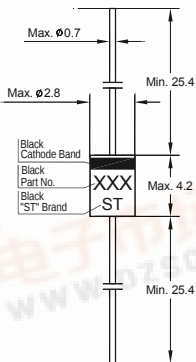


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Silicon Planar Power Zener Diodes

for use in stabilizing and clipping circuits with high power rating. Standard zener voltage tolerance is  $\pm 10\%$ . Add suffix "A" for  $\pm 5\%$  tolerance and suffix "B" for  $\pm 2\%$  tolerance. Other tolerances are available upon request.



Glass Case DO-41  
Dimensions in mm

Absolute Maximum Ratings ( $T_a = 25\text{ }^{\circ}\text{C}$ )

| Parameter                 | Symbol           | Value           | Unit               |
|---------------------------|------------------|-----------------|--------------------|
| Power Dissipation         | $P_{\text{tot}}$ | 1 <sup>1)</sup> | W                  |
| Junction Temperature      | $T_j$            | 200             | $^{\circ}\text{C}$ |
| Storage Temperature Range | $T_{\text{stg}}$ | - 65 to + 200   | $^{\circ}\text{C}$ |

<sup>1)</sup> Valid provided that leads at a distance of 8 mm from case are kept at ambient temperature.

Characteristics at  $T_a = 25\text{ }^{\circ}\text{C}$

| Parameter                                   | Symbol           | Max.              | Unit |
|---------------------------------------------|------------------|-------------------|------|
| Thermal Resistance Junction to Ambient Air  | $R_{\text{thA}}$ | 170 <sup>1)</sup> | K/W  |
| Forward Voltage<br>at $I_F = 200\text{ mA}$ | $V_F$            | 1.2               | V    |

<sup>1)</sup> Valid provided that leads at a distance of 8 mm from case are kept at ambient temperature.

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## Characteristics at $T_a = 25^\circ\text{C}$

