

SEMTECH**RECTIFIER, up to 400V, 5A, 50ns****USC1304
USC1305
USC1306**

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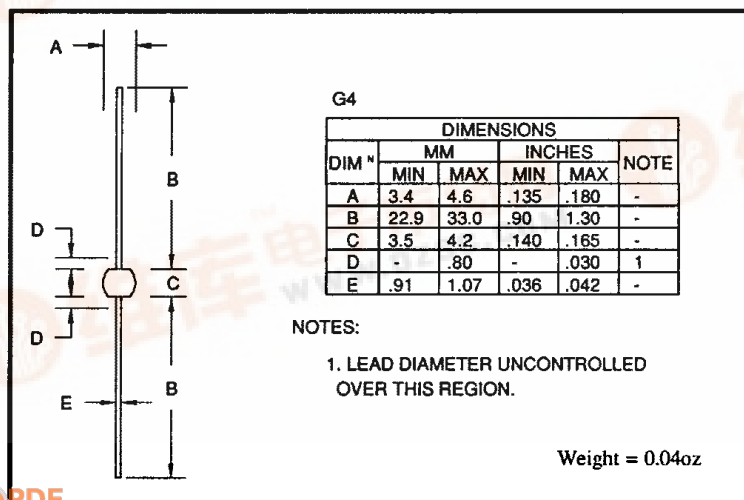
**AXIAL LEADED HERMETICALLY SEALED
SUPERFAST RECTIFIER DIODE****QUICK
REFERENCE DATA**

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

- $V_R = 200 - 400V$
- $I_F = 5.0A$
- $t_{rr} = 50nS$
- $I_R = 20\mu A$

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

	Symbol	USC1304	USC1305	USC1306	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")	$I_{F(AV)}$	←	5.0	→	A
Repetitive surge current (@ 55°C in free air, lead length 0.375")	I_{FRM}	←	16	→	A
Non-repetitive surge current ($t_p = 8.3mS$, @ V_R & T_{jmax})	I_{FSM}	←	70	→	A
Storage temperature range	T_{STG}	←	-55 to +150	→	°C
Operating temperature range	T_{OP}	←	-55 to +150	→	°C

MECHANICAL

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ELECTRICAL CHARACTERISTICS (@ 25°C unless otherwise specified)

	Symbol	USC1304	USC1305	USC1306	Unit
Average forward current max. (pcb mounted; $T_A = 55^\circ\text{C}$) for sine wave	$I_{F(AV)}$	←	2.9	→	A
for square wave ($d = 0.5$)	$I_{F(AV)}$	←	3.0	→	A
Average forward current max. ($T_L = 55^\circ\text{C}$; $L = 3/8"$) for sine wave	$I_{F(AV)}$	←	4.9	→	A
for square wave	$I_{F(AV)}$	←	5.0	→	A
I^2t for fusing ($t = 8.3\text{ms}$) max.	I^2t	←	20	→	A^2S
Forward voltage drop max. @ $I_F = 3.0\text{A}$, $T_j = 25^\circ\text{C}$	V_F	←	1.25	→	V
Reverse current max. @ V_{RWM} , $T_j = 25^\circ\text{C}$	I_R	←	20	→	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}	←	50	→	nS
Junction capacitance typ. @ $V_R = 10\text{V}$, $f = 1\text{MHz}$	C_j	←	90	→	pF

THERMAL CHARACTERISTICS

	Symbol	USC1304	USC1305	USC1306	Unit
Thermal resistance - junction to lead Lead length = 0.375"	$R_{\theta JL}$	←	20	→	$^\circ\text{C}/\text{W}$
Lead length = 0.0"	$R_{\theta JL}$	←	5	→	$^\circ\text{C}/\text{W}$
Thermal resistance - junction to amb. on 0.06" thick pcb. 1 oz. copper.	$R_{\theta JA}$	←	75	→	$^\circ\text{C}/\text{W}$