Excellent Integrated System Limited

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SEMTECH

RECTIFIER, up to 1kV, 2A, 150-500ns

1N5615 thru 1N5623
S2F thru S0F

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

AXIAL LEADED HERMETICALLY SEALED FAST RECTIFIER DIODE

- Low reverse recovery time
- Hermetically sealed in Metoxilite fused metal oxide
- Low switching losses
- Low forward voltage drop
- Soft, non-snap off, recovery characteristics

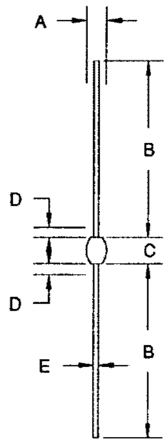
QUICK REFERENCE DATA

- V_R = 200 - 1000V
- I_F = 2.00A
- t_{rr} = 150 - 500nS
- I_R = 0.5µA

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

	Symbol	1N5615 S2F	1N5617 S4F	1N5619 S6F	1N5621 S8F	1N5623 S0F	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}	← 6.0 →					A
Non-repetitive surge current (t_p = 8.3mS, @ V_R & Tj_{max})	I_{FSM}	← 25 →					A
Storage temperature range	T_{STG}	← -65 to +175 →					°C
Operating temperature range	T_{OP}	← -65 to +175 →					°C

MECHANICAL



G2

DIM	DIMENSIONS MM MIN	MM MAX	INCHES MIN	INCHES MAX	NOTE
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 = 0.04oz

These products are qualified to MIL-PRF-19500/429 and are preferred parts as listed in MIL-STD-701.
They can be supplied fully released as JAN, JANTX, JANTXV and JANS version.
These products are qualified in Europe to DEF STAN 59-61 (PART 80)/029.

SEMTECH

RECTIFIER, up to 1kV, 2A, 150-500ns

1N5615 thru 1N5623 S2F thru S0F

ELECTRICAL CHARACTERISTICS (@ 25°C unless otherwise specified)

	Symbol	1N5615 S2F	1N5617 S4F	1N5619 S6F	1N5621 S8F	1N5623 S0F	Unit
Average forward current max. (pcb mounted; T_A = 55°C)							
for sine wave	$I_{F(AV)}$	←		1.00		→	A
for square wave (d = 0.5)	$I_{F(AV)}$	←		1.05		→	A
Average forward current max. (T_L = 55°C; L = 3/8")							
for sine wave	$I_{F(AV)}$	←		1.95		→	A
for square wave	$I_{F(AV)}$	←		2.00		→	A
I^2t for fusing (t = 8.3mS) max.	I^2t	←		2.5		→	A^2S
Forward voltage drop max. @ I_F = 1.0A, T_j = 25°C	V_F	←		1.2		→	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}	150	150	250	300	500	nS
Junction capacitance typ. @ V_R = 5V , f = 1MHz	C_j	27	27	27	18	18	pF

THERMAL CHARACTERISTICS

	Symbol	1N5615 S2F	1N5617 S4F	1N5619 S6F	1N5621 S8F	1N5623 S0F	Unit
Thermal resistance - junction to lead							
Lead length = 0.375"	$R_{\theta JL}$	←		38		→	°C/W
Lead length = 0.0"	$R_{\theta JL}$	←		7		→	°C/W
Thermal resistance - junction to amb. on 0.06" thick pcb. 1 oz. copper.	$R_{\theta JA}$	←		95		→	°C/W

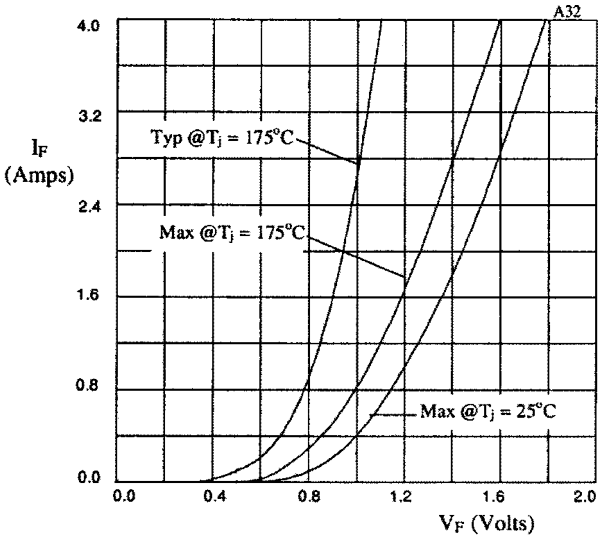


Fig 1. Forward voltage drop as a function of forward current.

