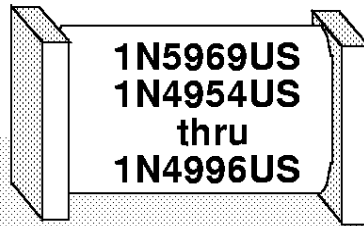


## Square ended SMD



## 5 watt Voidless Zeners

Hard Glass Tungsten  
MELF "B" Package

## Applications

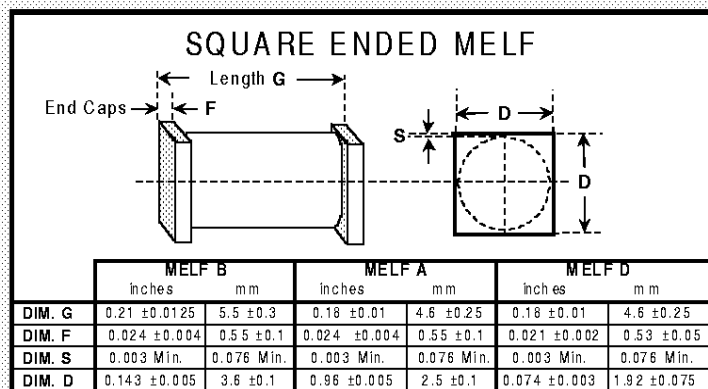
For use in hostile environments such as military and aerospace. Used where performance, surge and small footprint are important. This zener series is ideal to use for regulation, clipping or protection.

## Reliability levels

These SMD parts are available in JAN, JTX, JTXV and JANS levels per MIL-S-19500/356. Axial leaded packages are also available.

## Features

- Six Sigma quality
- High surge capability
- Microminiature package
- Humidity proof hard glass
- No thermal fatigue
- Metallurgically bonded
- Thermally matched system
- Zero solderability defects
- Sigma Bond™ plated contacts
- Available in commercial versions



| Absolute Maximum Ratings                                    | Symbol   | Value       | Unit               |
|---|----------|-------------|--------------------|
| Power Dissipation at $T_{EC} = 100\text{ }^{\circ}\text{C}$ | $P_D$    | 5.0         | Watts              |
| Maximum Operating Temperature Range                         | $T_{Op}$ | -65 to +175 | $^{\circ}\text{C}$ |
| Storage Temperature Range                                   | $T_{St}$ | -65 to +200 | $^{\circ}\text{C}$ |
| Exponential peak power surge for 1 mSec.@ 50% of $I_p$      | $P_{pk}$ | 250         | Watts              |

| Characteristics at $T = 25\text{ }^{\circ}\text{C}$      | Symbol   | Limit     | Unit                   |
|--|----------|-----------|------------------------|
| Power Derating at $T_{EC} = 100\text{ }^{\circ}\text{C}$ | $P_{DR}$ | 50 (Max)  | mW/ $^{\circ}\text{C}$ |
| BKC Forward Voltage at $I_F = 1.0\text{ A}$              | $V_F$    | 1.2 (Max) | Volts                  |

To order, use the listed part numbers with the appropriate JAN, JTX, JTXV or JANS prefix.  
Consult factory for availability.

