

January 7, 1998

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

### AXIAL LEADED HERMETICALLY SEALED FAST RECOVERY RECTIFIER DIODE

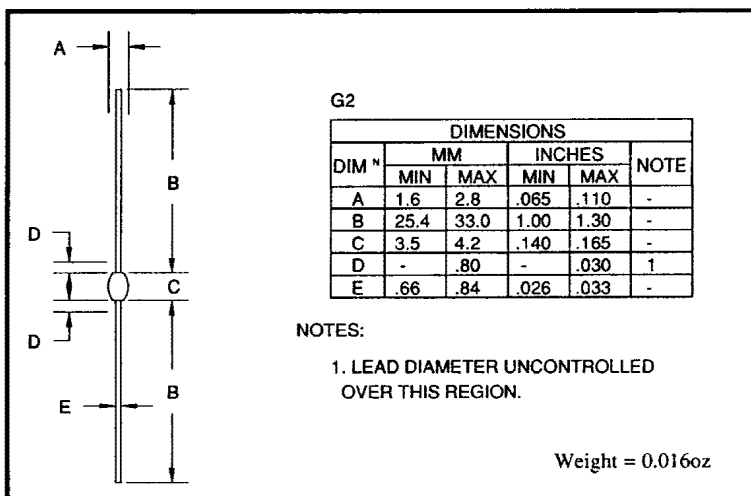
### QUICK REFERENCE DATA

- Low reverse recovery time
  - Hermetically sealed in Metoxillite fused metal oxide
  - Low switching losses
  - Low reverse current
  - Soft, non-snap off, recovery characteristics
- $V_R = 1000V$
  - $I_F = 1.6A$
  - $t_{rr} = 150nS$
  - $I_R = 1\mu A$

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

	Symbol	SFR0	Unit
Working reverse voltage	$V_{RWM}$	1000	V
Repetitive reverse voltage	$V_{RRM}$	1000	V
Average forward current (@ 55°C, lead length 0.375")	$I_{F(AV)}$	1.6	A
Repetitive surge current (@ 55°C in free air, lead length 0.375")	$I_{FRM}$	6.0	A
Non-repetitive surge current ( $t_p = 8.3mS$ , @ $V_R$ & $T_{jmax}$ )	$I_{FSM}$	25	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	SFR0	Unit
Average forward current max. (pcb mounted; T <sub>A</sub> = 55°C) for sine wave	I <sub>F(AV)</sub>	0.75	A
	I <sub>F(AV)</sub>	0.80	A
Average forward current max. (L = 3/8"; T <sub>L</sub> = 55°C) for sine wave	I <sub>F(AV)</sub>	1.4	A
	I <sub>F(AV)</sub>	1.6	A
I <sup>2</sup> t for fusing (t = 8.3mS) max.	I <sup>2</sup> t	2.5	A <sup>2</sup> S
Forward voltage drop max. @ I <sub>F</sub> = 1.0A, T <sub>j</sub> = 25°C	V <sub>F</sub>	1.50	V
Reverse current max. @ V <sub>RWM</sub> , T <sub>j</sub> = 25°C	I <sub>R</sub>	1.0	μA
	I <sub>R</sub>	25	μA
Reverse recovery time max. 0.5A I <sub>F</sub> to 1.0A I <sub>R</sub> . Recovers to 0.25A I <sub>RR</sub> .	t <sub>rr</sub>	150	nS
Junction capacitance typ. @ V <sub>R</sub> = 5V, f = 1MHz	C <sub>j</sub>	20	pF

**THERMAL CHARACTERISTICS**

	Label	SFR0	Unit
Thermal resistance - junction to lead Lead length = 0"	R <sub>θjL</sub>	14.0	°C/W
	R <sub>θjL</sub>	38.0	°C/W
Thermal resistance - junction to amb. on 0.06" thick pcb. 1 oz. copper.	R <sub>θjA</sub>	95.0	°C/W

January 7, 1998

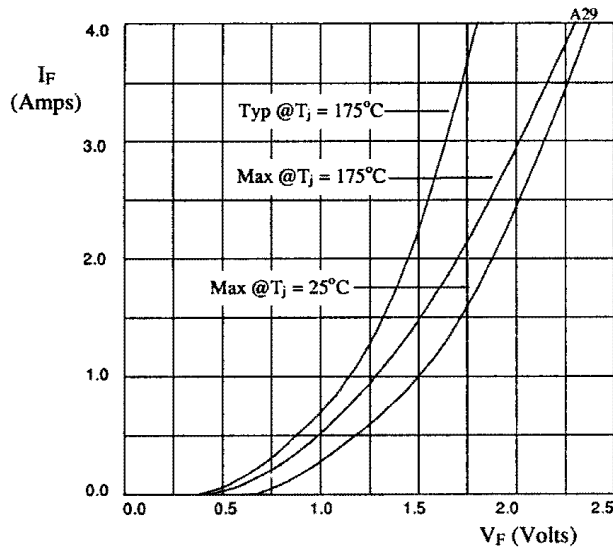


Fig 1. Forward voltage drop as a function of forward current.

