

January 7, 1998

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AXIAL LEADED HERMETICALLY SEALED SUPERFAST RECTIFIER DIODE

- Very 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

- $V_R = 50 - 150V$
- $I_F = 5.0A$
- $t_{rr} = 30nS$
- $V_F = 0.97V$

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

	Symbol	1N6079 5FF05	1N6080 5FF10	1N6081 5FF15	Unit
Working reverse voltage	V_{RWM}	50	100	150	V
Repetitive reverse voltage	V_{RRM}	50	100	150	V
Average forward current (@ 55°C, lead length 0.375")	$I_{F(av)}$	←————— 5.0 —————→			A
Repetitive surge current (@ 55°C in free air, lead length 0.375")	I_{FRM}	←————— 24 —————→			A
Non-repetitive surge current ($t_p = 8.3mS$, @ V_R & T_{jmax})	I_{FSM}	←————— 175 —————→			A
Storage temperature range	T_{STG}	←————— -65 to +150 —————→			°C
Operating temperature range	T_{OP}	←————— -65 to +150 —————→			°C

MECHANICAL

G4

DIM ⁿ	MM		INCHES		NOTE
	MIN	MAX	MIN	MAX	
A	3.4	4.6	.135	.180	-
B	22.9	33.0	.90	1.30	-
C	3.5	4.2	.140	.165	-
D	-	.80	-	.030	1
E	.91	1.07	.036	.042	-

NOTES:
1. LEAD DIAMETER UNCONTROLLED OVER THIS REGION.

Weight = 0.039oz

These products are qualified to MIL-S-19500/503.

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)/030 available to F and FX levels.

January 7, 1998

ELECTRICAL CHARACTERISTICS (@ 25°C unless otherwise specified)

	Symbol	1N6079 5FF05	1N6080 5FF10	1N6081 5FF15	Unit
Average forward current max. T _A = 55°C for sine wave	I _{F(AV)}	←—————	2.0	—————→	A
Average forward current max. T _L = 70°C; L = 0" T _L = 55°C; L = 3/8" for sine wave	I _{F(AV)}	←—————	12.0	—————→	A
for square wave	I _{F(AV)}	←—————	4.8	—————→	A
	I _{F(AV)}	←—————	5.0	—————→	A
I ² t for fusing (t = 8.3mS) max.	I ² t	←—————	127	—————→	A ² S
Forward voltage drop max. @ I _F = 5.0A, T _j = 25°C	V _F	←—————	0.97	—————→	V
Reverse current max. @ V _{RWM} , T _j = 25°C	I _R	←—————	10	—————→	μA
@ V _{RWM} , T _j = 100°C	I _R	←—————	500	—————→	μA
Reverse recovery time max. 0.5A I _F to 1.0A I _R . Recovers to 0.25A I _{RR} .	t _{rr}	←—————	30	—————→	nS
Junction capacitance typ. @ V _R = 5V, f = 1MHz	C _j	←—————	230	—————→	pF

THERMAL CHARACTERISTICS

	Symbol	1N6079 5FF05	1N6080 5FF10	1N6081 5FF15	Unit
Thermal resistance - junction to lead Lead length = 0.375"	R _{θJL}	←—————	23.5	—————→	°C/W
Lead length = 0.0"	R _{θJL}	←—————	5	—————→	°C/W
Thermal resistance - junction to amb. on 0.06" thick pcb. 1 oz. copper.	R _{θJA}	←—————	75	—————→	°C/W

