



# 1N4728A SERIES

## SILICON ZENER DIODE

**VOLTAGE** 3.3 to 68 Volt **POWER** 1 Watt

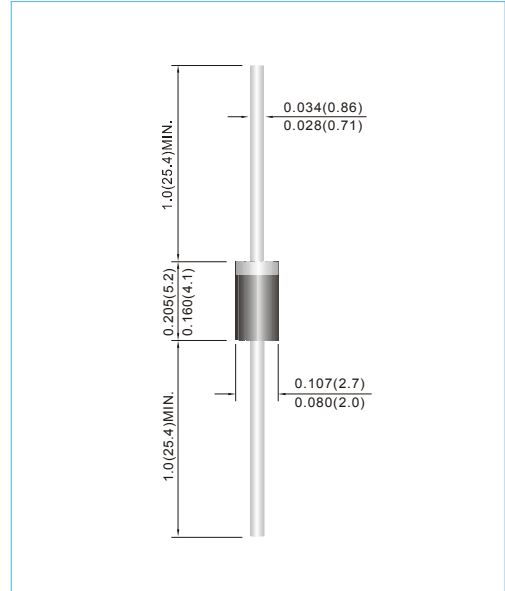
**DO-41** Unit : inch(mm)

### FEATURES

- Low inductance
- High temperature soldering : 260°C /10 seconds at terminals
- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- Lead free in compliance with EU RoHS 2.0

### MECHANICAL DATA

- Case: Molded plastic DO-41
- Epoxy: UL 94V-O rate flame retardant
- Terminals: Axial leads, solderable per MIL-STD-750, Method 2026 guaranteed
- Polarity: Color band denotes cathode end
- Weight: 0.012 ounce, 0.3 gram
- Packing information
  - B - 1K per Bulk box
  - T/R - 5K per 13" paper Reel
  - T/B - 3K per horiz. tape & Ammo box



## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

| Parameter                         | Symbol           | Value        | Units |
|-----------------------------------|------------------|--------------|-------|
| Power Dissipation at Tamb = 25 °C | P <sub>TOT</sub> | 1*           | W     |
| Junction Temperature              | T <sub>J</sub>   | -55 to + 150 | °C    |
| Storage Temperature Range         | T <sub>STG</sub> | -55 to + 150 | °C    |

\*Valid provided that leads at a distance of 10mm from case are kept at ambient temperature.