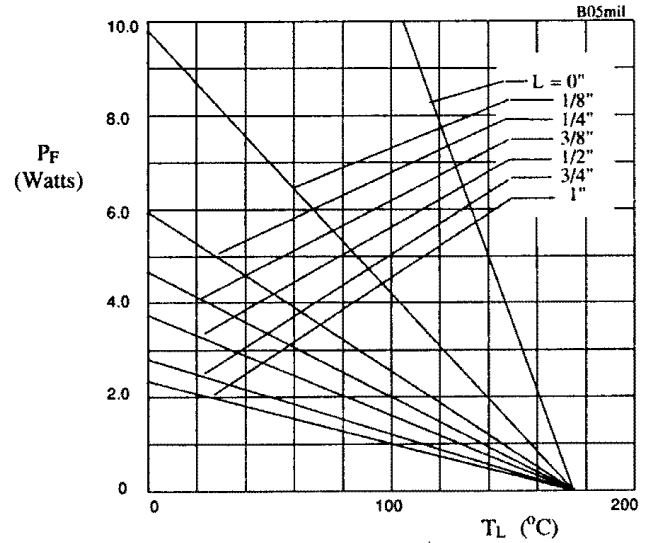


Fig 2. Maximum power versus lead temperature.

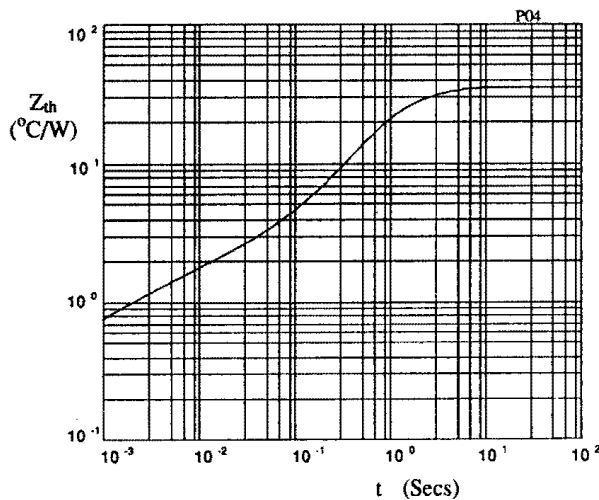


Fig 3. Transient thermal impedance characteristic.

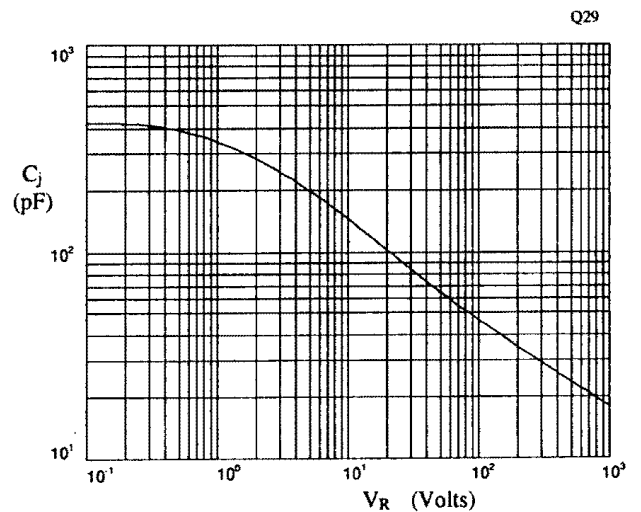


Fig 4. Typical junction capacitance as a function of reverse voltage.

January 7, 1998

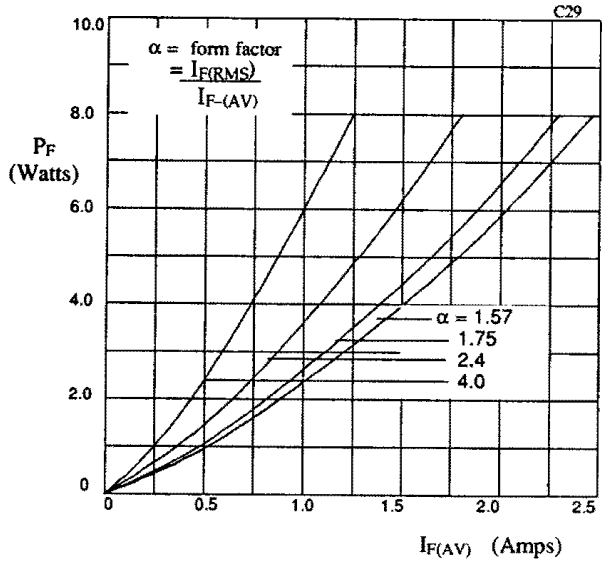


Fig 5. Forward power dissipation as a function of forward current, for sinusoidal operation.

