



April 20, 2000

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

## SURFACE MOUNT HERMETICALLY SEALED ULTRAFAST RECTIFIER DIODE

- Extremely low reverse recovery time
- Hermetically sealed to ensure reliable operation under most severe environmental and electrical stress
- Very low switching losses
- Soft, non-snap off, recovery characteristics
- Very low forward voltage drop

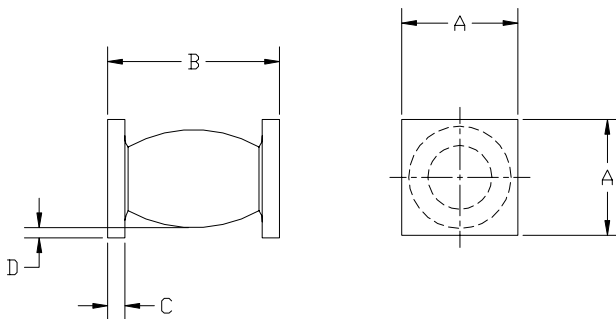
## QUICK REFERENCE DATA

- $V_R = 50 - 150V$
- $I_F = 6.0A$
- $t_{rr} = 30ns$
- $I_R = 5\mu A$

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

PARAMETER	SYMBOL	1N5807	1N5809	1N5811	UNITS
Working reverse voltage	$V_{RWM}$	50	100	150	V
Repetitive reverse voltage	$V_{RRM}$	50	100	150	V
Average forward current (@ 75°C, lead length = 0")	$I_{F(AV)}$	6.0			A
Repetitive surge current (@ 55°C, in free air, lead length 0")	$I_{FRM}$	25			A
Non-repetitive surge current ( $t_p = 8.3mS$ , @ $V_R$ & $T_{jmax}$ )	$I_{FSM}$	125			A
Operating temperature range	$T_{OP}$	-65 to +175			°C
Storage temperature range	$T_{STG}$	-65 to +200			°C

## MECHANICAL OUTLINE



DIMENSIONS					
DIM	MM		INCHES		NOTES
	MIN	MAX	MIN	MAX	
A	3.48	3.76	0.137	0.148	
B	5.08	5.72	0.200	0.225	
C	0.48	0.71	0.019	0.028	
D	0.80		0.003		DIM PRE-SOLDER

These products are qualified to MIL-S-19500/477 and are preferred parts as listed in MIL-STD-701. They are available as JANTX, and JANTXV versions.

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**ELECTRICAL CHARACTERISTICS (@ 25°C unless otherwise specified)**

PARAMETER	SYMBOL	CONDITIONS	1N5807	1N5809	1N5811	UNITS
Maximum Average Forward Current	$I_{F(AV)}$	PCB mounted; $T_A = 55^\circ\text{C}$ for sine wave for square wave ( $d = 0.5$ )		1.7 1.8		A
Maximum Average Forward Current	$I_{F(AV)}$	$T_L = 55^\circ\text{C}$ ; $L = 0''$ for sine wave for square wave		5.7 6.0		A
Maximum $I^2t$ for Fusing	$I^2t$	$t = 8.3\text{mS}$ , sine wave		32		$\text{A}^2\text{S}$
Maximum Forward Voltage Drop	$V_F$	$I_F = 4.0\text{A}$ , $T_j = 25^\circ\text{C}$		0.875		V
Maximum Reverse Current	$I_R$	$V_{RWM}$ , $T_j = 25^\circ\text{C}$		5.0		$\mu\text{A}$
		$V_{RWM}$ , $T_j = 100^\circ\text{C}$		150		$\mu\text{A}$
Maximum Reverse Recovery Time	$t_{rr}$	$I_F = 1.0\text{A}$ to $I_{RRM} = 1.0\text{A}$ Recovers to $I_{RR} = 0.1\text{A}$		30		nS
Maximum Junction Capacitance	$C_j$	$V_R = -5\text{V}$ , $f = 1\text{MHz}$		60		pF

**THERMAL CHARACTERISTICS**

PARAMETER	SYMBOL	CONDITIONS	1N5807	1N5809	1N5811	UNITS
Maximum Thermal Resistance Junction to Tab	$R_{\theta jt}$			10		$^\circ\text{C/W}$



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## ELECTRICAL CHARACTERISTICS CURVES

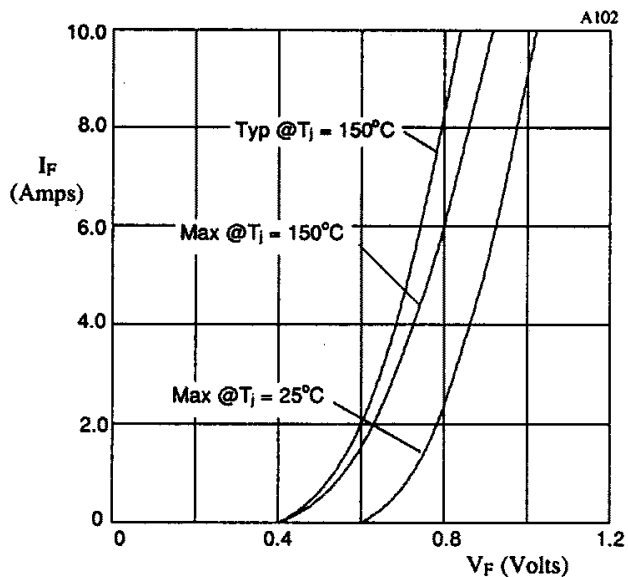


Fig 1. Forward voltage drop as a function of forward current.

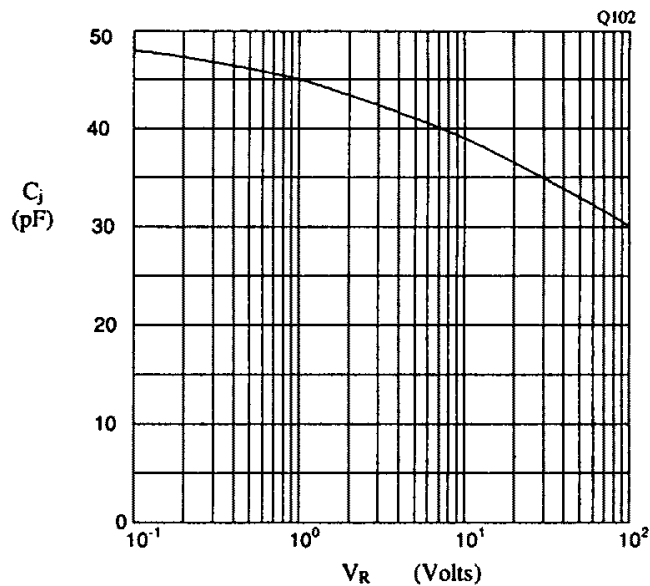


Fig 2. Typical junction capacitance as a function of reverse voltage.

ECN00-1046