

January 7, 1998

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## AXIAL LEADED HERMETICALLY SEALED STANDARD RECOVERY RECTIFIER DIODE

## QUICK REFERENCE DATA

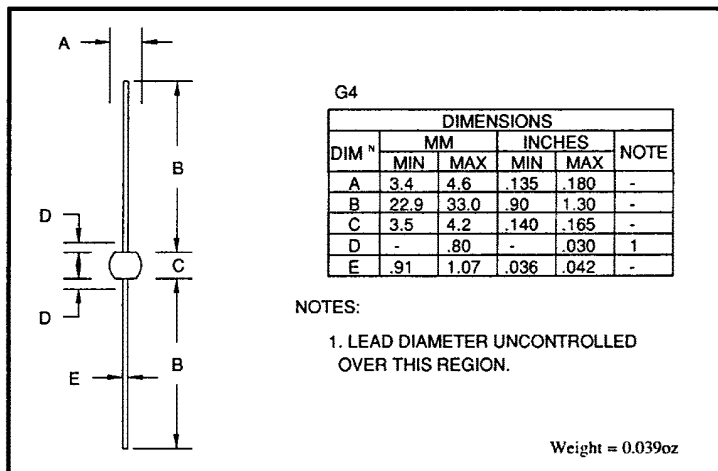
- low reverse leakage current
- Hermetically sealed in Metoxilite fused metal oxide
- Good thermal shock resistance
- Low forward voltage drop
- Avalanche capability

- $V_R = 200 - 1000V$
- $I_F = 5.0A$
- $t_{rr} = 2\mu S$
- $V_F = 1.0V$

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

	Symbol	1N5550	1N5551	1N5552	1N5553	1N5554	Unit
		3SM2	3SM4	3SM6	3SM8	3SM0	
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")	$I_{F(AV)}$	←————— 5.0 —————→					A
Repetitive surge current (@ 55°C in free air, lead length 0.375")	$I_{FRM}$	←————— 25 —————→					A
Non-repetitive surge current ( $t_p = 8.3mS$ , @ $V_R$ & $T_{jmax}$ )	$I_{FSM}$	←————— 100 —————→					A
Non-repetitive surge current ( $t_p = 8.3mS$ , @ $V_R$ & 25°C)	$I_{FSM}$	←————— 150 —————→					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-S-19500/420 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 available in Europe to DEF STAN 59-61 (PART 80) available to F and FX levels.

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**CHARACTERISTICS** (@ 25°C unless otherwise specified)

	Symbol	1N5550 3SM2	1N5551 3SM4	1N5552 3SM6	1N5553 3SM8	1N5554 3SM0	Unit	
Average forward current (sine wave) - max. $T_A = 55^\circ\text{C}$ - max. $L = 3/8"$ ; $T_L = 55^\circ\text{C}$	$I_{F(AV)}$	←----- 3.0 -----→						A
	$I_{F(AV)}$	←----- 5.0 -----→						A
$I^2t$ for fusing ( $t = 8.3\text{mS}$ ) max.	$I^2t$	←----- 42 -----→						A <sup>2</sup> S
Forward voltage drop max. @ $I_F = 3.0\text{A}$ , $T_j = 25^\circ\text{C}$	$V_F$	←----- 1.0 -----→						V
Reverse current max. @ $V_{RWM}$ , $T_j = 25^\circ\text{C}$ @ $V_{RWM}$ , $T_j = 100^\circ\text{C}$	$I_R$	←----- 1.0 -----→						μA
	$I_R$	←----- 20 -----→						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. @ $V_R = 5\text{V}$ , $f = 1\text{MHz}$	$C_j$	←----- 92 -----→						pF
Thermal resistance - junction to lead Lead length = 0.375"	$R_{\theta JL}$	←----- 20 -----→						°C/W
Lead length = 0"	$R_{\theta JL}$	←----- 4 -----→						°C/W
Thermal resistance - junction to amb. on 0.06" thick pcb. 1 oz. copper.	$R_{\theta JA}$	←----- 75 -----→						°C/W

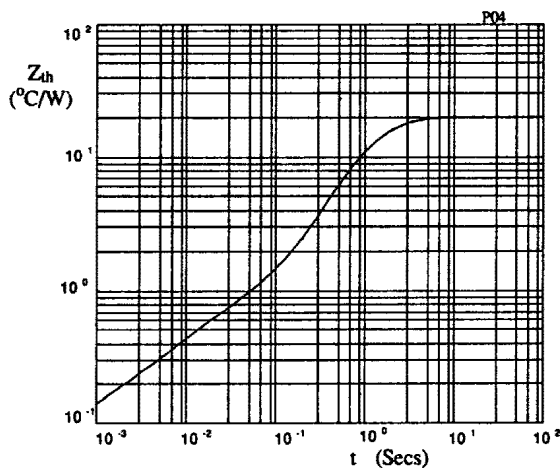


Fig 1. Transient thermal impedance characteristic.

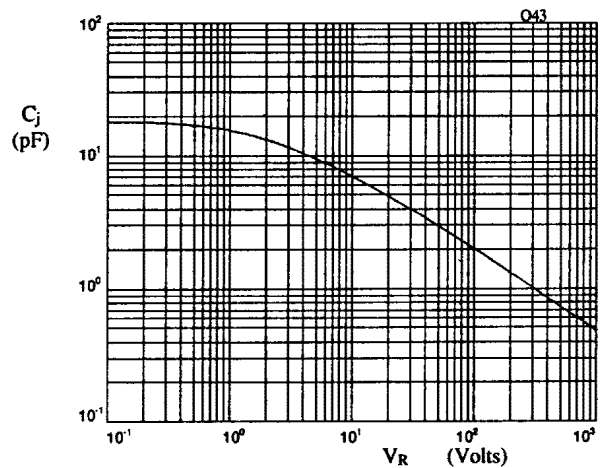


Fig 2. Typical junction capacitance as a function of reverse voltage.