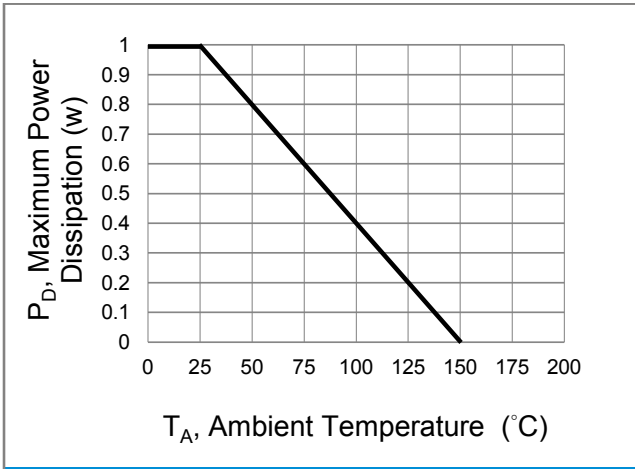


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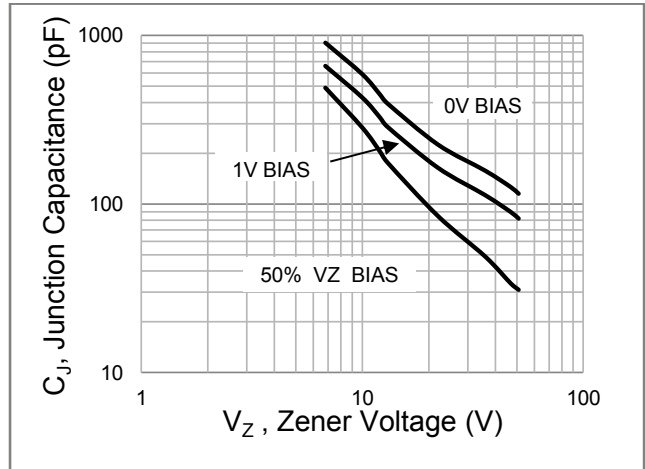
| Part Number    | Nominal Zener Voltage            |        |        | Maximum Zener Impedance           |      |                                   |      | Maximum Leakage Current         |      | Marking Code |
|----------------|----------------------------------|--------|--------|-----------------------------------|------|-----------------------------------|------|---------------------------------|------|--------------|
|                | V <sub>Z</sub> @ I <sub>ZT</sub> |        |        | Z <sub>ZT</sub> @ I <sub>ZT</sub> |      | Z <sub>ZK</sub> @ I <sub>ZK</sub> |      | I <sub>R</sub> @ V <sub>R</sub> |      |              |
|                | Nom. V                           | Min. V | Max. V | Ω                                 | mA   | Ω                                 | mA   | uA                              | V    |              |
| 1.0 Watt ZENER |                                  |        |        |                                   |      |                                   |      |                                 |      |              |
| 1N4728A        | 3.3                              | 3.1    | 3.5    | 10                                | 76   | 400                               | 1    | 100                             | 1    | 1N4728A      |
| 1N4730A        | 3.9                              | 3.7    | 4.1    | 9                                 | 64   | 400                               | 1    | 50                              | 1    | 1N4730A      |
| 1N4731A        | 4.3                              | 4.1    | 4.5    | 9                                 | 58   | 400                               | 1    | 10                              | 1    | 1N4731A      |
| 1N4732A        | 4.7                              | 4.5    | 4.9    | 8                                 | 53   | 500                               | 1    | 10                              | 1    | 1N4732A      |
| 1N4733A        | 5.1                              | 4.8    | 5.4    | 7                                 | 49   | 550                               | 1    | 10                              | 1    | 1N4733A      |
| 1N4734A        | 5.6                              | 5.3    | 5.9    | 5                                 | 45   | 600                               | 1    | 10                              | 2    | 1N4734A      |
| 1N4735A        | 6.2                              | 5.9    | 6.5    | 2                                 | 41   | 700                               | 1    | 10                              | 3    | 1N4735A      |
| 1N4736A        | 6.8                              | 6.46   | 7.14   | 3.5                               | 37   | 700                               | 1    | 5                               | 4    | 1N4736A      |
| 1N4737A        | 7.5                              | 7.13   | 7.88   | 4                                 | 34   | 700                               | 0.5  | 5                               | 5    | 1N4737A      |
| 1N4738A        | 8.2                              | 7.79   | 8.61   | 4.5                               | 31   | 700                               | 0.5  | 5                               | 6    | 1N4738A      |
| 1N4739A        | 9.1                              | 8.65   | 9.56   | 5                                 | 28   | 700                               | 0.5  | 0.5                             | 7    | 1N4739A      |
| 1N4740A        | 10                               | 9.5    | 10.5   | 7                                 | 25   | 700                               | 0.25 | 0.5                             | 7.6  | 1N4740A      |
| 1N4741A        | 11                               | 10.45  | 11.55  | 8                                 | 23   | 700                               | 0.25 | 0.1                             | 8.4  | 1N4741A      |
| 1N4742A        | 12                               | 11.4   | 12.6   | 9                                 | 21   | 700                               | 0.25 | 0.1                             | 9.1  | 1N4742A      |
| 1N4743A        | 13                               | 12.35  | 13.65  | 10                                | 19   | 700                               | 0.25 | 0.1                             | 9.9  | 1N4743A      |
| 1N4744A        | 15                               | 14.25  | 15.75  | 14                                | 17   | 700                               | 0.25 | 0.1                             | 11.4 | 1N4744A      |
| 1N4745A        | 16                               | 15.2   | 16.8   | 16                                | 15.5 | 700                               | 0.25 | 0.1                             | 12.2 | 1N4745A      |
| 1N4746A        | 18                               | 17.1   | 18.9   | 20                                | 14   | 750                               | 0.25 | 0.1                             | 13.7 | 1N4746A      |
| 1N4747A        | 20                               | 19     | 21     | 22                                | 12.5 | 750                               | 0.25 | 0.1                             | 15.2 | 1N4747A      |
| 1N4748A        | 22                               | 20.9   | 23.1   | 23                                | 11.5 | 750                               | 0.25 | 0.1                             | 16.7 | 1N4748A      |
| 1N4749A        | 24                               | 22.8   | 25.2   | 25                                | 10.5 | 750                               | 0.25 | 0.1                             | 18.2 | 1N4749A      |
| 1N4750A        | 27                               | 25.65  | 28.35  | 35                                | 9.5  | 750                               | 0.25 | 0.1                             | 20.6 | 1N4750A      |
| 1N4751A        | 30                               | 28.5   | 31.5   | 40                                | 8.5  | 1000                              | 0.25 | 0.1                             | 22.8 | 1N4751A      |
| 1N4752A        | 33                               | 31.35  | 34.65  | 45                                | 7.5  | 1000                              | 0.25 | 0.1                             | 25.1 | 1N4752A      |
| 1N4753A        | 36                               | 34.2   | 37.8   | 50                                | 7    | 1000                              | 0.25 | 0.1                             | 27.4 | 1N4753A      |
| 1N4754A        | 39                               | 37.05  | 40.95  | 60                                | 6.5  | 1000                              | 0.25 | 0.1                             | 29.7 | 1N4754A      |
| 1N4755A        | 43                               | 40.85  | 45.15  | 70                                | 6    | 1500                              | 0.25 | 0.1                             | 32.7 | 1N4755A      |
| 1N4756A        | 47                               | 44.65  | 49.35  | 80                                | 5.5  | 1500                              | 0.25 | 0.1                             | 35.8 | 1N4756A      |
| 1N4757A        | 51                               | 48.45  | 53.55  | 95                                | 5    | 1500                              | 0.25 | 0.1                             | 38.8 | 1N4757A      |
| 1N4758A        | 56                               | 53.2   | 58.8   | 110                               | 4.5  | 2000                              | 0.25 | 5                               | 42.6 | 1N4758A      |
| 1N4759A        | 62                               | 58.9   | 65.1   | 125                               | 4    | 2000                              | 0.25 | 5                               | 47.1 | 1N4759A      |
| 1N4760A        | 68                               | 64.6   | 71.4   | 150                               | 3.7  | 2000                              | 0.25 | 5                               | 51.7 | 1N4760A      |



