

January 7, 1998

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AXIAL LEADED HERMETICALLY SEALED FAST RECTIFIER DIODE

QUICK REFERENCE DATA

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

- $V_R = 200 - 1000V$
- $I_F = 2.00A$
- $t_{rr} = 150 - 500ns$
- $I_R = 0.5\mu A$

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 & T_{jmax})	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 #	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 = 0.04oz

These products are qualified to MIL-S-19500/429 and are preferred parts as listed in MIL-STD-701. They can be supplied fully released as JAN, JANTX, and JANTXV versions.

These products are qualified in Europe to DEF STAN 59-61 (PART 80)/029.

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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
	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
	I _{F(AV)}	←—————		2.00	————→		A
for square wave	I _{F(AV)}	←—————		2.5	————→		A ² S
I ² t for fusing (t = 8.3mS) max.	I ² t	←—————		2.5	————→		A ² S
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
	I _R	←—————		25	————→		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	ρF

THERMAL CHARACTERISTICS

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

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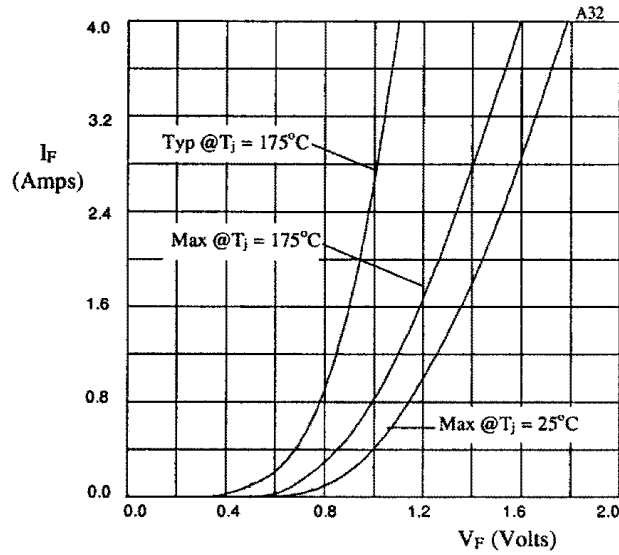


Fig 1. Forward voltage drop as a function of forward current.

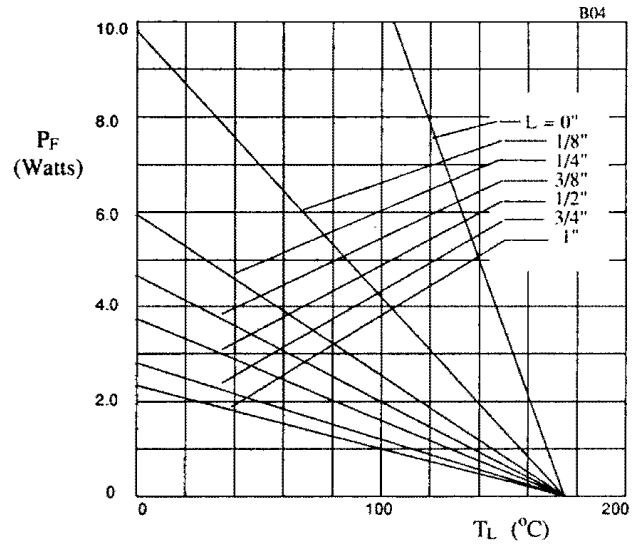


Fig 2. Maximum power versus lead temperature.

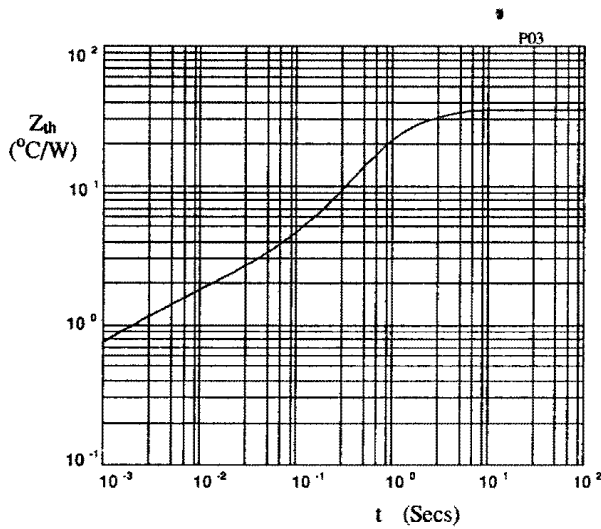


Fig 3. Transient thermal impedance characteristic.

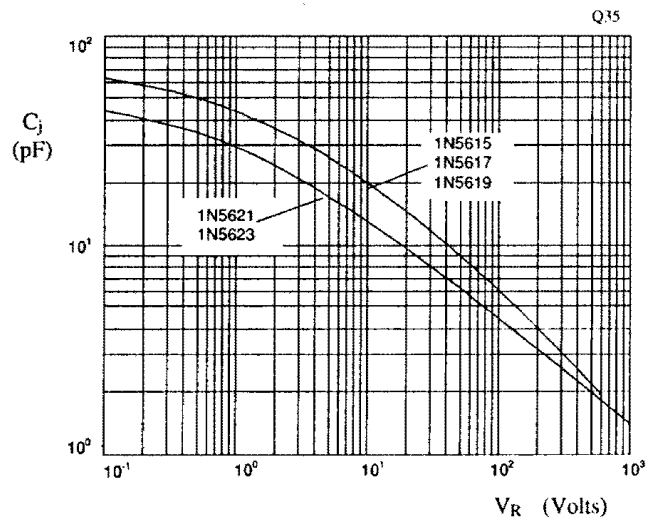


Fig 4. Typical junction capacitance as a function of reverse voltage.