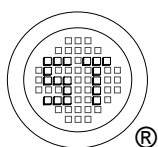
| Type   | Zener Voltage <sup>3)</sup> |             | Dynamic Resistance <sup>1)</sup> |                   |             | Reverse Current        |          | Maximum Surge Current <sup>4)</sup> | Maximum Regulator Current <sup>2)</sup> |
|--------|-----------------------------|-------------|----------------------------------|-------------------|-------------|------------------------|----------|-------------------------------------|-----------------------------------------|
|        | $V_{Znom}$                  | at $I_{ZT}$ | $Z_{ZT}$                         | $Z_{ZK}$          | at $I_{ZK}$ | $I_R$                  | at $V_R$ | at $T_a = 25^\circ\text{C}$         |                                         |
|        | (V)                         | (mA)        | Max. ( $\Omega$ )                | Max. ( $\Omega$ ) | (mA)        | Max. ( $\mu\text{A}$ ) | (V)      | $I_{ZSM}$ (mA)                      | $I_{ZM}$ (mA)                           |
| 1N4727 | 3                           | 83          | 10                               | 400               | 1           | 150                    | 1        | 1375                                | 275                                     |
| 1N4728 | 3.3                         | 76          | 10                               | 400               | 1           | 150                    | 1        | 1375                                | 275                                     |
| 1N4729 | 3.6                         | 69          | 10                               | 400               | 1           | 100                    | 1        | 1260                                | 252                                     |
| 1N4730 | 3.9                         | 64          | 9                                | 400               | 1           | 100                    | 1        | 1190                                | 234                                     |
| 1N4731 | 4.3                         | 58          | 9                                | 400               | 1           | 50                     | 1        | 1070                                | 217                                     |
| 1N4732 | 4.7                         | 53          | 8                                | 500               | 1           | 10                     | 1        | 970                                 | 193                                     |
| 1N4733 | 5.1                         | 49          | 7                                | 550               | 1           | 10                     | 1        | 890                                 | 178                                     |
| 1N4734 | 5.6                         | 45          | 5                                | 600               | 1           | 10                     | 2        | 810                                 | 162                                     |
| 1N4735 | 6.2                         | 41          | 2                                | 700               | 1           | 10                     | 3        | 730                                 | 146                                     |
| 1N4736 | 6.8                         | 37          | 3.5                              | 700               | 1           | 10                     | 4        | 660                                 | 133                                     |
| 1N4737 | 7.5                         | 34          | 4                                | 700               | 0.5         | 10                     | 5        | 605                                 | 121                                     |
| 1N4738 | 8.2                         | 31          | 4.5                              | 700               | 0.5         | 10                     | 6        | 550                                 | 110                                     |
| 1N4739 | 9.1                         | 28          | 5                                | 700               | 0.5         | 10                     | 7        | 500                                 | 100                                     |
| 1N4740 | 10                          | 25          | 7                                | 700               | 0.25        | 10                     | 7.6      | 454                                 | 91                                      |
| 1N4741 | 11                          | 23          | 8                                | 700               | 0.25        | 5                      | 8.4      | 414                                 | 83                                      |
| 1N4742 | 12                          | 21          | 9                                | 700               | 0.25        | 5                      | 9.1      | 380                                 | 76                                      |
| 1N4743 | 13                          | 19          | 10                               | 700               | 0.25        | 5                      | 9.9      | 344                                 | 69                                      |
| 1N4744 | 15                          | 17          | 14                               | 700               | 0.25        | 5                      | 11.4     | 304                                 | 61                                      |
| 1N4745 | 16                          | 15.5        | 16                               | 700               | 0.25        | 5                      | 12.2     | 285                                 | 57                                      |
| 1N4746 | 18                          | 14          | 20                               | 750               | 0.25        | 5                      | 13.7     | 250                                 | 50                                      |
| 1N4747 | 20                          | 12.5        | 22                               | 750               | 0.25        | 5                      | 15.2     | 225                                 | 45                                      |
| 1N4748 | 22                          | 11.5        | 23                               | 750               | 0.25        | 5                      | 16.7     | 205                                 | 41                                      |
| 1N4749 | 24                          | 10.5        | 25                               | 750               | 0.25        | 5                      | 18.2     | 190                                 | 38                                      |
| 1N4750 | 27                          | 9.5         | 35                               | 750               | 0.25        | 5                      | 20.6     | 170                                 | 34                                      |
| 1N4751 | 30                          | 8.5         | 40                               | 1000              | 0.25        | 5                      | 22.8     | 150                                 | 30                                      |
| 1N4752 | 33                          | 7.5         | 45                               | 1000              | 0.25        | 5                      | 25.1     | 135                                 | 27                                      |
| 1N4753 | 36                          | 7           | 50                               | 1000              | 0.25        | 5                      | 27.4     | 125                                 | 25                                      |
| 1N4754 | 39                          | 6.5         | 60                               | 1000              | 0.25        | 5                      | 29.7     | 115                                 | 23                                      |
| 1N4755 | 43                          | 6           | 70                               | 1500              | 0.25        | 5                      | 32.7     | 110                                 | 22                                      |
| 1N4756 | 47                          | 5.5         | 80                               | 1500              | 0.25        | 5                      | 35.8     | 95                                  | 19                                      |
| 1N4757 | 51                          | 5           | 95                               | 1500              | 0.25        | 5                      | 38.8     | 90                                  | 18                                      |
| 1N4758 | 56                          | 4.5         | 110                              | 2000              | 0.25        | 5                      | 42.6     | 80                                  | 16                                      |
| 1N4759 | 62                          | 4           | 125                              | 2000              | 0.25        | 5                      | 47.1     | 70                                  | 14                                      |
| 1N4760 | 68                          | 3.7         | 150                              | 2000              | 0.25        | 5                      | 51.7     | 65                                  | 13                                      |
| 1N4761 | 75                          | 3.3         | 175                              | 2000              | 0.25        | 5                      | 56       | 60                                  | 12                                      |

<sup>1)</sup> The dynamic resistance is derived from the 60 Hz AC voltage which results when an AC current having an RMS value equal to 10% of the Zener Current ( $I_{ZT}$  or  $I_{ZK}$ ) is superimposed on  $I_{ZT}$  or  $I_{ZK}$ . Dynamic resistance is measured at two points to insure a sharp knee on the breakdown curve and to eliminate unstable units.

<sup>2)</sup> Valid provided that leads at a distance of 8 mm from case are kept at ambient temperature.

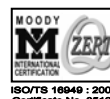
<sup>3)</sup> Tested with pulses  $t_p = 20$  ms.

<sup>4)</sup> The rating listed in the electrical characteristics table is maximum peak, non-repetitive, reverse surge current of 1/2 square wave or equivalent sine wave pulse of 1/120 second duration superimposed on the test current  $I_{ZT}$ .



