SEMTECH

RECTIFIER, up to 400V, 2.1A, 50ns

USC1104
USC1105
USC1106

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

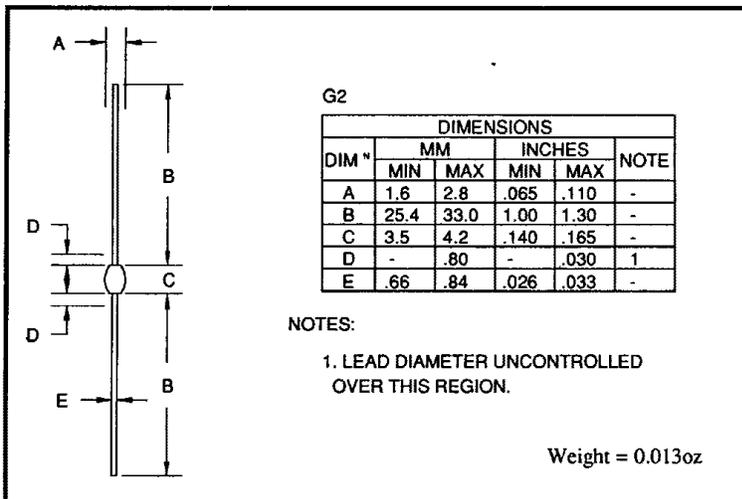# AXIAL LEADED HERMETICALLY SEALED SUPERFAST RECTIFIER DIODE

- Very low reverse recovery time
- Hermetically sealed with Metoxilite fused metal oxide
- Low thermal impedance
- Low switching losses
- Soft, non-snap off, recovery characteristics

QUICK REFERENCE DATA

- V_R = 200 - 400V
- I_F = 2.1A
- t_{rr} = 50nS
- I_R = 10μA

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

	Symbol	USC1104	USC1105	USC1106	Unit
Working reverse voltage	V_{RWM}	200	300	400	V
Repetitive reverse voltage	V_{RRM}	200	300	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}	← 9.0 →			A
Non-repetitive surge current (t_p = 8.3mS, @ V_R & Tj_{max})	I_{FSM}	← 20 →			A
Storage temperature range	T_{STG}	← -55 to +150 →			°C
Operating temperature range	T_{OP}	← -55 to +150 →			°C

MECHANICAL

G2

DIMENSIONS					
DIM "	MM		INCHES		NOTE
	MIN	MAX	MIN	MAX	
A	1.6	2.8	.065	.110	-
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 = 0.013oz

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ELECTRICAL CHARACTERISTICS (@ 25°C unless otherwise specified)

	Symbol	USC1104 USC1105 USC1106	Unit
Average forward current max. (pcb mounted; $T_A = 55^{\circ}$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. ($T_L = 55^{\circ}$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 = 8.3mS) max.	I^2t	← 1.7 →	A^2S
Forward voltage drop max. @ $I_F = 1.0$A, $T_j = 25^{\circ}$C	V_F	← 1.25 →	V
Reverse current max. @ V_{RWM}, $T_j = 25^{\circ}$C	I_R	← 10 →	μA
@ V_{RWM}, $T_j = 100^{\circ}$C	I_R	← 200 →	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. @ $V_R = 5$V , f = 1MHz	C_j	← 25 →	ρF

THERMAL CHARACTERISTICS

	Symbol	USC1104 USC1105 USC1106	Unit
Thermal resistance - junction to lead Lead length = 0.0"	$R_{\theta JL}$	← 7 →	$^{\circ}$C/W
Lead length = 0.375"	$R_{\theta JL}$	← 38 →	$^{\circ}$C/W
Thermal resistance - junction to amb. on 0.06" thick pcb. 1 oz. copper.	$R_{\theta JA}$	← 95 →	$^{\circ}$C/W

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