

January 7, 1998

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

### QUICK REFERENCE DATA AXIAL LEADED HERMETICALLY SEALED STANDARD RECOVERY RECTIFIER DIODE

- $V_R = 200 - 1000V$
- $I_F = 2.0A$
- $t_{rr} = 2\mu S$
- $V_F = 1.1V$
- Low reverse leakage current
- Hermetically sealed in Metoxilite fused metal oxide
- Good thermal shock resistance
- Low forward voltage drop
- Avalanche capability.

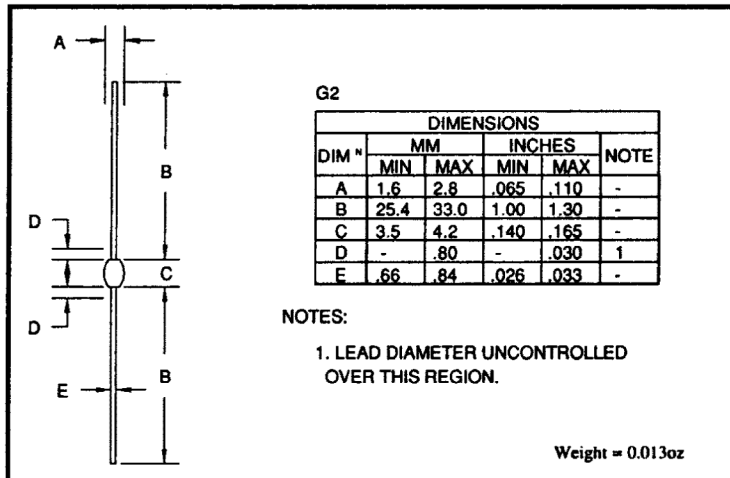
### ABSOLUTE MAXIMUM RATINGS (@ 25°C unless otherwise specified)

	Symbol	1N5614	1N5616	1N5618	1N5620	1N5622	Unit
		S2M	S4M	S6M	S8M	S0M	
Working reverse voltage	$V_{RWM}$	200	400	600	800	1000	V
Repetitive reverse voltage	$V_{RRM}$	200	400	600	800	1000	V
Average forward current (@ 55°C, lead length 0.375")	$I_{F(AV)}$	←———— 2.0 —————→					A
Repetitive surge current (@ 55°C in free air, lead length 0.375")	$I_{FRM}$	←———— 10 —————→					A
Non-repetitive surge current ( $t_p = 8.3mS$ , @ $V_R$ & $T_{jmax}$ )	$I_{FSM}$	←———— 30 —————→					A
Storage temperature range	$T_{STG}$	←———— -65 to +175 —————→					°C
Operating temperature range	$T_{OP}$	←———— -65 to +175 —————→					°C

### MECHANICAL

These products are qualified to MIL-PRF-19500/427 and are preferred parts as listed in MIL-STD-701. They can be supplied fully released as JAN, JANTX, JANTXV and JANS versions.

These products are available in Europe to DEF STAN 59-61 (PART 80)/029 to F and FX levels.



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

	Symbol	1N5614	1N5616	1N5618	1N5620	1N5622	Unit
		S2M	S4M	S6M	S8M	S0M	
Average forward current (sine wave) - max. pcb mounted; $T_A = 55^\circ\text{C}$ - max. $L = 3/8"$ ; $T_L = 55^\circ\text{C}$	$I_{F(AV)}$	←----- 1.0 -----→					A
	$I_{F(AV)}$	←----- 2.0 -----→					A
$I^2t$ for fusing ( $t = 8.3\text{ms}$ ) max.	$I^2t$	←----- 5.0 -----→					$\text{A}^2\text{S}$
Forward voltage drop max. @ $I_F = 1.0\text{A}$ , $T_j = 25^\circ\text{C}$	$V_F$	←----- 1.1 -----→					V
Reverse current max. @ $V_{RWM}$ , $T_j = 25^\circ\text{C}$	$I_R$	←----- 0.5 -----→					$\mu\text{A}$
@ $V_{RWM}$ , $T_j = 100^\circ\text{C}$	$I_R$	←----- 25 -----→					$\mu\text{A}$
Reverse recovery time max. 0.5A $I_F$ to 1.0A $I_R$ . Recovers to 0.25A $I_{RR}$ .	$t_{rr}$	←----- 2.0 -----→					$\mu\text{S}$
Junction capacitance typ. @ $V_R = 5\text{V}$ , $f = 1\text{MHz}$	$C_j$	←----- 23 -----→					$\rho\text{F}$
Thermal resistance - junction to lead Lead length = 0.375"	$R_{\theta JL}$	←----- 36 -----→					$^\circ\text{C/W}$
Lead length = 0"	$R_{\theta JL}$	←----- 7 -----→					$^\circ\text{C/W}$
Thermal resistance - junction to amb. on 0.06" thick pcb. 1 oz. copper.	$R_{\theta JA}$	←----- 95 -----→					$^\circ\text{C/W}$

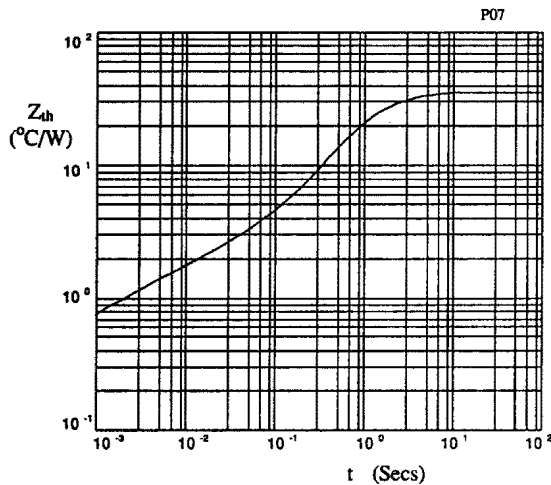


Fig 1. Transient thermal impedance characteristic.

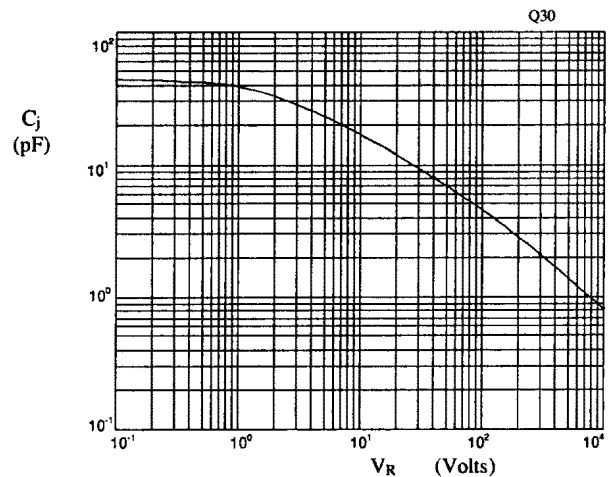


Fig 2. Typical junction capacitance as a function of reverse voltage.

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Fig 3. Forward voltage drop as a function of forward current.



Fig 4. Maximum power versus lead temperature.



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



Fig 6. Maximum ratings for capacitive loads.