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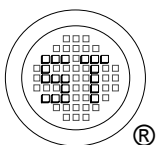
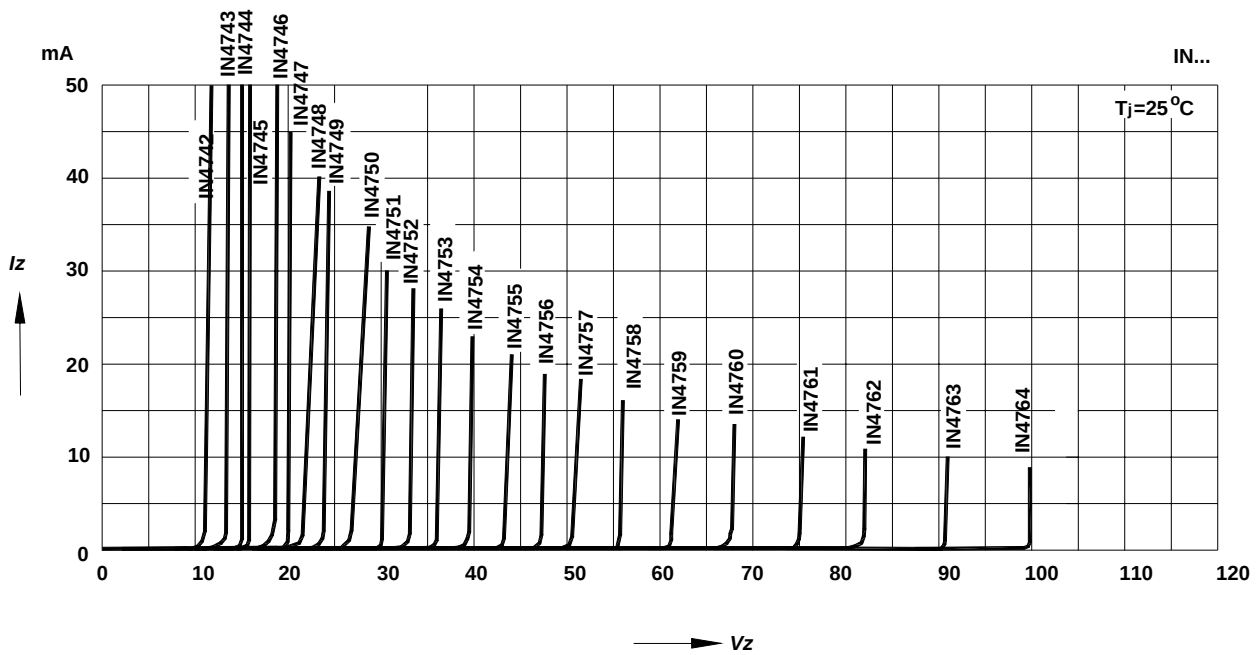
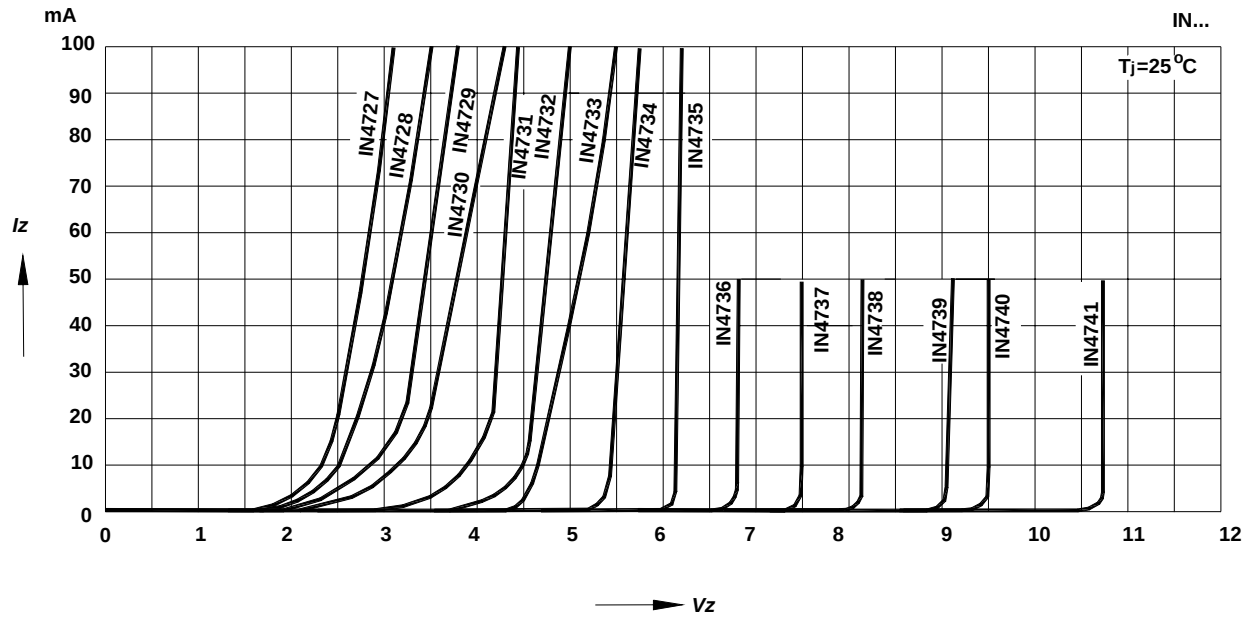
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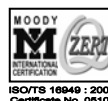
## Breakdown characteristics

