

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.

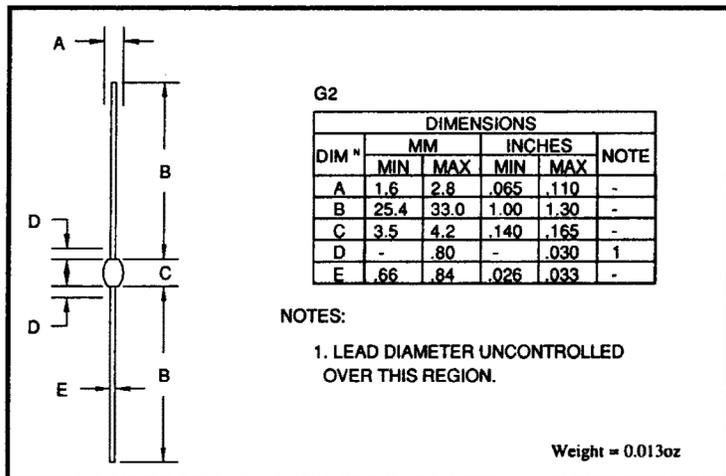
ABSOLUTE MAXIMUM RATINGS (@ 25°C unless otherwise specified)

	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 -----→					A^2S
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 -----→					μA
@ V_{RWM} , $T_j = 100^\circ\text{C}$	I_R	←----- 25 -----→					μA
Reverse recovery time max. 0.5A I_F to 1.0A I_R . Recovers to 0.25A I_{RR} .	t_{rr}	←----- 2.0 -----→					μS
Junction capacitance typ. @ $V_R = 5\text{V}$, $f = 1\text{MHz}$	C_j	←----- 23 -----→					pF
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 -----→					$^\circ\text{C/W}$

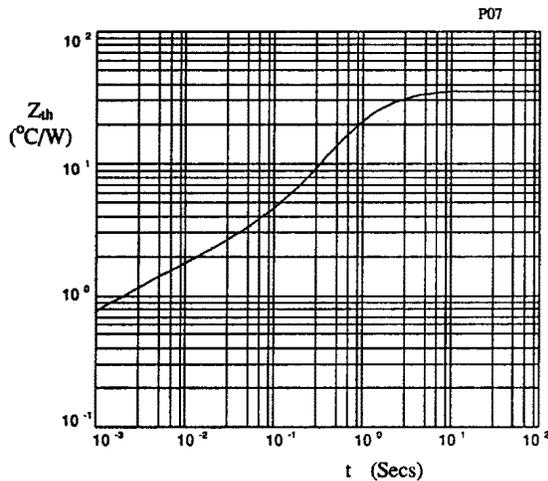


Fig 1. Transient thermal impedance characteristic.

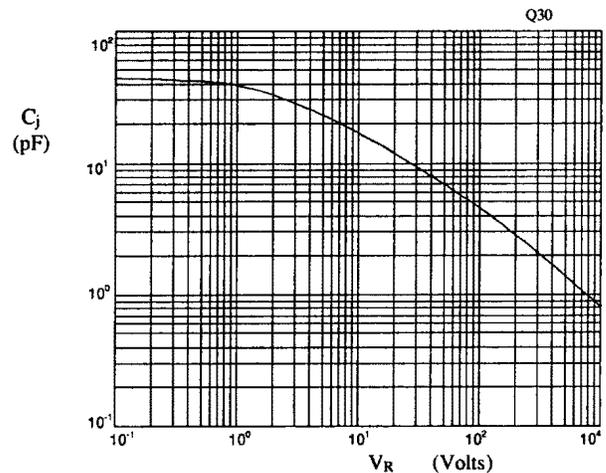


Fig 2. Typical junction capacitance as a function of reverse voltage.

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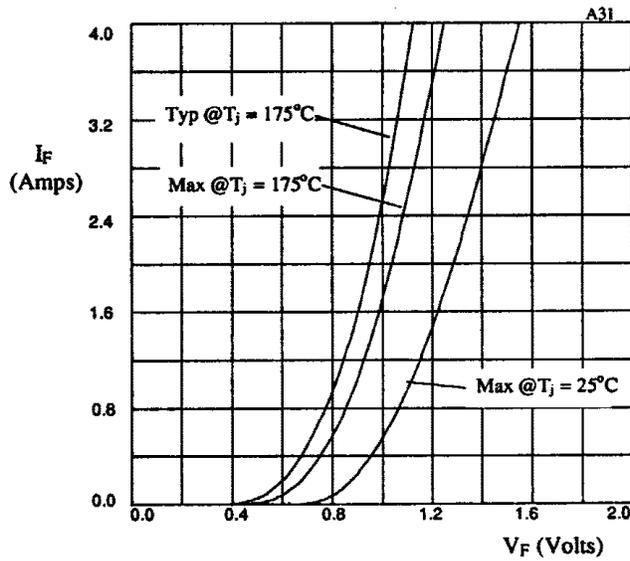


Fig 3. Forward voltage drop as a function of forward current.