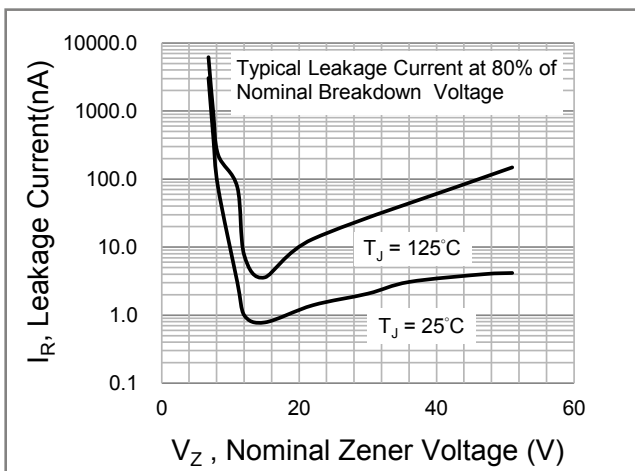
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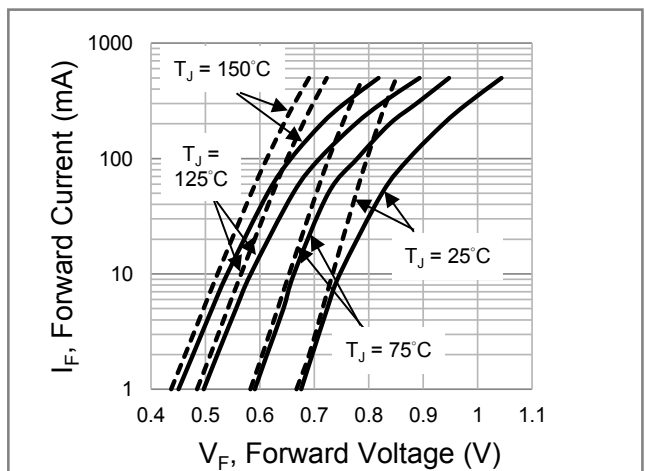
**Fig.1 Steady-State Power Derating Curve**



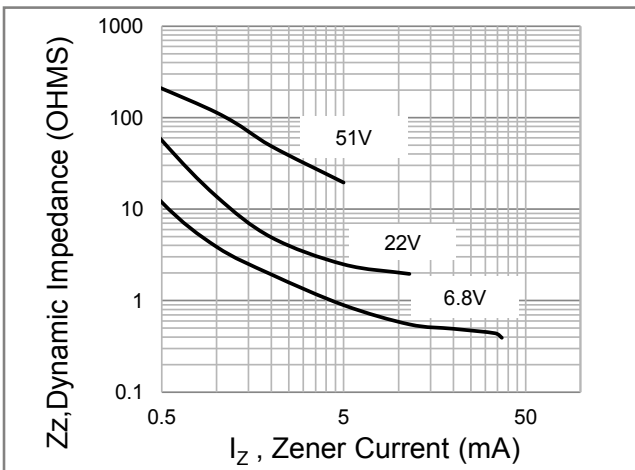
**Fig.2 Typical Junction Capacitance**



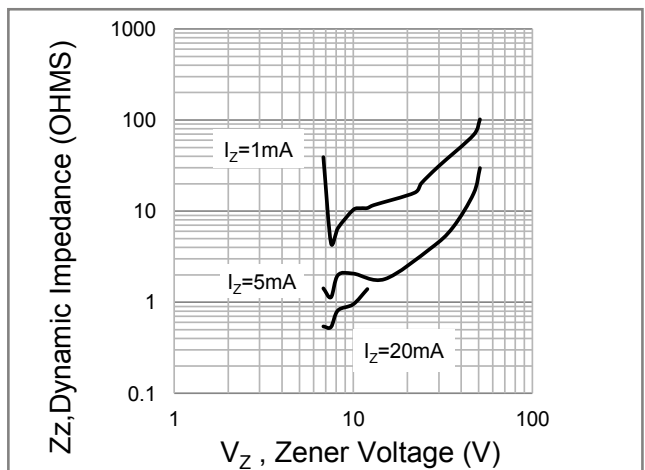
**Fig.3 Typical Leakage Characteristics**