$T_j = \text{constant (pulsed)}$



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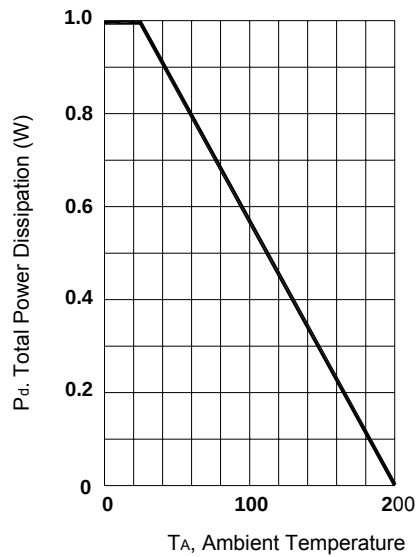


Fig. 1 Power Dissipation vs Ambient Temperature

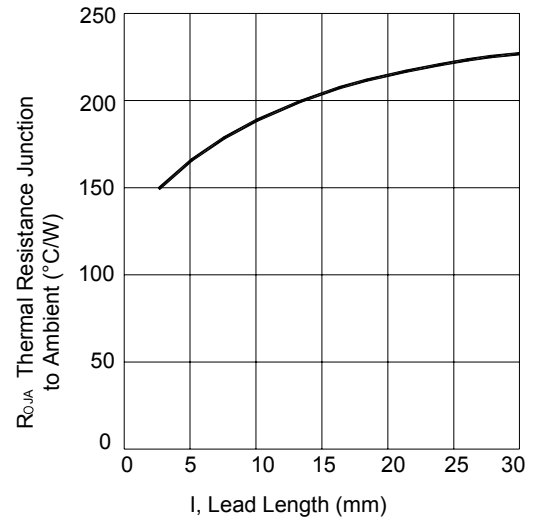


Fig. 2 Typical Thermal Resistance vs. Lead Length

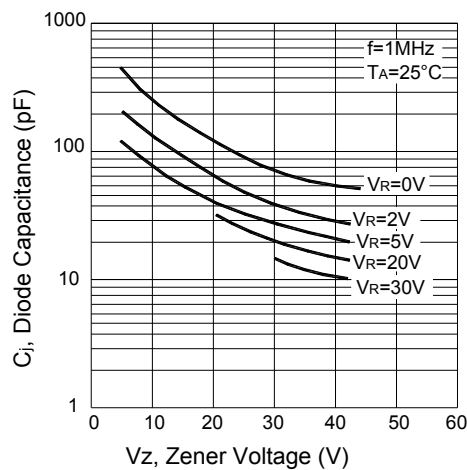


Fig. 3 Junction Capacitance vs Zener Voltage

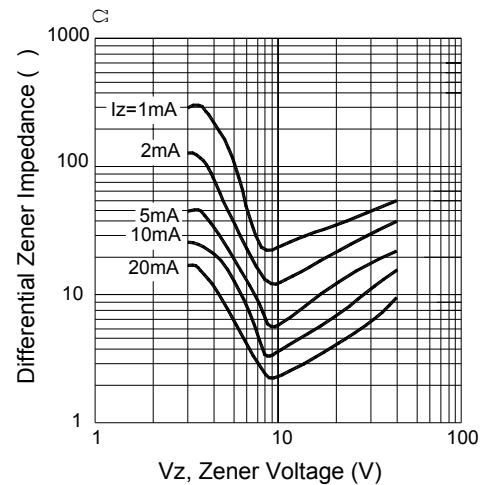
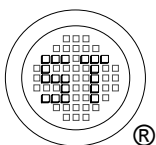
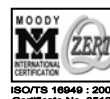


Fig. 4 Typical Zener Impedance vs. Zener Voltage



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