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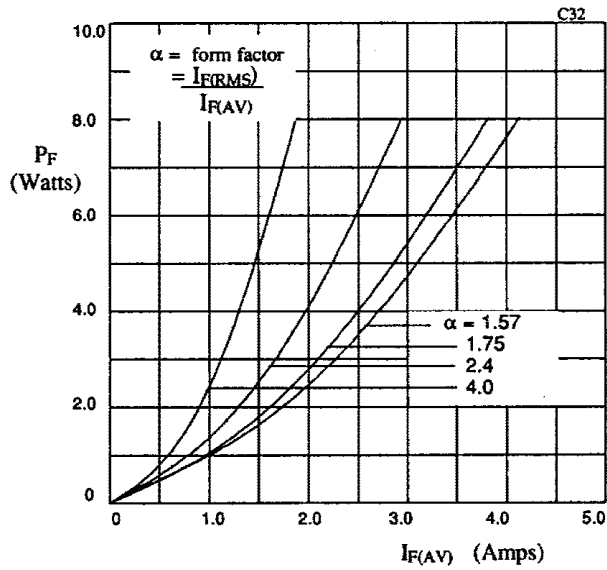


Fig 5. Forward power dissipation as a function of forward current, for sinusoidal operation.

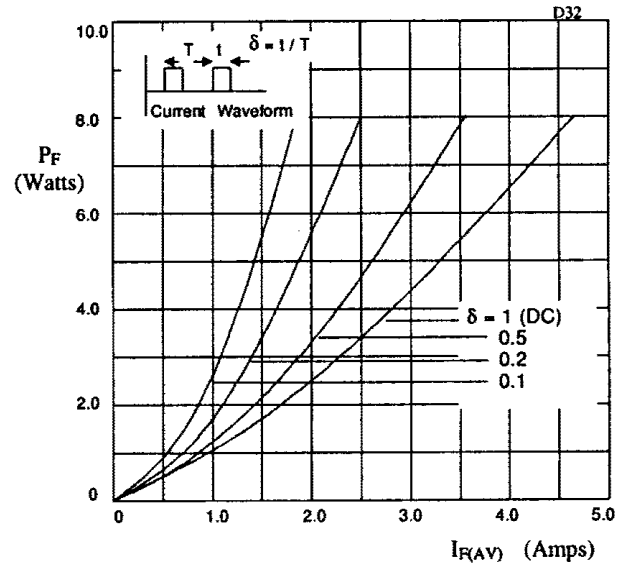


Fig 6. Forward power dissipation as a function of forward current, for square wave operation.

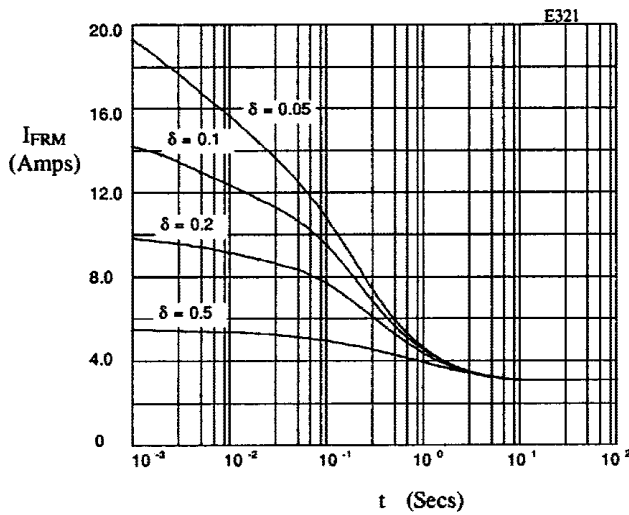


Fig 7. Typical repetitive forward current as a function of pulse width at 55°C; $R_{\theta JL} = 35 \text{ }^\circ\text{C/W}$; V_{RWM} during $1 - \delta$.

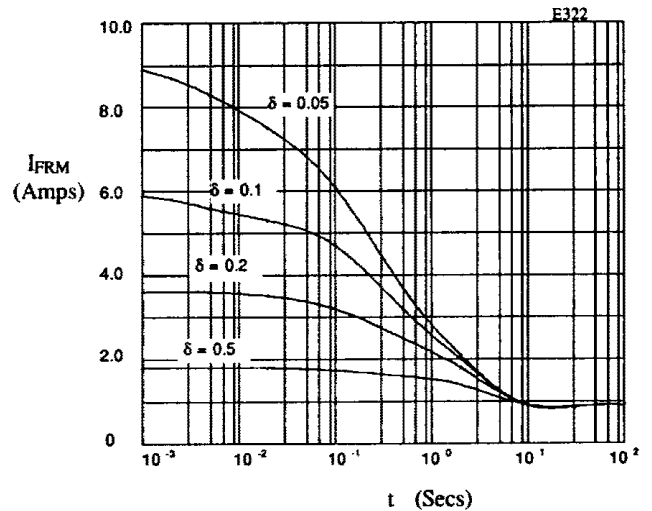


Fig 8. Typical repetitive forward current as a function of pulse width at 100°C; $R_{\theta JL} = 95 \text{ }^\circ\text{C/W}$; V_{RWM} during $1 - \delta$.