

- 1N6638US, 1N6642US, 1N6643US AVAILABLE IN JAN, JANTX, JANTXV AND JANS  
PER MIL-PRF-19500/578
- 1N6638U, 1N6642U, 1N6643U AVAILABLE IN JAN, JANTX, JANTXV AND JANS  
PER MIL-PRF-19500/578
- SWITCHING DIODES
  - NON-CAVITY GLASS PACKAGE
  - METALLURGICALLY BONDED

1N6638U & US  
1N6642U & US  
1N6643U & US

## MAXIMUM RATINGS

Operating Temperature: -65°C to +175°C  
Storage Temperature: -65°C to +175°C  
Operating Current: 300 mA  
Derating: 4.6 mA/°C Above  $T_{EC} = +110^{\circ}\text{C}$   
Surge Current:  $I_{FSM} = 2.5\text{A}$ , half sine wave,  $P_W = 8.3\text{ms}$

## ELECTRICAL CHARACTERISTICS @ 25°C, unless otherwise specified.

| TYPES        | $V_{BR}$<br>@ $I_R$<br>=100 $\mu\text{A}$ | $V_{RWM}$ | $V_{F1}$<br>$I_{FM}$<br>=10 mA<br>(Pulsed) | $V_{F2}$ @ $I_{F2}$<br>(Pulsed) |     | $t_{fr}$<br>$I_F$<br>=50 mA | $t_{rr}$<br>$I_R = 10\text{ mA}$<br>$I_F = 10\text{ mA}$<br>$I_{REC} = 1\text{ mA}$ |
|--------------|-------------------------------------------|-----------|--------------------------------------------|---------------------------------|-----|-----------------------------|-------------------------------------------------------------------------------------|
|              | V (pk)                                    | V (pk)    | V dc                                       | V dc                            | mA  | ns                          | ns                                                                                  |
| 1N6638U & US | 150                                       | 125       | 0.8                                        | 1.1                             | 200 | 20                          | 4.5                                                                                 |
| 1N6642U & US | 100                                       | 75        | 1.0                                        | 1.2                             | 100 | 20                          | 5.0                                                                                 |
| 1N6643U & US | 75                                        | 50        | 1.0                                        | 1.2                             | 100 | 20                          | 6.0                                                                                 |

| TYPES        | $I_{R1}$        | $I_{R2}$               | $I_{R3}$                                           | $I_{R4}$                                       | $C_{T1}$      | $C_{T2}$        |
|--------------|-----------------|------------------------|----------------------------------------------------|------------------------------------------------|---------------|-----------------|
|              | $V_R$<br>= 20 V | @ $V_R$<br>= $V_{RWM}$ | $V_R = 20\text{ V}$<br>$T_A = 150^{\circ}\text{C}$ | $V_R = V_{RWM}$<br>$T_A = 150^{\circ}\text{C}$ | $V_R =$<br>0V | $V_R =$<br>1.5V |
|              | nA dc           | $\mu\text{A}$ dc       | $\mu\text{A}$ dc                                   | $\mu\text{A}$ dc                               | pF            | pF              |
| 1N6638U & US | 35              | 0.5                    | 50                                                 | 100                                            | 2.5           | 2.0             |
| 1N6642U & US | 25              | 0.5                    | 50                                                 | 100                                            | 5.0           | 2.8             |
| 1N6643U & US | 50              | 0.5                    | 75                                                 | 160                                            | 5.0           | 2.8             |

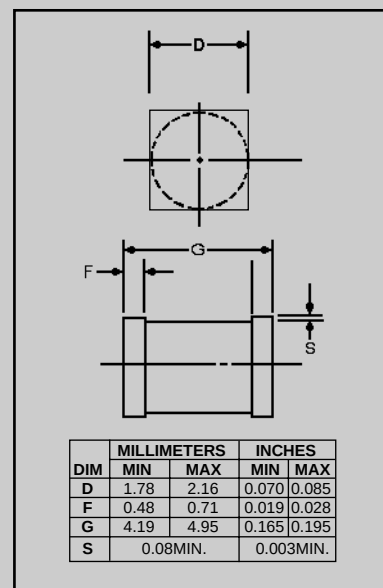


FIGURE 1

## DESIGN DATA

**CASE:** D-5D, Hermetically sealed glass case, per MIL-PRF- 19500/578

**LEAD FINISH:** Tin / Lead

**THERMAL RESISTANCE:** ( $R_{\theta JEC}$ ):  
50 °C/W maximum at L = 0

**THERMAL IMPEDANCE:** ( $Z_{\theta JX}$ ): 25  
°C/W maximum

**POLARITY:** Cathode end is banded.

**MOUNTING SURFACE SELECTION:**  
The Axial Coefficient of Expansion (COE) of this device is approximately + 4PPM / °C. The COE of the Mounting Surface System should be selected to provide a suitable match with this device.

