SEMTECH

RECTIFIER, up to 1kV, 2A, 2µs

1N5614	S2M
1N5616	S4M
1N5618	S6M
1N5620	S8M
1N5622	S0M

QUICK REFERENCE DATA

AXIAL LEADED HERMETICALLY SEALED STANDARD RECOVERY RECTIFIER DIODE

- V_R = 200 - 1000V
- I_F = 2.0A
- t_{rr} = 2µS
- V_F = 1.1V

- Low reverse leakage current
- Hermetically sealed in Metoxilite fused metal oxide
- Good thermal shock resistance
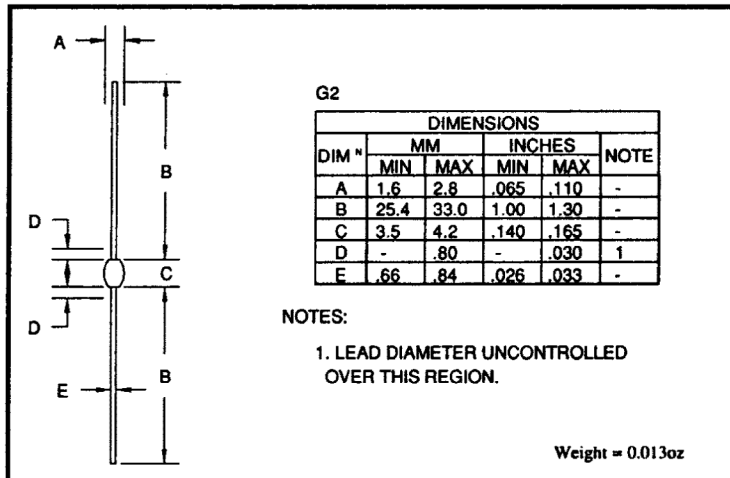- Low forward voltage drop
- Avalanche capability.

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

	Symbol	1N5614 S2M	1N5616 S4M	1N5618 S6M	1N5620 S8M	1N5622 S0M	Unit
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.

G2

DIMENSIONS					
DIM ᴺ	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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January 7, 1998

CHARACTERISTICS (@ 25°C unless otherwise specified)

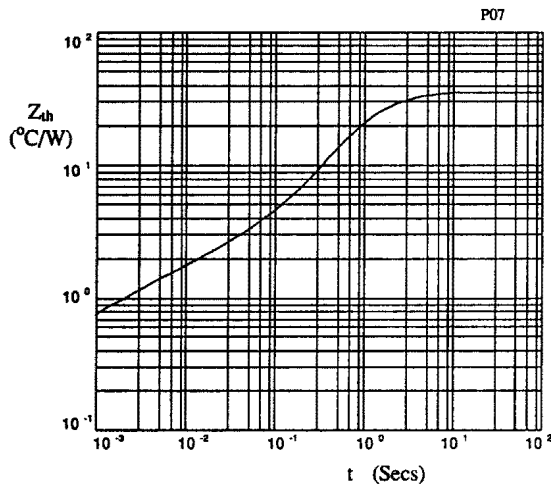|	Symbol	1N5614 S2M	1N5616 S4M	1N5618 S6M	1N5620 S8M	1N5622 S0M	Unit
Average forward current (sine wave) - max. pcb mounted; $T_A = 55°C$	$I_{F(AV)}$	← ———	———	1.0	———	——→	A
- max. L = 3/8"; $T_L = 55°C$	$I_{F(AV)}$	← ———	———	2.0	———	——→	A
I^2t for fusing (t = 8.3mS) max.	I^2t	← ———	———	5.0	———	——→	A^2S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

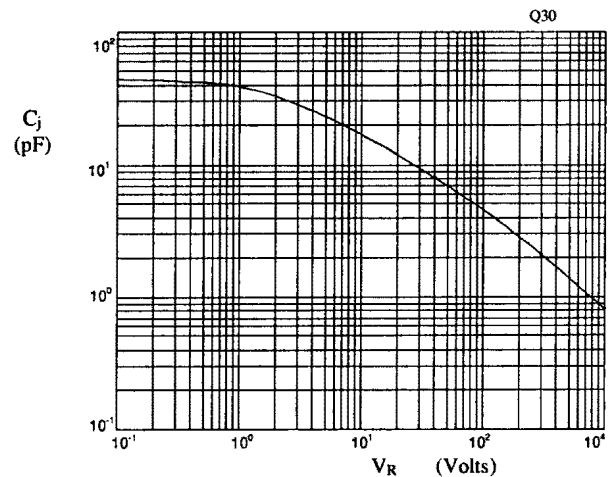Fig 1. Transient thermal impedance characteristic.

