



Zener diode

Features

- 1. High reliability
- 2. Very sharp reverse characteristic
- 3. Low reverse current level
- 4. V_Z -tolerance $\pm 5\%$

Applications

Voltage stabilization



Absolute Maximum Ratings

$T_j=25^\circ\text{C}$

| Parameter | Test Conditions | Type | Symbol | Value | Unit |
|---------------------------|---------------------------------|------|-----------|-----------|------------------|
| Power dissipation | $T_{amb} \leq 50^\circ\text{C}$ | | P_V | 1 | W |
| Z-current | | | I_Z | P_V/V_Z | mA |
| Junction temperature | | | T_j | 200 | $^\circ\text{C}$ |
| Storage temperature range | | | T_{stg} | -65~+175 | $^\circ\text{C}$ |

Maximum Thermal Resistance

$T_j=25^\circ\text{C}$

| Parameter | Test Conditions | Symbol | Value | Unit |
|------------------|--|------------|-------|------|
| Junction ambient | $l=9.5\text{mm}(3/8")$ $T_L=\text{constant}$ | R_{thJA} | 100 | K/W |

Stresses exceeding maximum ratings may damage the device. Maximum ratings are stress ratings only. Functional operation above the recommended operating conditions is not implied. Extended exposure to stresses above the recommended operating conditions may affect device reliability.

Electrical Characteristics

$T_j=25^\circ\text{C}$

| Parameter | Test Conditions | Type | Symbol | Min | Typ | Max | Unit |
|-----------------|--------------------|------|--------|-----|-----|-----|------|
| Forward voltage | $I_F=200\text{mA}$ | | V_F | | | 1.2 | V |



| Type | $V_{Znom}^{1)}$ | I_{ZT} mA | for | r_{zjT} Ω | r_{zjK} at | I_{ZK} mA | I_R at | V_R V |
|---------|-----------------|----------------|-----|-----------------------|--------------|----------------|----------|------------|
| | V | | | | | | | |
| 1N4728A | 3.3 | 76 | | <10 | <400 | 1 | <100 | 1 |
| 1N4729A | 3.6 | 69 | | <10 | <400 | 1 | <100 | 1 |
| 1N4730A | 3.9 | 64 | | <9 | <400 | 1 | <50 | 1 |
| 1N4731A | 4.3 | 58 | | <9 | <400 | 1 | <10 | 1 |
| 1N4732A | 4.7 | 53 | | <8 | <500 | 1 | <10 | 1 |
| 1N4733A | 5.1 | 49 | | <7 | <550 | 1 | <10 | 1 |
| 1N4734A | 5.6 | 45 | | <5 | <600 | 1 | <10 | 2 |
| 1N4735A | 6.2 | 41 | | <2 | <700 | 1 | <10 | 3 |
| 1N4736A | 6.8 | 37 | | <3.5 | <700 | 1 | <10 | 4 |
| 1N4737A | 7.5 | 34 | | <4.0 | <700 | 0.5 | <10 | 5 |
| 1N4738A | 8.2 | 31 | | <4.5 | <700 | 0.5 | <10 | 6 |
| 1N4739A | 9.1 | 28 | | <5.0 | <700 | 0.5 | <10 | 7 |
| 1N4740A | 10 | 25 | | <7 | <700 | 0.25 | <10 | 7.6 |
| 1N4741A | 11 | 23 | | <8 | <700 | 0.25 | <5 | 8.4 |
| 1N4742A | 12 | 21 | | <9 | <700 | 0.25 | <5 | 9.1 |
| 1N4743A | 13 | 19 | | <10 | <700 | 0.25 | <5 | 9.9 |
| 1N4744A | 15 | 17 | | <14 | <700 | 0.25 | <5 | 11.4 |
| 1N4745A | 16 | 15.5 | | <16 | <700 | 0.25 | <5 | 12.2 |
| 1N4746A | 18 | 14 | | <20 | <750 | 0.25 | <5 | 13.7 |
| 1N4747A | 20 | 12.5 | | <22 | <750 | 0.25 | <5 | 15.2 |
| 1N4748A | 22 | 11.5 | | <23 | <750 | 0.25 | <5 | 16.7 |
| 1N4749A | 24 | 10.5 | | <25 | <750 | 0.25 | <5 | 18.2 |
| 1N4750A | 27 | 9.5 | | <35 | <750 | 0.25 | <5 | 20.6 |
| 1N4751A | 30 | 8.5 | | <40 | <1000 | 0.25 | <5 | 22.8 |
| 1N4752A | 33 | 7.5 | | <45 | <1000 | 0.25 | <5 | 25.1 |
| 1N4753A | 36 | 7.0 | | <50 | <1000 | 0.25 | <5 | 27.4 |
| 1N4754A | 39 | 6.5 | | <60 | <1000 | 0.25 | <5 | 29.7 |
| 1N4755A | 43 | 6.0 | | <70 | <1500 | 0.25 | <5 | 32.7 |
| 1N4756A | 47 | 5.5 | | <80 | <1500 | 0.25 | <5 | 35.8 |
| 1N4757A | 51 | 5.0 | | <95 | <1500 | 0.25 | <5 | 38.8 |
| 1N4758A | 56 | 4.5 | | <110 | <2000 | 0.25 | <5 | 42.6 |
| 1N4759A | 62 | 4.0 | | <125 | <2000 | 0.25 | <5 | 47.1 |
| 1N4760A | 68 | 3.7 | | <150 | <2000 | 0.25 | <5 | 51.7 |
| 1N4761A | 75 | 3.3 | | <175 | <2000 | 0.25 | <5 | 56 |
| 1N4762A | 82 | 3.0 | | <200 | <3000 | 0.25 | <5 | 62.2 |
| 1N4763A | 91 | 2.8 | | <250 | <3000 | 0.25 | <5 | 69.2 |
| 1N4764A | 100 | 2.5 | | <350 | <3000 | 0.25 | <5 | 76 |

