

## 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      | 1N5550US    | 1N5551US | 1N5552US | 1N5553US | 1N5554US | Units |
|----------------------------------------------------------------------------------------------------------------------|-------------|-------------|----------|----------|----------|----------|-------|
| Working Reverse Voltage                                                                                              | $V_{RWM}$   | 200         | 400      | 600      | 800      | 1000     | V     |
| Average Forward Current<br>@ 55 °C in free air, lead length<br>0.375"                                                | $I_{F(AV)}$ | 5.0         |          |          |          |          | A     |
| Repetitive Surge Current<br>@ 55 °C in free air, lead length<br>0.375"                                               | $I_{FRM}$   | 25          |          |          |          |          | A     |
| Non-Repetitive Surge Current<br>( $t_p = 8.3mS$ @ $V_R$ & $T_{JMAX}$ )<br>( $t_p = 8.3mS$ , @ $V_R$ & $25^\circ C$ ) | $I_{FSM}$   | 100<br>150  |          |          |          |          | A     |
| Storage Temperature Range                                                                                            | $T_{STG}$   | -65 to +175 |          |          |          |          | °C    |

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### Electrical Specifications

|                                                                                                                        | Symbol                     | 1N5550US | 1N5551US | 1N5552US   | 1N5553US | 1N5554US | Units                |
|------------------------------------------------------------------------------------------------------------------------|----------------------------|----------|----------|------------|----------|----------|----------------------|
| Average Forward Current (sine wave)<br>- max. $T_A = 55^\circ\text{C}$<br>- max. $L = 3/8"$ ; $T_L = 55^\circ\text{C}$ | $I_{F(AV)}$<br>$I_{F(AV)}$ |          |          | 3.0<br>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.<br>@ $I_F = 3.0\text{A}$ , $T_j = 25^\circ\text{C}$                                          | $V_F$                      |          |          | 1.0        |          |          | V                    |
| Reverse Current max.<br>@ $V_{RWM}$ , $T_j = 25^\circ\text{C}$<br>@ $V_{RWM}$ , $T_j = 125^\circ\text{C}$              | $I_R$<br>$I_R$             |          |          | 1.0<br>60  |          |          | $\mu\text{A}$        |
| Reverse Recovery Time max.<br>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.<br>@ $V_R = 5\text{V}$ , $f = 1\text{MHz}$                                                   | $C_j$                      |          |          | 92         |          |          | pF                   |

### Thermal Characteristics

|                  | Symbol                                 | 1N5550US | 1N5551US | 1N5552US | 1N5553US | 1N5554US | Units        |
|------------------|----------------------------------------|----------|----------|----------|----------|----------|--------------|
| $R_{\theta JEC}$ | $R_{\theta JEC}$ at<br>$L = 0$<br>inch |          |          | 6.5      |          |          | $\text{C/W}$ |

### Typical Characteristics

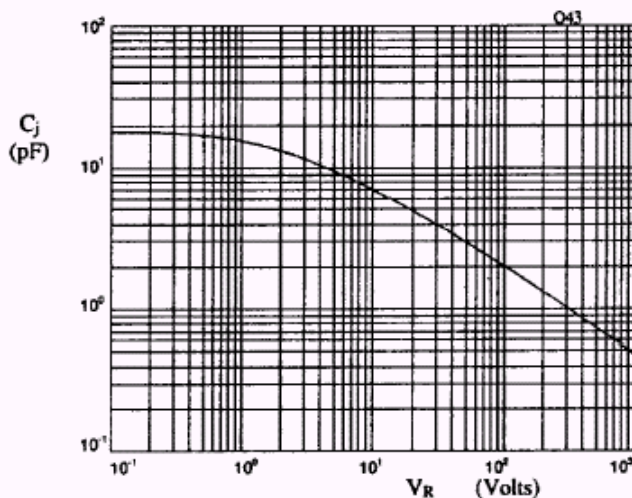


Fig 1. Typical junction capacitance as a function of reverse voltage.

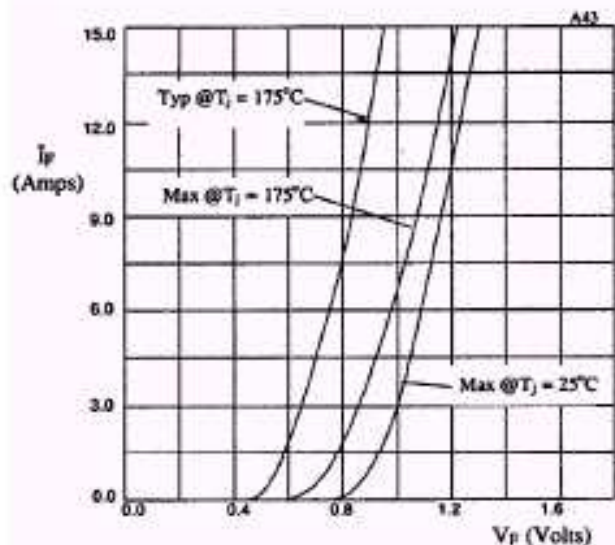
**POWER DISCRETES**
**Typical Characteristics**