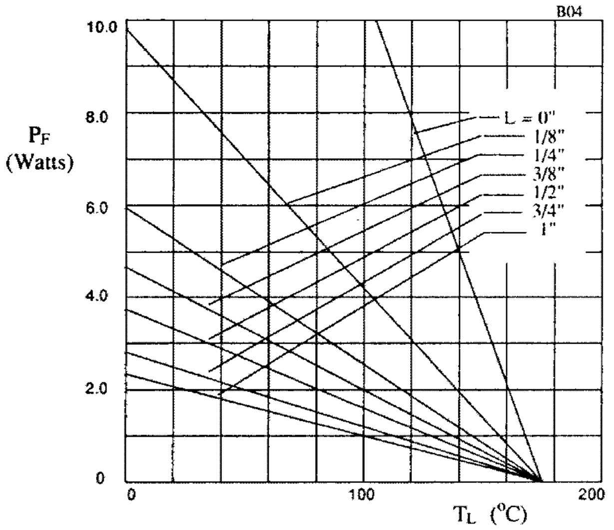


Fig 2. Maximum power versus lead temperature.

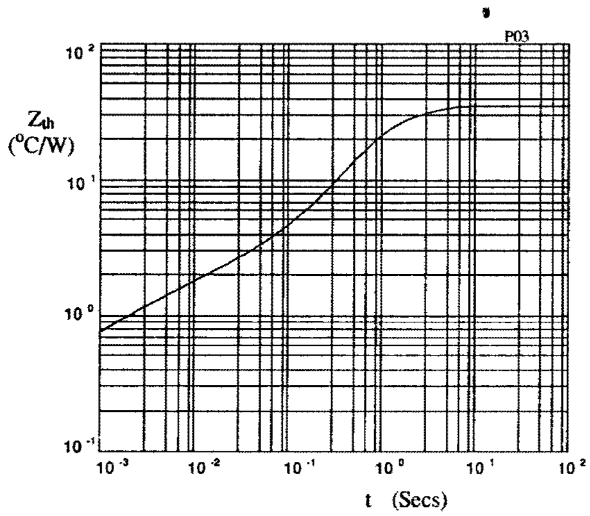


Fig 3. Transient thermal impedance characteristic.

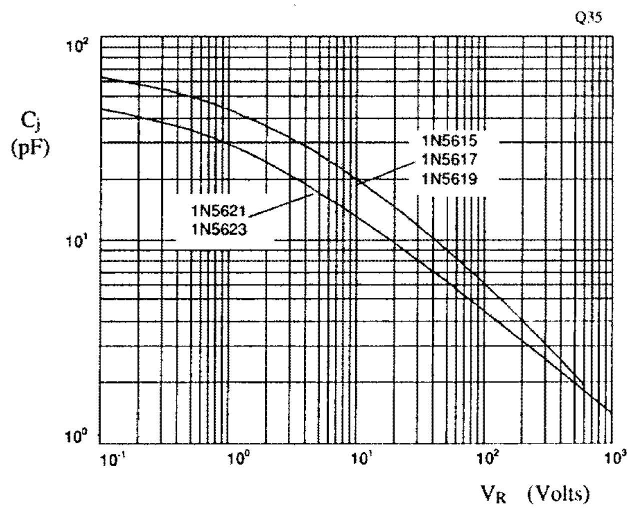


Fig 4. Typical junction capacitance as a function of reverse voltage.