1) Based on DC-measurement at thermal equilibrium while maintaining the lead temperature(T_L)at 30°C, 9.5mm(3/8") from the diode body.



Characteristics ($T_j=25^\circ\text{C}$ unless otherwise specified)

| Symbol | Parameter |
|----------|------------------------------------|
| V_Z | Reverse zener voltage @ I_{ZT} |
| I_{ZT} | Reverse current |
| Z_{ZT} | Maximum zener impedance @ I_{ZT} |
| I_{ZK} | Reverse current |
| Z_{ZK} | Maximum zener impedance @ I_{ZK} |
| I_R | Reverse leakage current @ V_R |
| V_R | Breakdown voltage |
| I_F | Forward current |
| V_F | Forward voltage @ I_F |

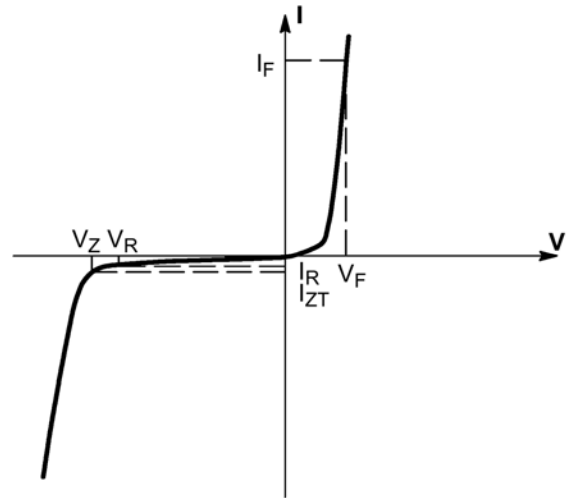


Figure 1. Zener voltage regulator

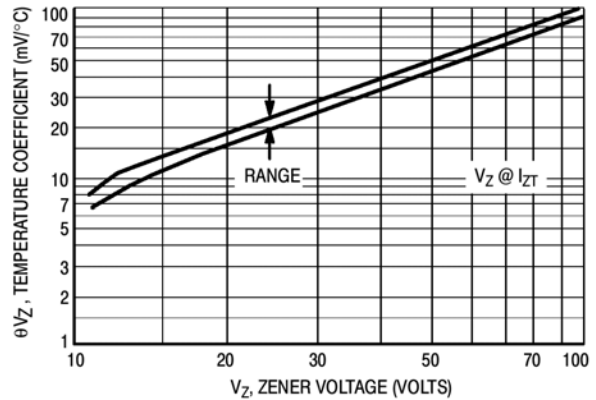
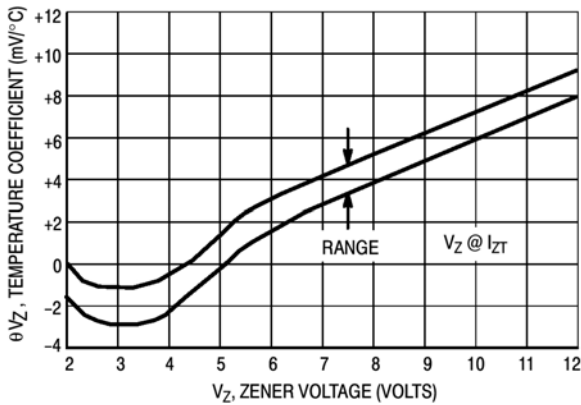


