

• 1N3016B-1 thru 1N3045B-1 AVAILABLE IN JAN, JANTX AND JANTXV  
PER MIL-PRF-19500/115

• 1 WATT ZENER DIODES

• METALLURGICALLY BONDED

1N3016B thru 1N3045B  
and  
1N3016B-1 thru 1N3045B-1

## MAXIMUM RATINGS

Operating Temperature: -65°C to +175°C

Storage Temperature: -65°C to +175°C

DC Power Dissipation: 1 watt @  $T_L = +95^\circ\text{C}$

Power Derating: 12.5 mW / °C above  $T_L = +95^\circ\text{C}$

Forward Voltage @ 200mA: 1.2 volts maximum

## ELECTRICAL CHARACTERISTICS @ 25°C

| CDI<br>TYPE<br>NUMBER<br><br>(NOTE 1) | NOMINAL<br>ZENER<br>VOLTAGE<br>$V_Z @ 1Z_T$<br>(NOTE 2) | ZENER<br>TEST<br>CURRENT<br>$1Z_T$ | MAXIMUM ZENER IMPEDANCE<br>(NOTE 3) |      |                 | MAX. DC<br>ZENER<br>CURRENT<br>$1Z_M$ | MAX. REVERSE<br>LEAKAGE CURRENT<br>$I_R @ V_R$ |       |
|---------------------------------------|---|------------------------------------|-------------------------------------|------|-----------------|---------------------------------------|--|-------|
|                                       |   |                                    | $Z_{ZT} @ 1Z_T$                     |      | $Z_{ZK} @ 1Z_K$ |                                       | $\mu\text{A}$                                  | VOLTS |
|                                       |   |                                    | OHMS                                | OHMS |                 |                                       |  |       |
| 1N3016B                               | 6.8   | 37                                 | 3.5                                 | 700  | 1.0             | 140                                   | 5.0  | 5.2   |
| 1N3017B                               | 7.5   | 34                                 | 4.0                                 | 700  | .5              | 125                                   | 5.0  | 5.7   |
| 1N3018B                               | 8.2   | 31                                 | 4.5                                 | 700  | .5              | 115                                   | 5.0  | 6.2   |
| 1N3019B                               | 9.1   | 28                                 | 5                                   | 700  | .5              | 105                                   | 5.0  | 6.9   |
| 1N3020B                               | 10  | 25                                 | 7                                   | 700  | .25             | 95                                    | 5.0  | 7.6   |
| 1N3021B                               | 11  | 23                                 | 8                                   | 700  | .25             | 85                                    | 1.0  | 8.4   |
| 1N3022B                               | 12  | 21                                 | 9                                   | 700  | .25             | 80                                    | 1.0  | 9.1   |
| 1N3023B                               | 13  | 19                                 | 10                                  | 700  | .25             | 74                                    | 0.5  | 9.9   |
| 1N3024B                               | 15  | 17                                 | 14                                  | 700  | .25             | 63                                    | 0.5  | 11.4  |
| 1N3025B                               | 16  | 15.5                               | 16                                  | 700  | .25             | 60                                    | 0.5  | 12.2  |
| 1N3026B                               | 18  | 14                                 | 20                                  | 750  | .25             | 52                                    | 0.5  | 13.7  |
| 1N3027B                               | 20  | 12.5                               | 22                                  | 750  | .25             | 47                                    | 0.5  | 15.2  |
| 1N3028B                               | 22  | 11.5                               | 23                                  | 750  | .25             | 43                                    | 0.5  | 16.7  |
| 1N3029B                               | 24  | 10.5                               | 25                                  | 750  | .25             | 40                                    | 0.5  | 18.2  |
| 1N3030B                               | 27  | 9.5                                | 35                                  | 750  | .25             | 34                                    | 0.5  | 20.6  |
| 1N3031B                               | 30  | 8.5                                | 40                                  | 1000 | .25             | 31                                    | 0.5  | 22.8  |
| 1N3032B                               | 33  | 7.5                                | 45                                  | 1000 | .25             | 28                                    | 0.5  | 25.1  |
| 1N3033B                               | 36  | 7.0                                | 50                                  | 1000 | .25             | 26                                    | 0.5  | 27.4  |
| 1N3034B                               | 39  | 6.5                                | 60                                  | 1000 | .25             | 23                                    | 0.5  | 29.7  |
| 1N3035B                               | 43  | 6.0                                | 70                                  | 1500 | .25             | 21                                    | 0.5  | 32.7  |
| 1N3036B                               | 47  | 5.5                                | 80                                  | 1500 | .25             | 19                                    | 0.5  | 35.8  |
| 1N3037B                               | 51  | 5.0                                | 95                                  | 1500 | .25             | 18                                    | 0.5  | 38.8  |
| 1N3038B                               | 56  | 4.5                                | 110                                 | 2000 | .25             | 17                                    | 0.5  | 42.6  |
| 1N3039B                               | 62  | 4.0                                | 125                                 | 2000 | .25             | 15                                    | 0.5  | 47.1  |
| 1N3040B                               | 68  | 3.7                                | 150                                 | 2000 | .25             | 14                                    | 0.5  | 51.7  |
| 1N3041B                               | 75  | 3.3                                | 175                                 | 2000 | .25             | 12                                    | 0.5  | 56.0  |
| 1N3042B                               | 82  | 3.0                                | 200                                 | 3000 | .25             | 11                                    | 0.5  | 62.2  |
| 1N3043B                               | 91  | 2.8                                | 250                                 | 3000 | .25             | 10                                    | 0.5  | 69.2  |
| 1N3044B                               | 100   | 2.5                                | 350                                 | 3000 | .25             | 9.0                                   | 0.5  | 76.0  |
| 1N3045B                               | 110   | 2.3                                | 450                                 | 4000 | .25             | 8.3                                   | 0.5  | 83.6  |