January 7, 1998

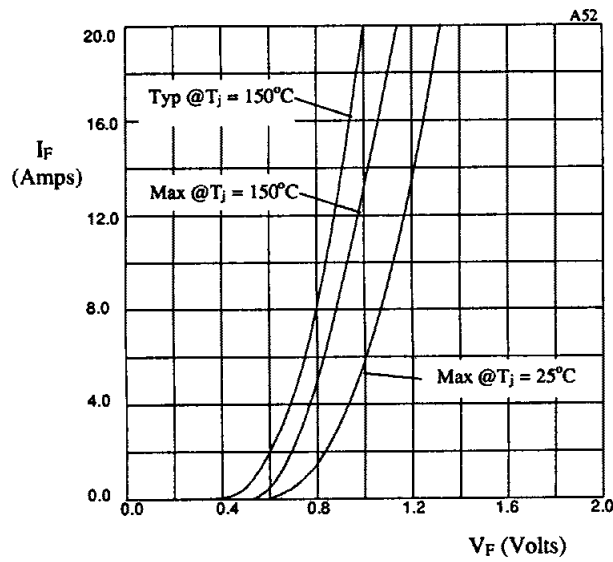


Fig 1. Forward voltage drop as a function of forward current

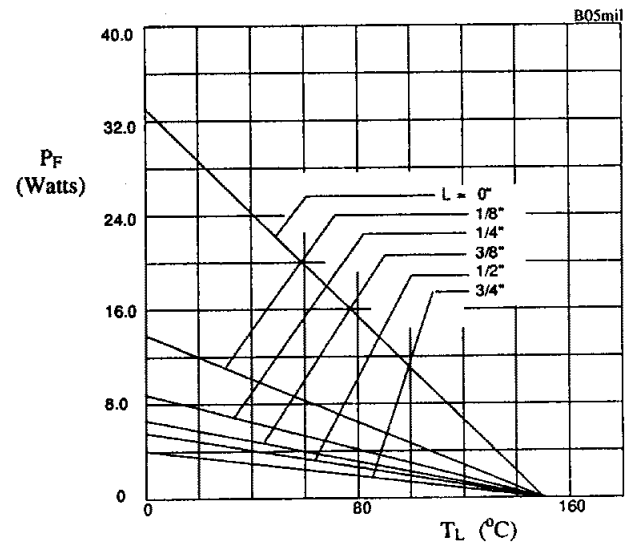


Fig 2. Maximum power versus lead temperature

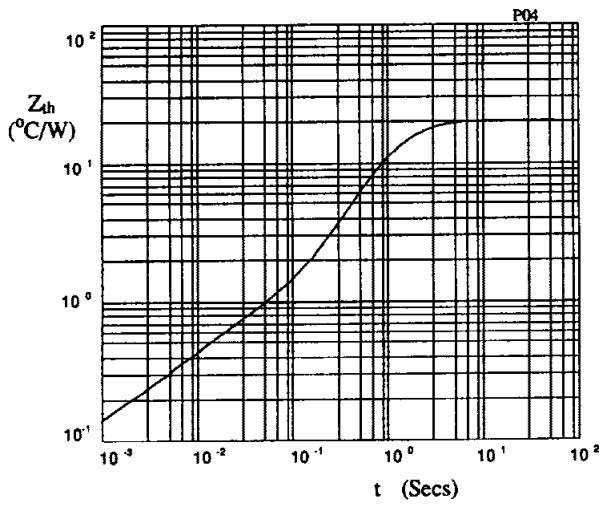


Fig 3. Transient thermal impedance characteristic.

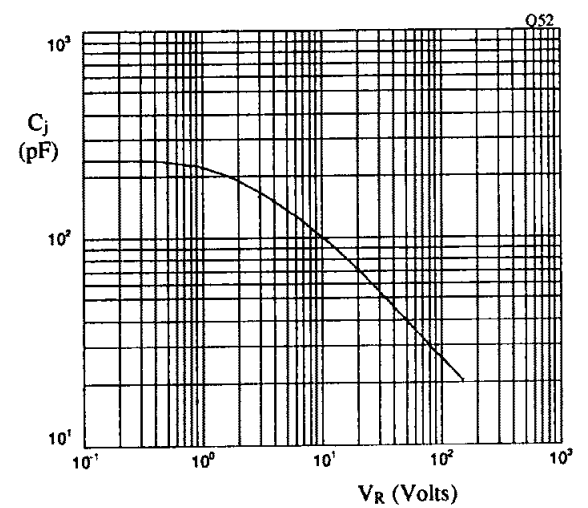


Fig 4. Typical junction capacitance as a function of reverse voltage.

January 7, 1998

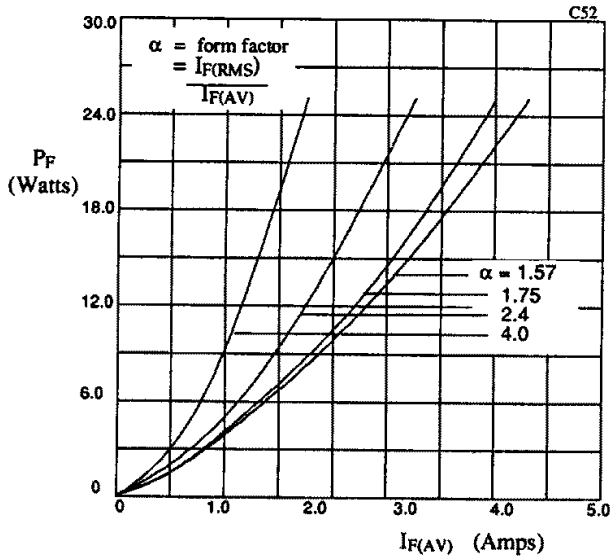


Fig 5. Forward power dissipation as a function of forward current, for sinusoidal operation.

