

**POWER DISCRETES**
**Description**

Quick reference data

$$V_R = 200 - 1000V$$

$$I_F = 5.0A$$

$$t_{rr} = 2\mu S$$

$$V_F = 1.0V$$

**Features**

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

These products are qualified to MIL-PRF-19500/420. They can be supplied fully released as JAN, JANTX, and JANTXV versions.

**Absolute Maximum Ratings**

Electrical specifications @  $T_A = 25^\circ C$  unless otherwise specified.

	Symbol	1N5550 3SM2	1N5551 3SM4	1N5552 3SM6	1N5553 3SM8	1N5554 3SM0	Units
Working Reverse Voltage	$V_{RWM}$	200	400	600	800	1000	V
Average Forward Current @ 55°C in free air, 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 ( $t_p = 8.3mS @ V_R \& T_{JMAX}$ ) ( $t_p = 8.3mS, @ V_R \& 25^\circ C$ )	$I_{FSM}$	100 150					A
Storage Temperature Range	$T_{STG}$	-65 to +175					°C

**POWER DISCRETES**

**Electrical Specifications**

	Symbol	1N5550 3SM2	1N5551 3SM4	1N5552 3SM6	1N5553 3SM8	1N5554 3SM0	Units
Average Forward Current (sine wave) - max. $T_A = 55^\circ\text{C}$ - max. $L = 3/8"$ ; $T_L = 55^\circ\text{C}$	$I_{F(AV)}$ $I_{F(AV)}$			3.0 5.0			A
$I^2t$ for fusing ( $t = 8.3\text{mS}$ ) max	$I^2t$			42			$\text{A}^2\text{S}$
Forward Voltage Drop max. @ $I_F = 3.0\text{A}$ , $T_j = 25^\circ\text{C}$	$V_F$			1.0			V
Reverse Current max. @ $V_{RWM}$ , $T_j = 25^\circ\text{C}$ @ $V_{RWM}$ , $T_j = 125^\circ\text{C}$	$I_R$ $I_R$			1.0 60			$\mu\text{A}$
Reverse Recovery Time max. 0.5A $I_F$ to 1.0A $I_{RM}$ recovers to 0.25A $I_{RM(REC)}$	$t_{rr}$			2.0			$\mu\text{S}$
Junction Capacitance typ. @ $V_R = 5\text{V}$ , $f = 1\text{MHz}$	$C_j$			92			pF

**Thermal Characteristics**

	Symbol	1N5550 3SM2	1N5551 3SM4	1N5552 3SM6	1N5553 3SM8	1N5554 3SM0	Units
Thermal Resistance-Junction to Lead Lead length = 0.375" Lead length = 0.0"	$R_{\theta JL}$ $R_{\theta JL}$			22 4			$^\circ\text{C/W}$
Thermal Resistance-Junction to Ambient on 0.06" thick pcb. 1 oz. copper	$R_{\theta JA}$			47			$^\circ\text{C/W}$

**Typical Characteristics**

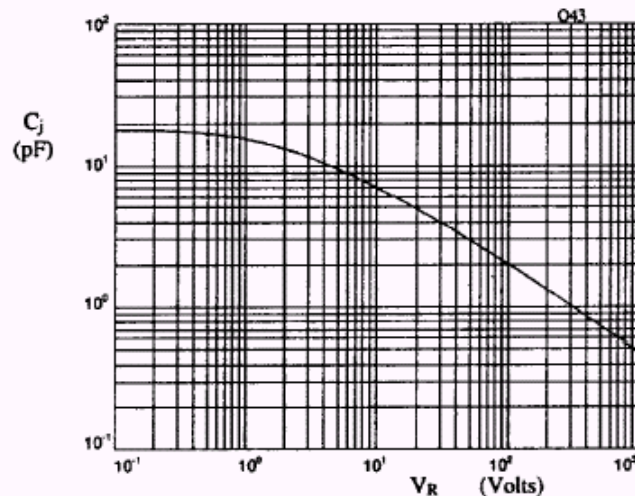


Fig 1. Typical junction capacitance as a function of reverse voltage.

