 7, 1998

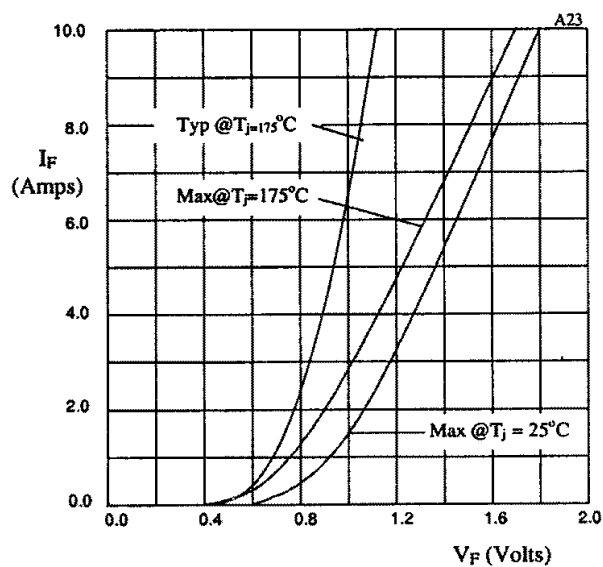


Fig 1. Forward voltage drop as a function of forward current.

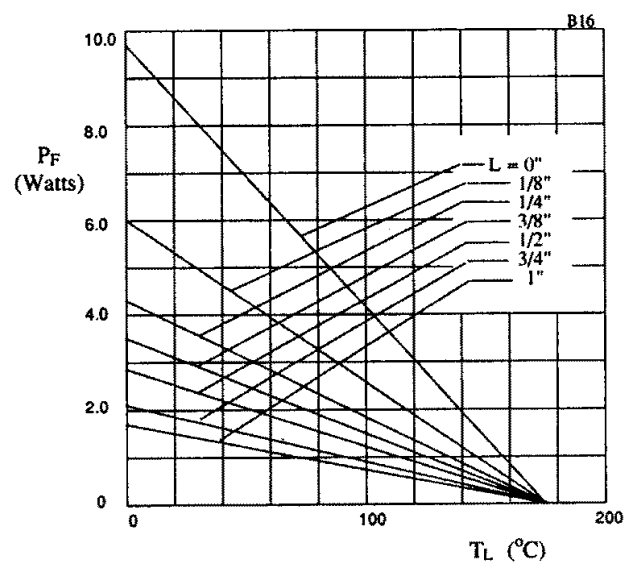


Fig 2. Maximum power versus lead temperature.

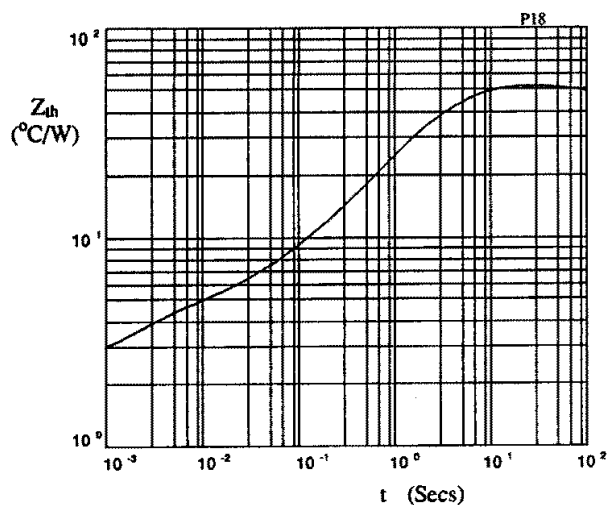


Fig 3. Transient thermal impedance characteristic.

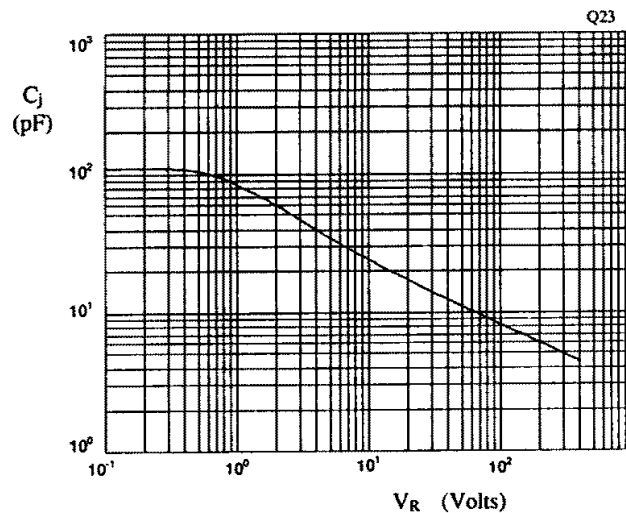


Fig 4. Typical junction capacitance as a function of reverse voltage.