DETAILED SPECIFICATIONS ON REVERSE

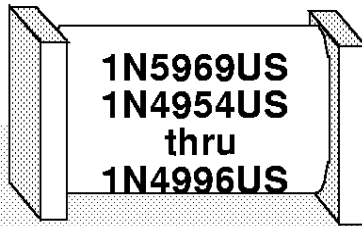


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## Square ended SMD

1N5969US and  
1N4954US thru  
1N4996US series



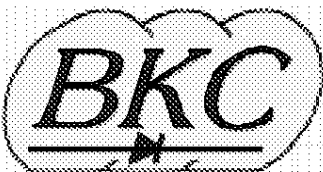
## 5 watt Voidless Zeners

5 watt MELF "B"  
Detail  
Specifications

| Type     | Nominal  | Test                      | Maximum   |  | Regulation                   | Maximum   |                  | Typical   | Maximum                                     | Maximum                                   |
|----------|--|---------------------------|---|--|------------------------------|---|------------------|---|---|---|
|          | Zener Voltage<br>( $V_Z$ ) @ $I_{ZT}$<br>Volts | Current<br>$I_{ZT}$<br>mA | Zener Impedance<br>( $Z_Z$ ) @ $I_{ZT}$<br>Ohms | ( $Z_{ZK}$ ) @ $I_{ZK} = 1$ mA<br>Ohms | Factor<br>( $V_Z$ )<br>Volts | Reverse Leakage Current<br>( $I_R$ )<br>$\mu$ A | @ $V_R$<br>Volts | Temperature<br>Coeff.<br>( $T_C$ ) @ $I_{ZT}$<br>%/°C | Continuous<br>Current<br>( $I_{ZM}$ )<br>mA | Surge<br>Current<br>( $I_{ZSM}$ )<br>Amps |
| 1N5969US | 6.2  | 220                       | 1.0   | 1000                                   | 0.5                          | 1000  | 4.74             | 0.04  | 765   | 20  |
| 1N4954US | 6.8  | 175                       | 1.0   | 1000                                   | 0.7                          | 150   | 5.2              | 0.05  | 700   | 40  |
| 1N4955US | 7.5  | 175                       | 1.5   | 800                                    | 0.7                          | 100   | 5.7              | 0.06  | 630   | 32  |
| 1N4956US | 8.2  | 150                       | 1.5   | 600                                    | 0.7                          | 50  | 6.2              | 0.06  | 580   | 24  |
| 1N4957US | 9.1  | 150                       | 2.0   | 400                                    | 0.7                          | 25  | 6.9              | 0.06  | 520   | 22  |
| 1N4958US | 10.0   | 125                       | 2.0   | 125                                    | 0.8                          | 25  | 7.6              | 0.07  | 475   | 20  |
| 1N4959US | 11   | 125                       | 2.5   | 130                                    | 0.8                          | 10  | 8.4              | 0.07  | 430   | 19  |
| 1N4960US | 12   | 100                       | 2.5   | 140                                    | 0.8                          | 10  | 9.1              | 0.07  | 395   | 18  |
| 1N4961US | 13   | 100                       | 3.0   | 145                                    | 0.8                          | 10  | 9.9              | 0.08  | 365   | 16  |
| 1N4962US | 15   | 75                        | 3.5   | 150                                    | 1.0                          | 5   | 11.4             | 0.08  | 315   | 12  |
| 1N4963US | 16   | 75                        | 3.5   | 155                                    | 1.1                          | 5   | 12.2             | 0.08  | 294   | 10  |
| 1N4964US | 18   | 65                        | 4.0   | 160                                    | 1.2                          | 5   | 13.7             | 0.085   | 264   | 9.0                                       |
| 1N4965US | 20   | 65                        | 4.5   | 165                                    | 1.5                          | 2   | 15.2             | 0.085   | 237   | 8.0                                       |
| 1N4966US | 22   | 50                        | 5.0   | 170                                    | 1.8                          | 2   | 16.7             | 0.085   | 216   | 7.0                                       |
| 1N4967US | 24   | 50                        | 5.0   | 175                                    | 2.0                          | 2   | 18.2             | 0.090   | 198   | 6.5                                       |
| 1N4968US | 27   | 50                        | 6.0   | 180                                    | 2.0                          | 2   | 20.6             | 0.090   | 176   | 6.0                                       |
| 1N4969US | 30   | 40                        | 8   | 190                                    | 2.5                          | 2   | 22.8             | 0.090   | 158   | 5.5                                       |
| 1N4970US | 33   | 40                        | 10  | 200                                    | 2.8                          | 2   | 25.1             | 0.095   | 144   | 5.0                                       |
| 1N4971US | 36   | 30                        | 11  | 220                                    | 3.0                          | 2   | 27.4             | 0.095   | 132   | 4.5                                       |
| 1N4972US | 39   | 30                        | 14  | 230                                    | 3.0                          | 2   | 29.7             | 0.095   | 122   | 4.0                                       |
| 1N4973US | 43   | 30                        | 20  | 240                                    | 3.3                          | 2   | 32.7             | 0.095   | 110   | 3.5                                       |