POWER DISCRETES

Typical Characteristics

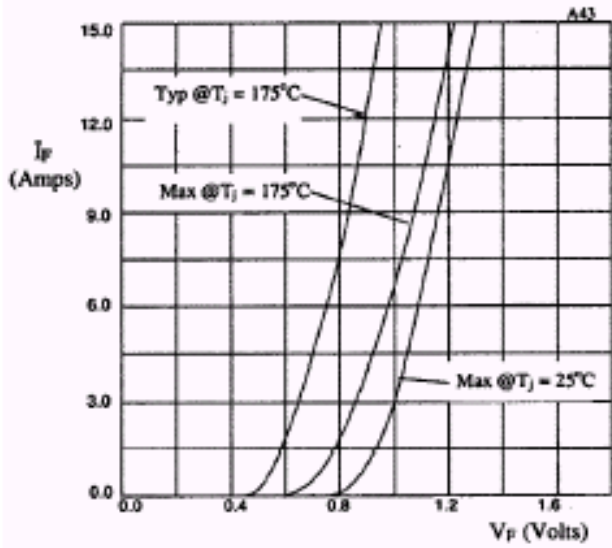


Fig 2. Forward voltage drop as a function of forward current

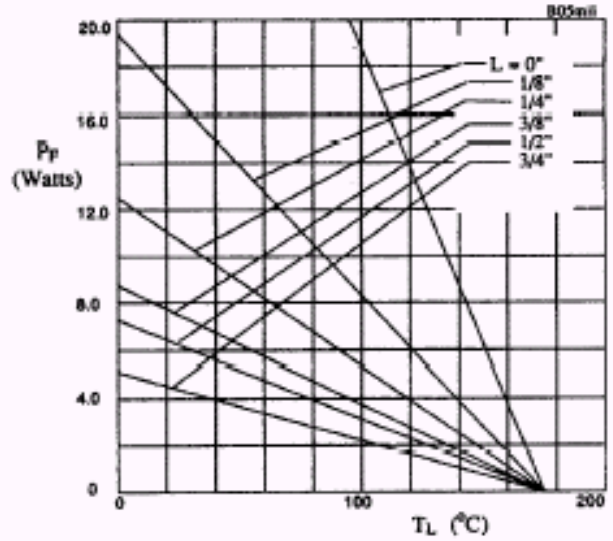


Fig 3. Maximum power versus lead temperature

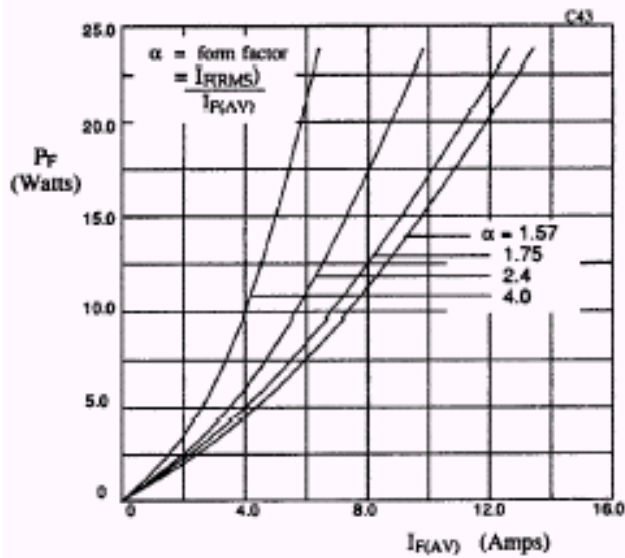


Fig 4. Forward power dissipation as a function of forward current, for sinusoidal operation.

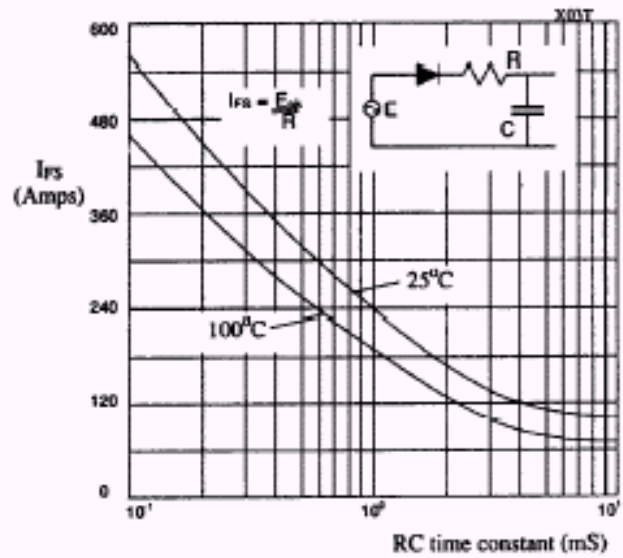


Fig 5. Maximum ratings for capacitive loads.

**POWER DISCRETES**

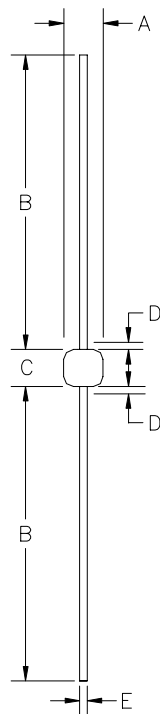
**Ordering Information**

Part Number	Description
1N5550	Axial leaded hermetically sealed <sup>(1)</sup>
1N5551	
1N5552	
1N5553	
1N5554	
3SM2	
3SM4	
3SM6	
3SM8	
3SM0	

Note:

(1) Available in bulk and tape and reel packaging. Please consult factory for quantities.

**Outline Drawing**



G4

DIM <sup>N</sup>	Dimensions				Note
	Inches		Millimeters		
	MIN	MAX	MIN	MAX	
A	0.135	0.18	3.43	4.57	-
B	0.9	1.3	22.86	33.02	-
C	0.13	0.17	3.3	4.32	-
D	-	0.03	-	0.8	1
E	0.036	0.042	0.92	1.07	-

Note:

(1) Lead diameter uncontrolled over this region.

Weight = 0.039oz

**Contact Information**

Semtech Corporation  
Power Discretes Products Division  
200 Flynn Road, Camarillo, CA 93012  
Phone: (805)498-2111 FAX (805)498-3804