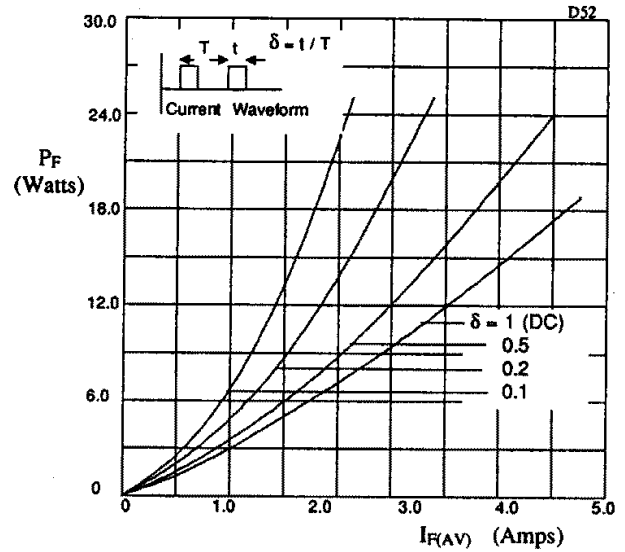


Fig 6. Forward power dissipation as a function of forward current, for square wave operation.

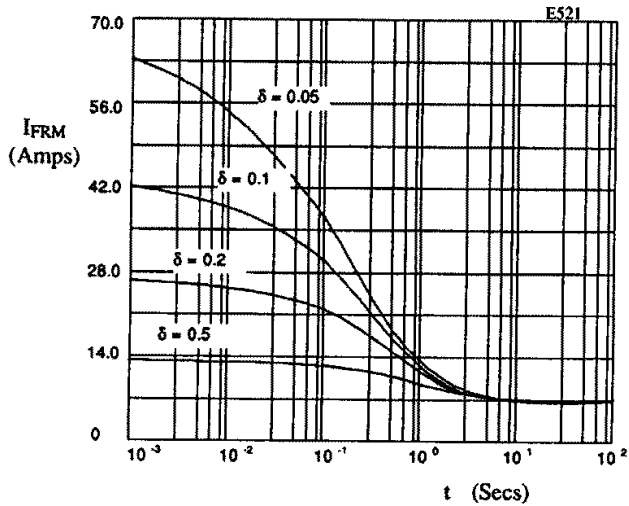


Fig 7. Maximum repetitive forward current as a function of pulse width at 55°C ; $R_{\theta JL} = 20^\circ\text{C/W}$; V_{RWM} during $1 - \delta$.

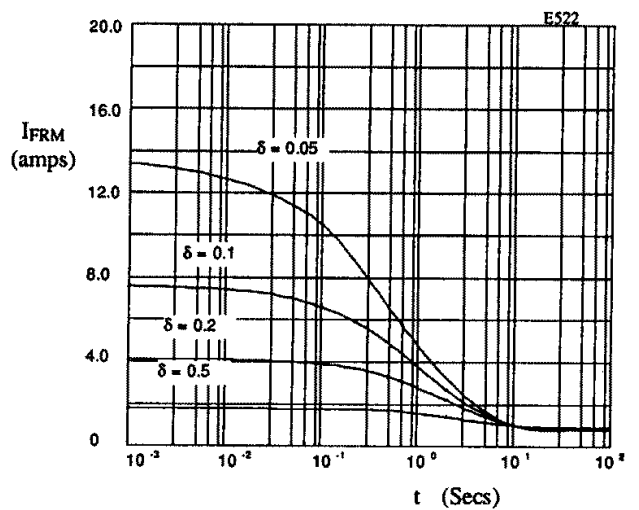


Fig 8. Maximum repetitive forward current as a function of pulse width at 100°C ; $R_{\theta JL} = 80^\circ\text{C/W}$; V_{RWM} during $1 - \delta$.