| 1N4974US | 47   | 25                        | 25  | 250                                    | 3.5                          | 2   | 35.8             | 0.095   | 100   | 3.2                                       |
| 1N4975US | 51   | 25                        | 27  | 270                                    | 4.0                          | 2   | 38.8             | 0.095   | 92  | 3.0                                       |
| 1N4976US | 56   | 20                        | 35  | 320                                    | 4.4                          | 2   | 42.6             | 0.095   | 84  | 2.8                                       |
| 1N4977US | 62   | 20                        | 42  | 400                                    | 5.0                          | 2   | 47.1             | 0.100   | 76  | 2.5                                       |
| 1N4978US | 68   | 20                        | 50  | 500                                    | 5.5                          | 2   | 51.7             | 0.100   | 70  | 2.2                                       |
| 1N4979US | 75   | 20                        | 55  | 620                                    | 6.0                          | 2   | 56.0             | 0.100   | 63.0  | 2.0                                       |
| 1N4980US | 82   | 15                        | 80  | 720                                    | 6.6                          | 2   | 62.2             | 0.100   | 58.0  | 1.8                                       |
| 1N4981US | 91   | 15                        | 90  | 760                                    | 7.5                          | 2   | 69.2             | 0.100   | 52.5  | 1.6                                       |
| 1N4982US | 100  | 12                        | 110   | 800                                    | 8.0                          | 2   | 76.0             | 0.100   | 47.5  | 1.4                                       |
| 1N4983US | 110  | 12                        | 125   | 1000                                   | 9.0                          | 2   | 83.6             | 0.100   | 43.0  | 1.2                                       |
| 1N4984US | 120  | 10                        | 170   | 1150                                   | 10                           | 2   | 91.2             | 0.100   | 39.5  | 1.0                                       |
| 1N4985US | 130  | 10                        | 190   | 1250                                   | 11                           | 2   | 98.8             | 0.105   | 36.6  | 0.80                                      |
| 1N4986US | 150  | 8.0                       | 330   | 1500                                   | 13                           | 2   | 114              | 0.105   | 31.6  | 0.75                                      |
| 1N4987US | 160  | 8.0                       | 350   | 1650                                   | 14                           | 2   | 121.6            | 0.105   | 29.4  | 0.70                                      |
| 1N4988US | 180  | 5.0                       | 430   | 1750                                   | 16                           | 2   | 136.8            | 0.110   | 26.4  | 0.60                                      |
| 1N4989US | 200  | 5.0                       | 480   | 1850                                   | 18                           | 2   | 152              | 0.110   | 23.6  | 0.50                                      |
| 1N4990US | 220  | 5.0                       | 550   | 2000                                   | 19                           | 2   | 167              | 0.115   | 21.6  | 0.05                                      |
| 1N4991US | 240  | 5.0                       | 650   | 2050                                   | 22                           | 2   | 182              | 0.115   | 19.8  | 0.40                                      |
| 1N4992US | 270  | 5.0                       | 800   | 2100                                   | 25                           | 2   | 206              | 0.120   | 17.5  | 0.35                                      |
| 1N4993US | 300  | 4.0                       | 950   | 2150                                   | 28                           | 2   | 228              | 0.120   | 15.6  | 0.30                                      |
| 1N4994US | 330  | 4.0                       | 1175  | 2200                                   | 32                           | 2   | 251              | 0.120   | 14.4  | 0.25                                      |
| 1N4995US | 360  | 3.0                       | 1400  | 2300                                   | 35                           | 2   | 274              | 0.120   | 13.0  | 0.22                                      |
| 1N4996US | 390  | 3.0                       | 1800  | 2500                                   | 40                           | 2   | 297              | 0.120   | 12.0  | 0.20                                      |

Nominal zener voltage is  $\pm 5\%$  tolerance. Other tolerances available upon request.

To order, use the above listed part numbers with the appropriate  
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