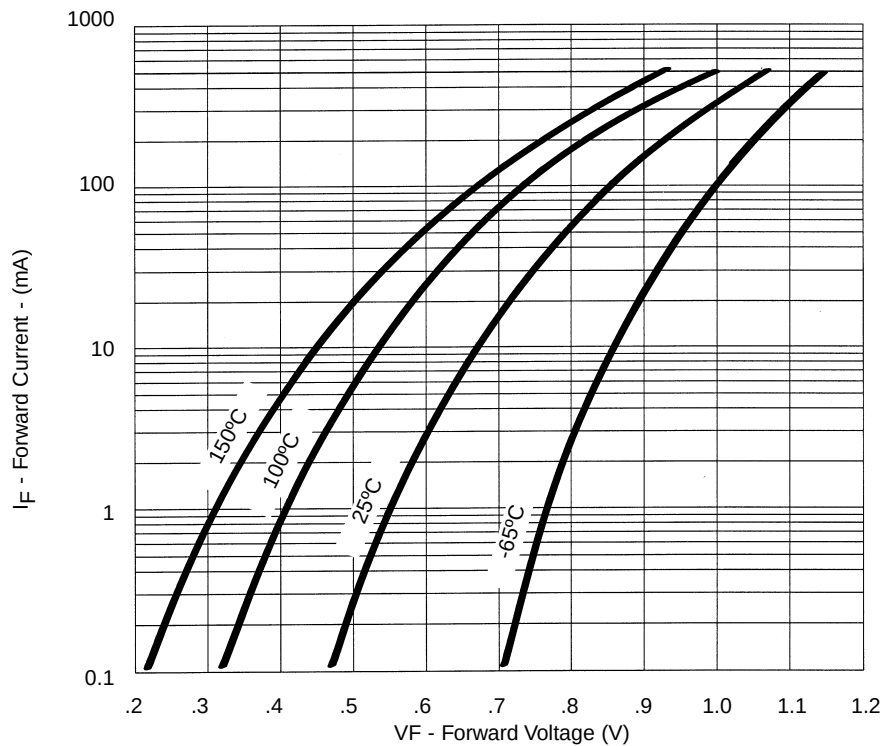


**COMPENSATED DEVICES INCORPORATED**

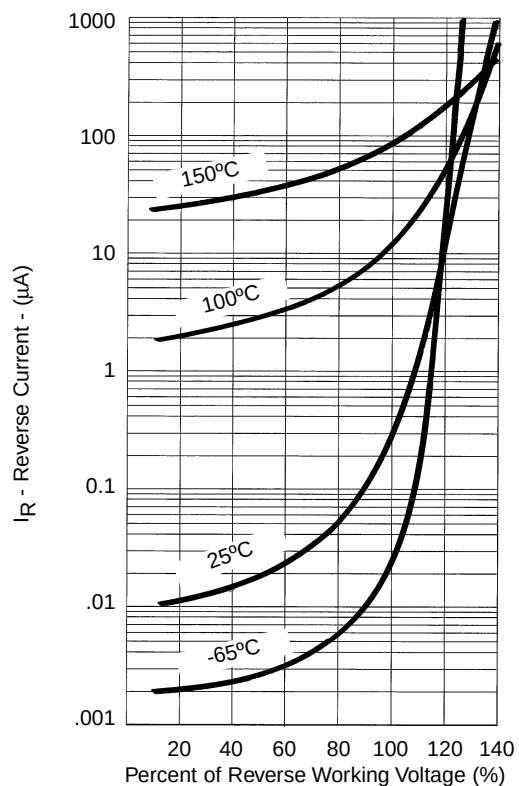
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# IN6638U&US, IN6642U&US and IN6643U&US



**FIGURE 2**  
Typical Forward Current  
vs Forward Voltage



**FIGURE 3**  
Typical Reverse Current  
vs Reverse Voltage

**NOTE :** All temperatures shown on graphs are junction temperatures