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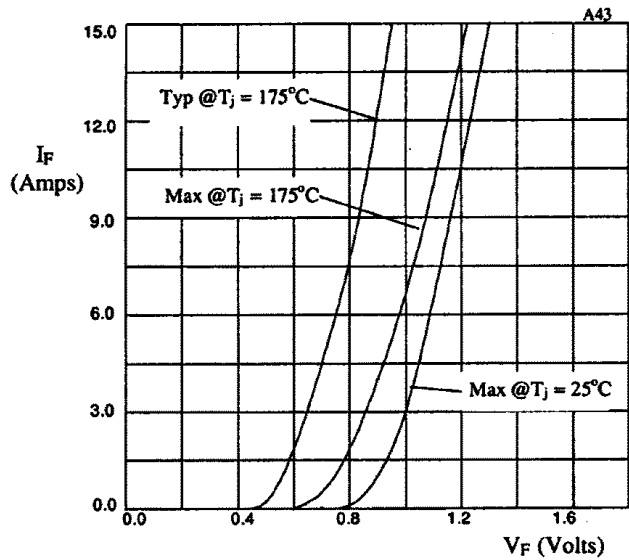


Fig 3. Forward voltage drop as a function of forward current.

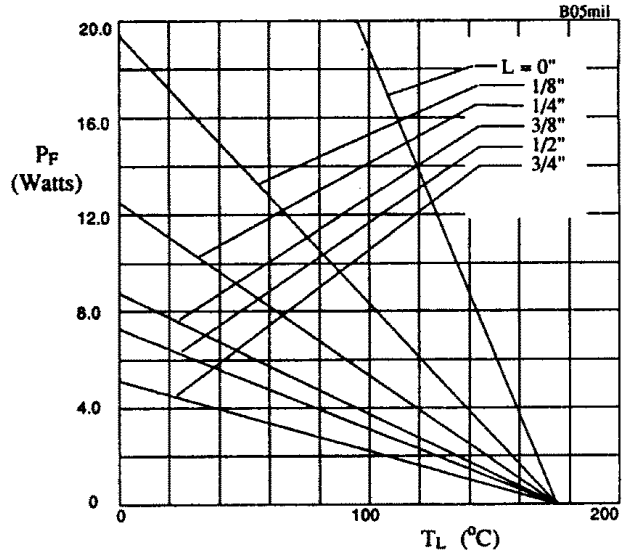


Fig 4. Maximum power versus lead temperature.

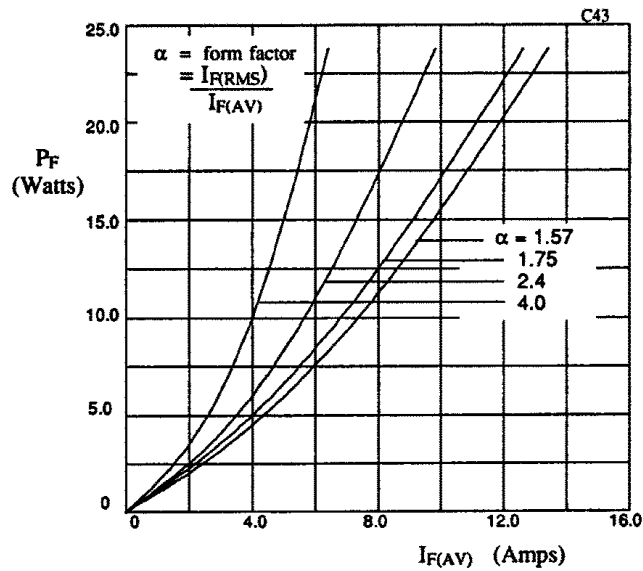


Fig 5. Forward power dissipation as a function of forward current, for sinusoidal operation.

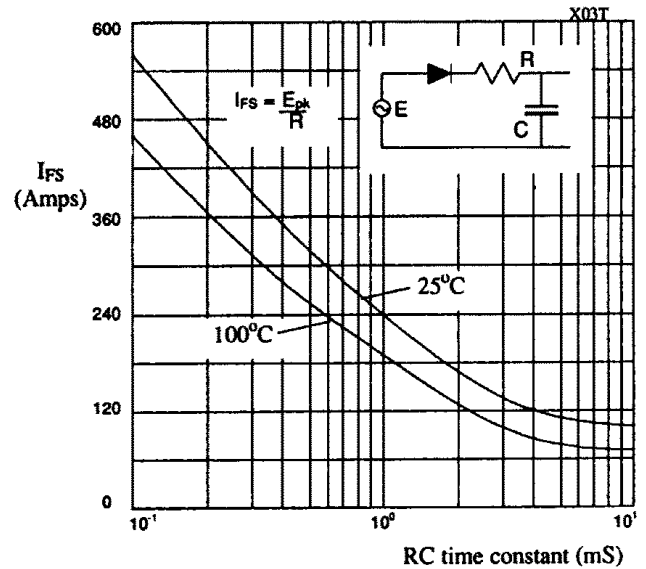


Fig 6. Maximum ratings for capacitive loads.