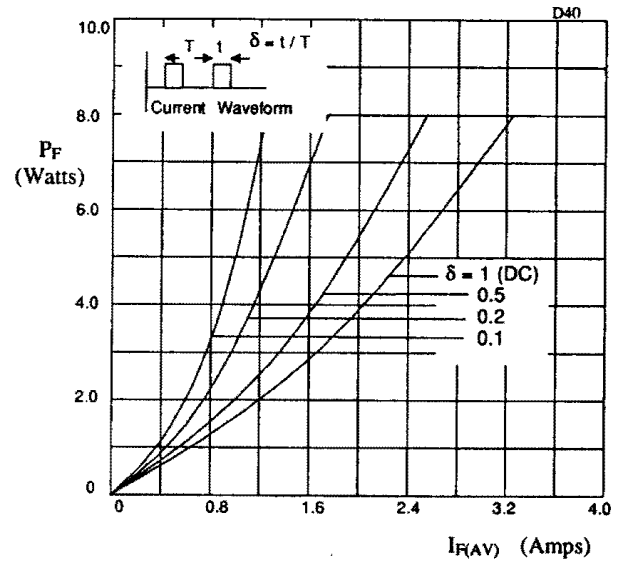


Fig 6. Forward power dissipation as a function of forward current, for square wave operation.

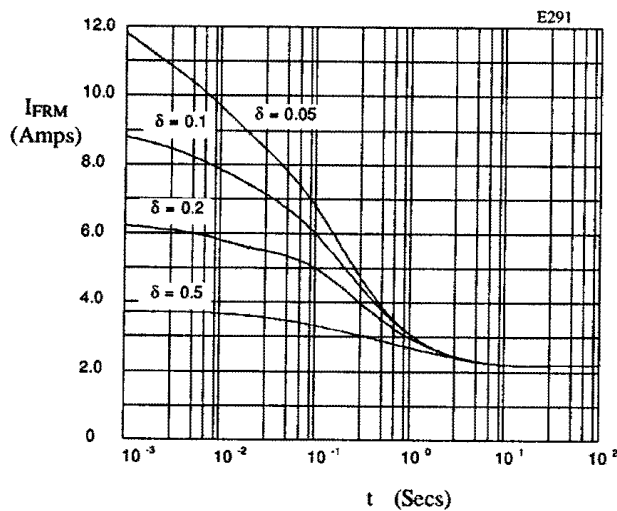


Fig 7. Typical repetitive forward current as a function of pulse width at 55°C;  $R_{\theta JL} = 35 \text{ }^\circ\text{C/W}$ ;  $V_{RWM}$  during  $1 - \delta$ .

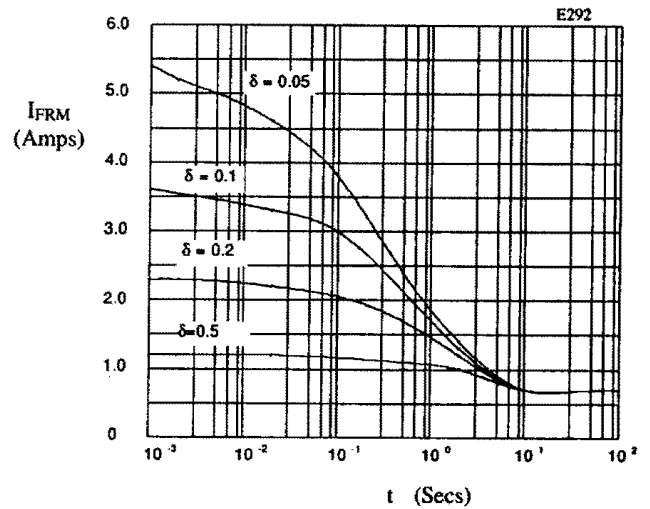


Fig 8. Typical repetitive forward current as a function of pulse width at 100°C;  $R_{\theta JL} = 95 \text{ }^\circ\text{C/W}$ ;  $V_{RWM}$  during  $1 - \delta$ .