**Fig.4 Typical Forward Characteristics**



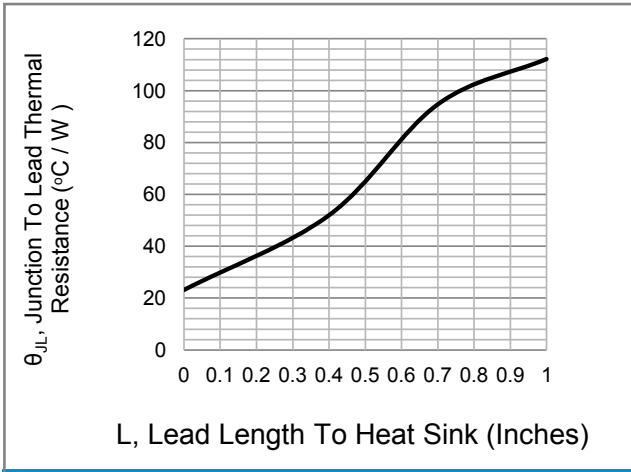
**Fig.5 Typical Effect Of Zener Current On Zener Impedance**



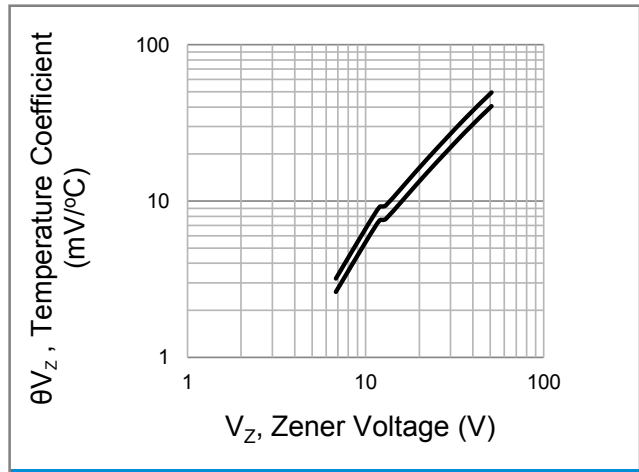
**Fig.6 Typical Effect Of Zener Voltage On Zener Impedance**



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**Fig.7 Thermal Resistance Versus Lead Length**



**Fig.8 Temperature Coefficient (+25 $^{\circ}\text{C}$  To +150 $^{\circ}\text{C}$  Temperature Range ; 90% Of The Units Are In The Ranges Indicated)**



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### Part No\_packing code\_Version

1N4728A\_AY\_10001  
1N4728A\_B0\_00001  
1N4728A\_B0\_10001  
1N4728A\_R2\_00001  
1N4728A\_R2\_10001

For example :

**RB500V-40\_R2\_00001**



| Packing Code <b>XX</b>               |                      |                                  |                      | Version Code <b>XXXXX</b> |                      |                                       |
|--------------------------------------|----------------------|----------------------------------|----------------------|---------------------------|----------------------|---------------------------------------|
| Packing type                         | 1 <sup>st</sup> Code | Packing size code                | 2 <sup>nd</sup> Code | HF or RoHS                | 1 <sup>st</sup> Code | 2 <sup>nd</sup> ~5 <sup>th</sup> Code |
| Tape and Ammunition Box (T/B)        | A                    | N/A                              | 0                    | HF                        | 0                    | serial number                         |
| Tape and Reel (T/R)                  | R                    | 7"                               | 1                    | RoHS                      | 1                    | serial number                         |
| Bulk Packing (B/P)                   | B                    | 13"                              | 2                    |                           |                      |                                       |
| Tube Packing (T/P)                   | T                    | 26mm                             | X                    |                           |                      |                                       |
| Tape and Reel (Right Oriented) (TRR) | S                    | 52mm                             | Y                    |                           |                      |                                       |
| Tape and Reel (Left Oriented) (TRL)  | L                    | PANASERT T/B CATHODE UP (PBCU)   | U                    |                           |                      |                                       |
| FORMING                              | F                    | PANASERT T/B CATHODE DOWN (PBCD) | D                    |                           |                      |                                       |



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