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

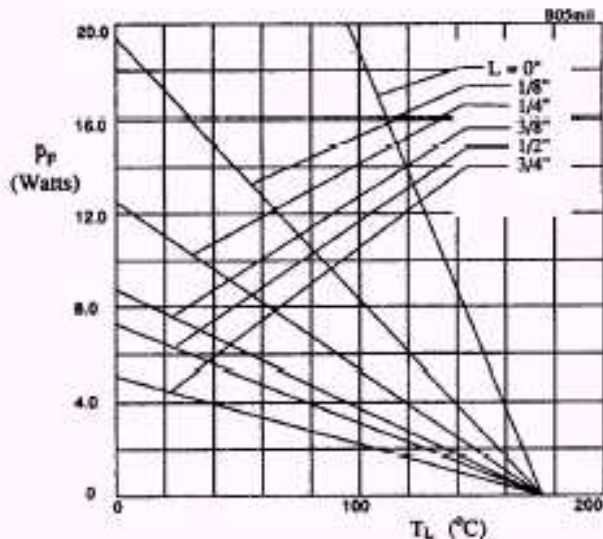


Fig 3. Maximum power versus lead temperature

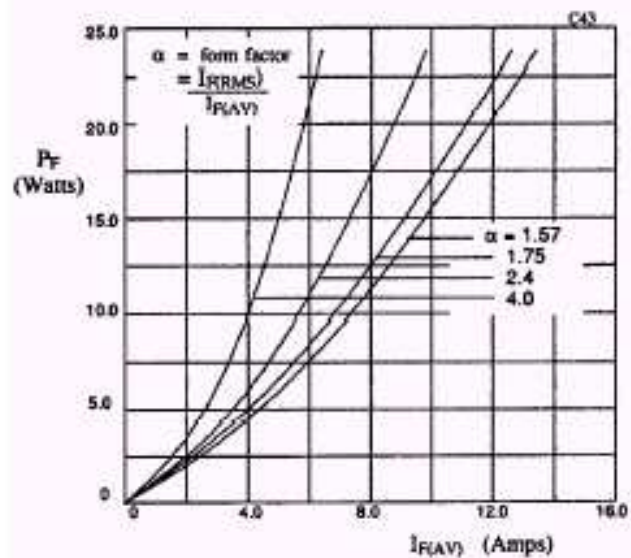


Fig 4. Forward power dissipation as a function of forward current, for sinusoidal operation.

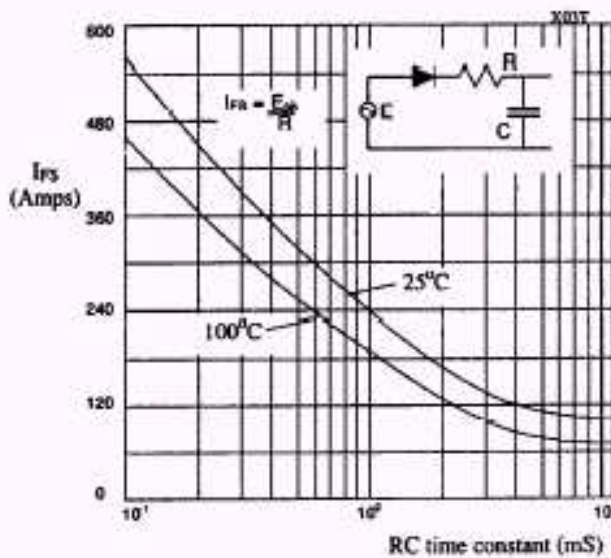


Fig 5. Maximum ratings for capacitive loads.

## POWER DISCRETES

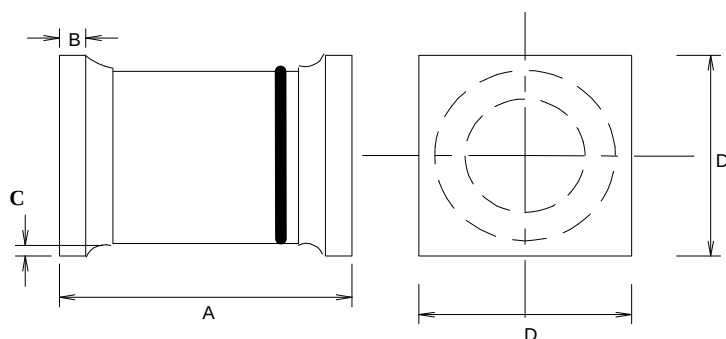
### Ordering Information

| Part Number                                              | Description                                      |
|----------------------------------------------------------|--------------------------------------------------|
| 1N5550US<br>1N5551US<br>1N5552US<br>1N5553US<br>1N5554US | Surface Mount hermetically sealed <sup>(1)</sup> |

Note:

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

### Outline Drawing



| Dimensions       |        |       |             |      |      |
|------------------|--------|-------|-------------|------|------|
| DIM <sup>N</sup> | Inches |       | Millimeters |      | Note |
|                  | MIN    | MAX   | MIN         | MAX  |      |
| A                | 0.2    | 0.275 | 5.08        | 6.99 | -    |
| B                | 0.019  | 0.034 | 0.48        | 0.86 | -    |
| C                | 0.003  |       | 0.08        |      | -    |
| D                | 0.137  | 0.186 | 3.48        | 4.72 | -    |

### Contact Information

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