January 7, 1998

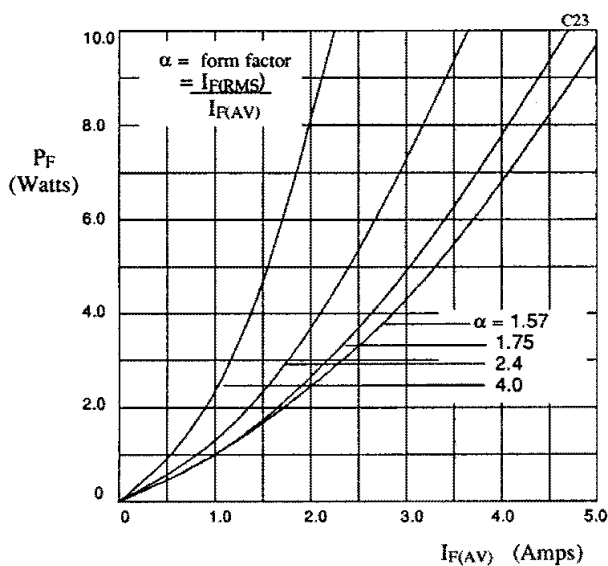


Fig 5. Forward power dissipation as a function of forward current, for sinusoidal operation.

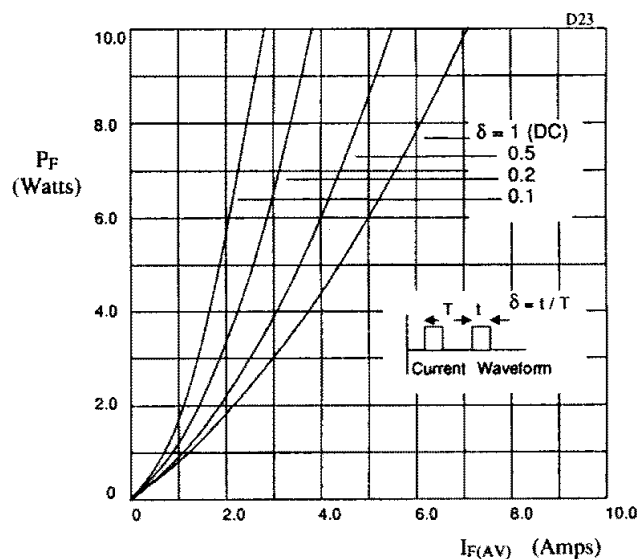


Fig 6. Forward power dissipation as a function of forward current, for square wave operation.

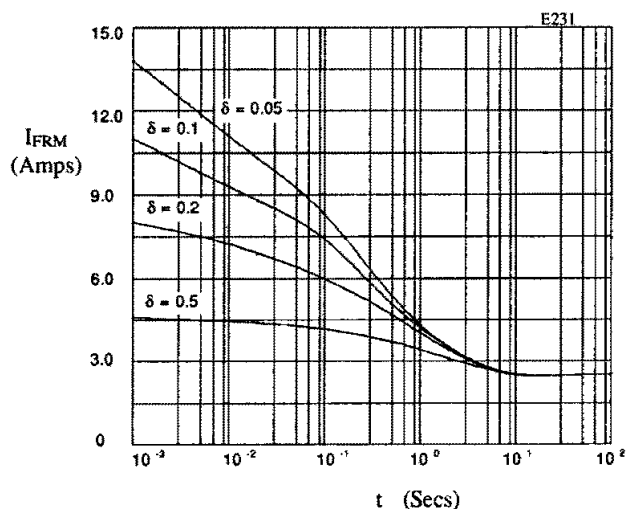


Fig 7. Typical repetitive forward current as a function of pulse width at 55°C; $R_{\theta JL} = 50$ °C/W; V_{RWM} during $1 - \delta$.

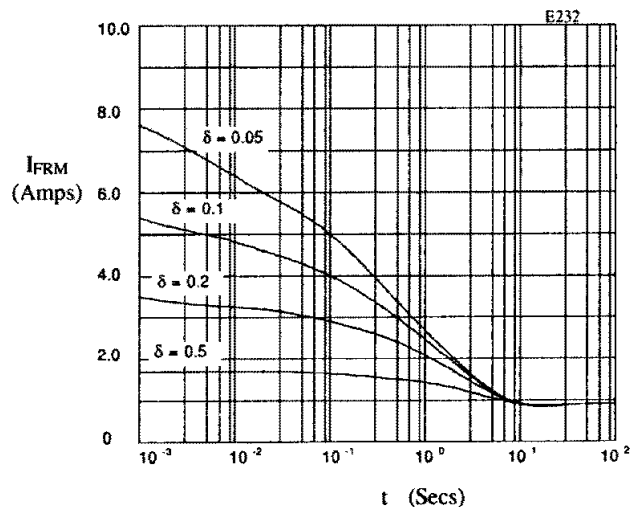


Fig 8. Typical repetitive forward current as a function of pulse width at 100°C; $R_{\theta JL} = 105$ °C/W; V_{RWM} during $1 - \delta$.