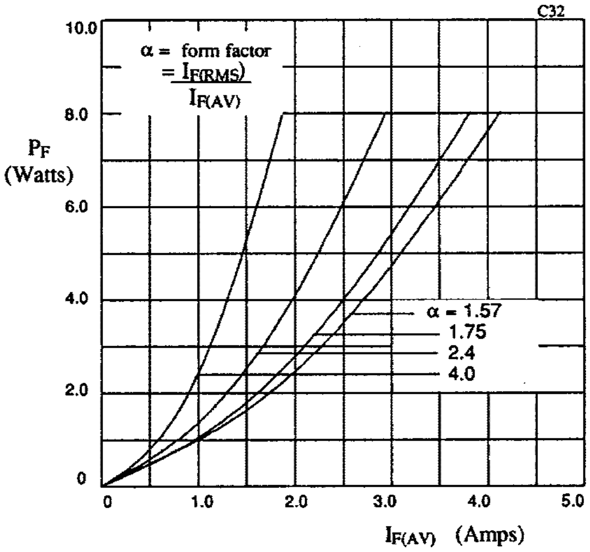


Fig 5. Forward power dissipation as a function of forward current, for sinusoidal operation.

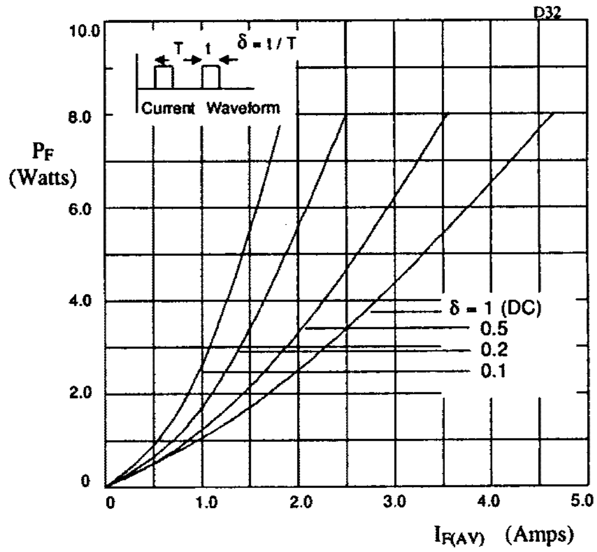


Fig 6. Forward power dissipation as a function of forward current, for square wave operation.

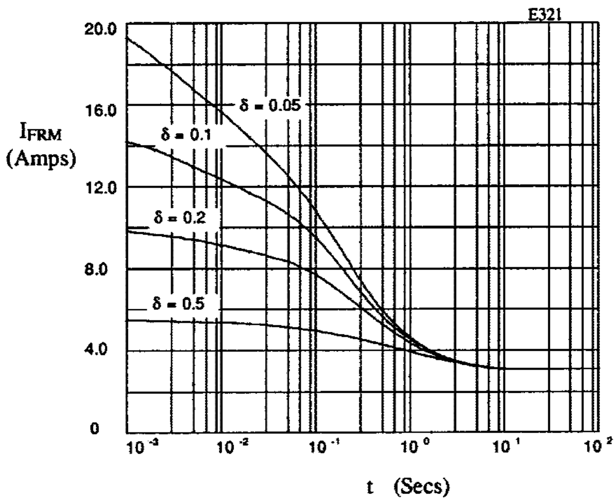


Fig 7. Typical repetitive forward current as a function of pulse width at 55°C; $R_{\theta JL}$ = 35 °C/W; V_{RWM} during 1 - δ.

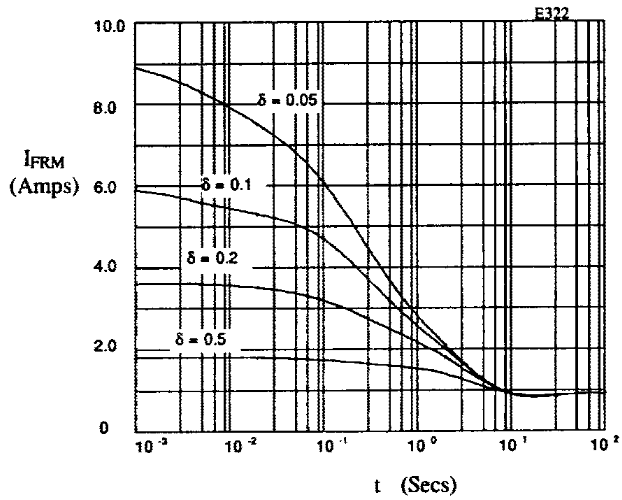


Fig 8. Typical repetitive forward current as a function of pulse width at 100°C; $R_{\theta JL}$ = 95 °C/W; V_{RWM} during 1 - δ.