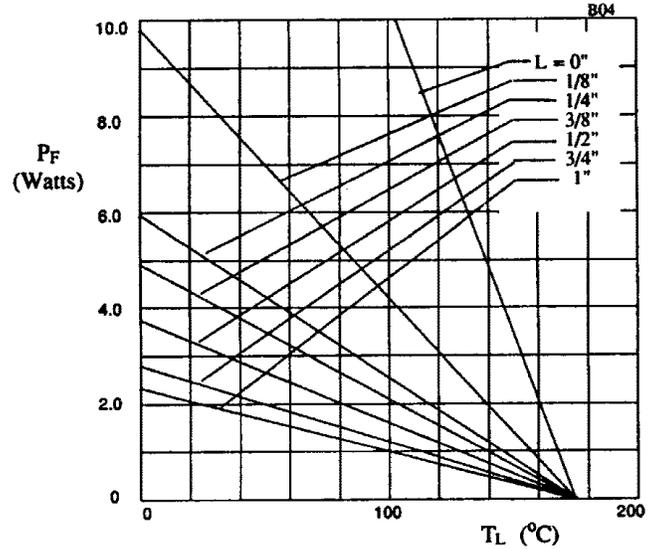


Fig 4. Maximum power versus lead temperature.

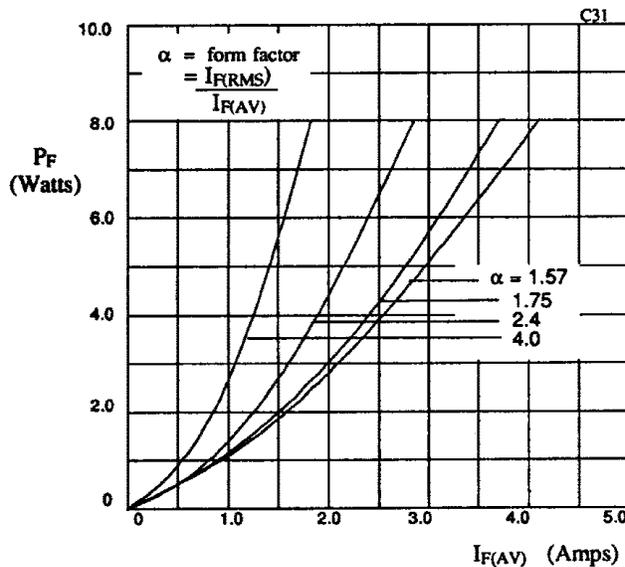


Fig 5. Forward power dissipation as a function of forward current, for sinusoidal operation.

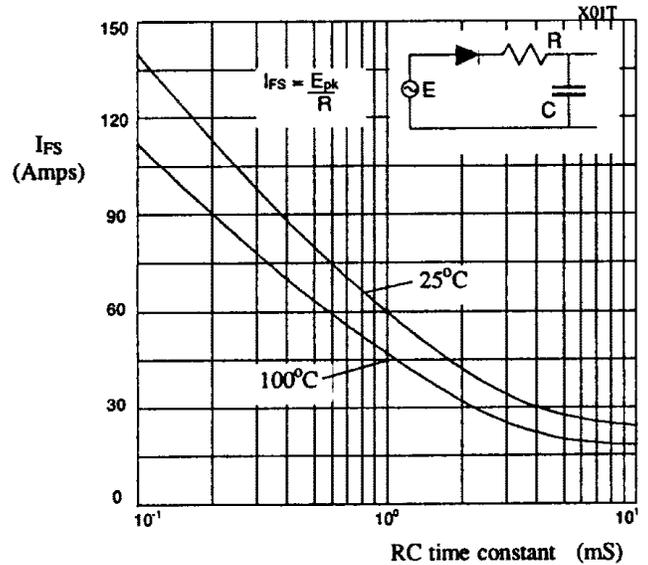


Fig 6. Maximum ratings for capacitive loads.

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