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

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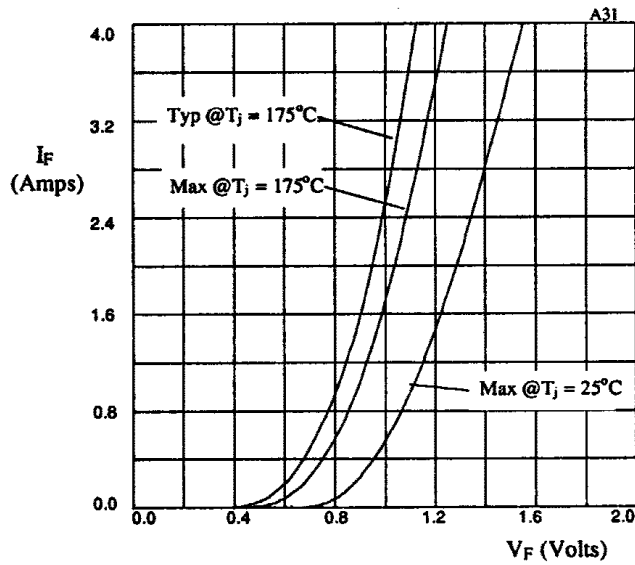| 1N5614 | S2M |
1N5616	S4M
1N5618	S6M
1N5620	S8M
1N5622	S0M

January 7, 1998

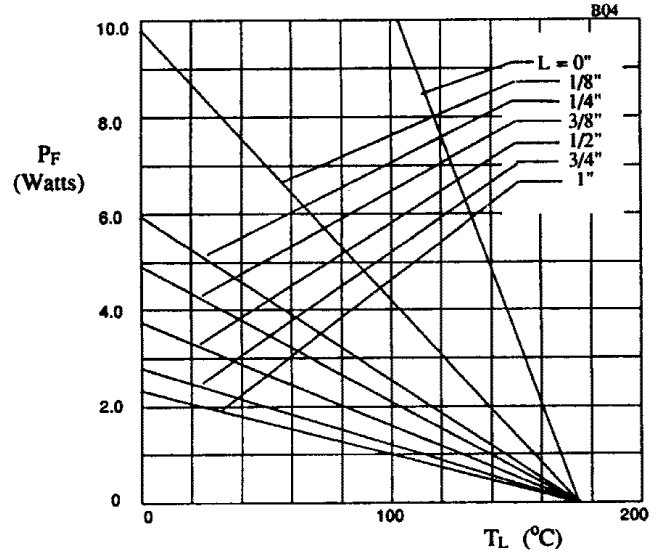Fig 3. Forward voltage drop as a function of forward current.

Fig 4. Maximum power versus lead temperature.

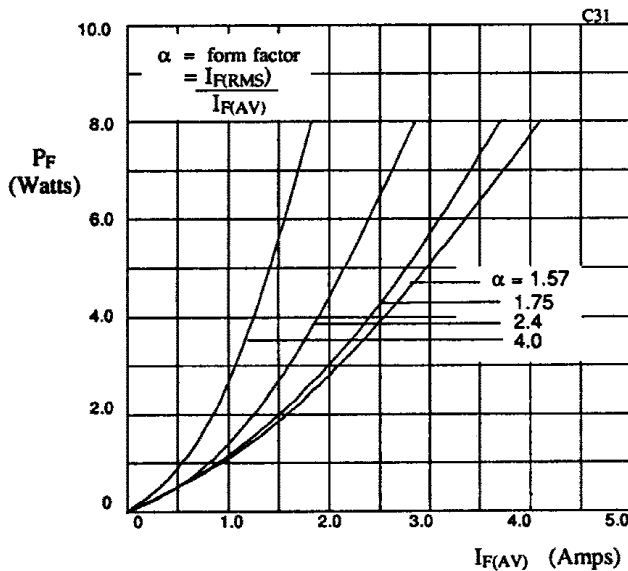Fig 5. Forward power dissipation as a function of forward current, for sinusoidal operation.
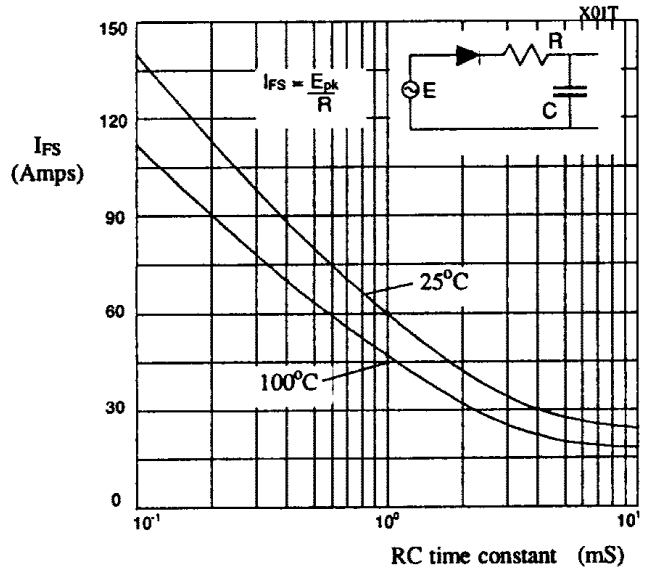
$$\alpha = \text{form factor} = \frac{I_{F(RMS)}}{I_{F(AV)}}$$

$\alpha = 1.57$
1.75
2.4
4.0

Fig 6. Maximum ratings for capacitive loads.

$$I_{FS} = \frac{E_{pk}}{R}$$

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