**NOTE 1** No suffix signifies  $\pm 20\%$ . "A" Suffix signifies  $\pm 10\%$ , "B" Suffix signifies  $\pm 5\%$ , "C" suffix signifies  $\pm 2\%$ , "D" suffix signifies  $\pm 1\%$

**NOTE 2** Zener voltage is measured with the device junction in thermal equilibrium at an ambient temperature of  $25^\circ\text{C} \pm 3^\circ\text{C}$ .

**NOTE 3** Zener impedance is derived by superimposing on  $1Z_T$  A 60Hz rms a.c. current equal to 10% of  $1Z_T$

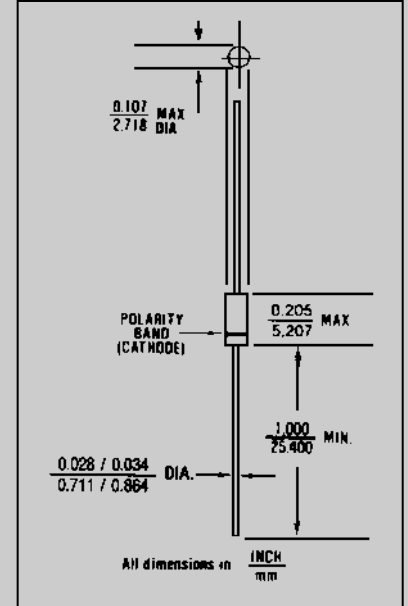


FIGURE 1

## DESIGN DATA

**CASE:** Hermetically sealed glass case DO-41.

**LEAD MATERIAL:** Copper clad steel

**LEAD FINISH:** Tin / Lead

**THERMAL RESISTANCE:** ( $R_{\theta JEC}$ ):  
80 °C/W maximum at L = .375 inch

**THERMAL IMPEDANCE:** ( $Z_{\theta JX}$ ): 15  
°C/W maximum

**POLARITY:** Diode to be operated with the banded (cathode) end positive.

**MOUNTING POSITION:** Any.

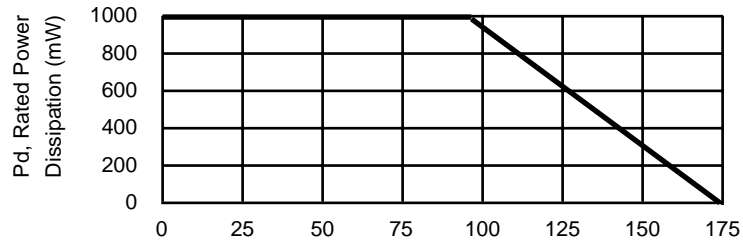


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# 1N3016 thru 1N3045B

FIGURE 2



$T_L$ , Lead temperature (°C), 3/8" from body.

POWER DERATING CURVE

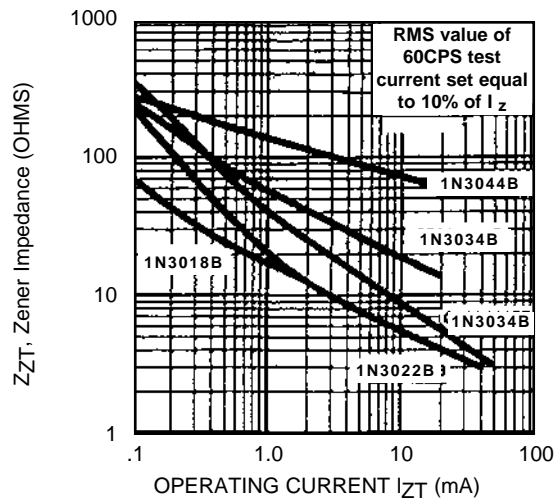


FIGURE 3  
ZENER IMPEDANCE VS. OPERATING CURRENT



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