Figure 2. Temperature coefficients

(-55°C to $+150^\circ\text{C}$ temperature range; 90% of the units are in the ranges indicated.)

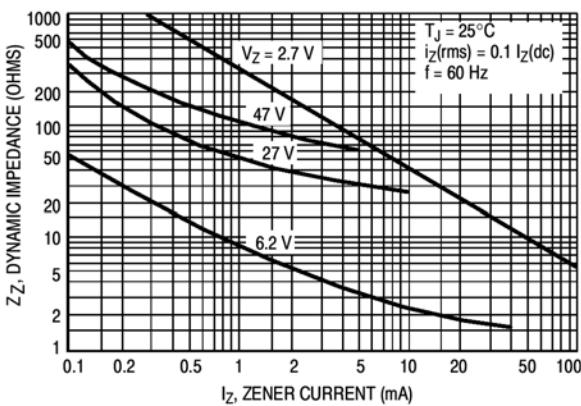


Figure 3. Effect of zener current on zener impedance

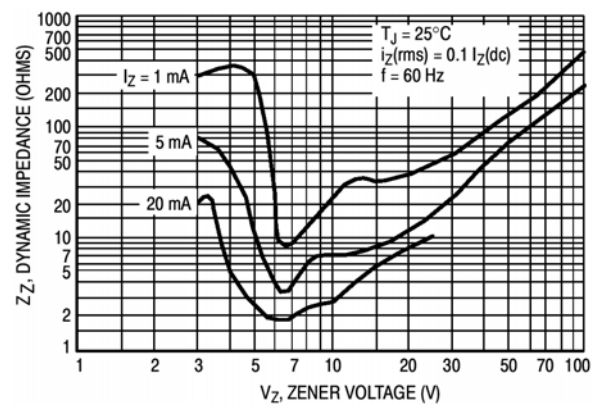
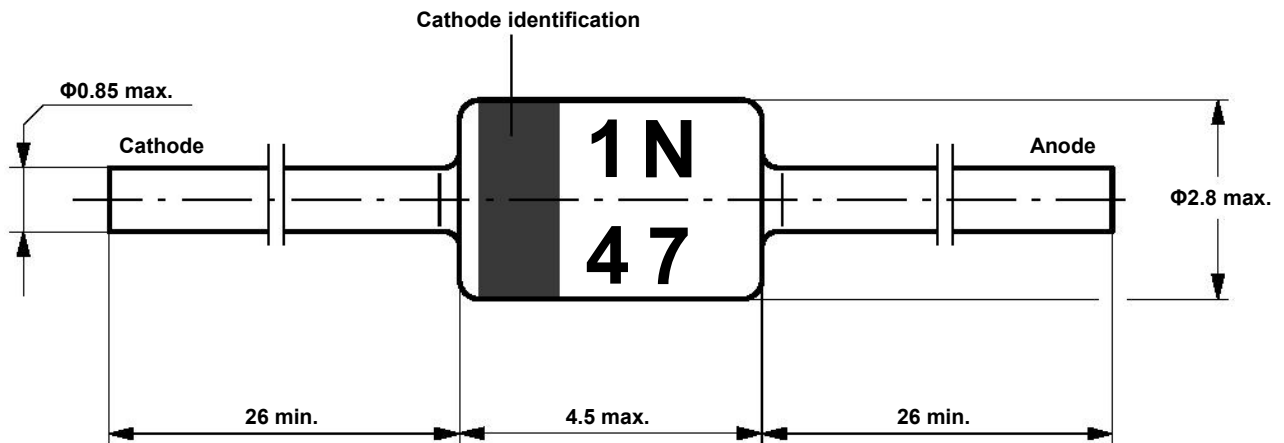


Figure 4. Effect of zener voltage on zener impedance

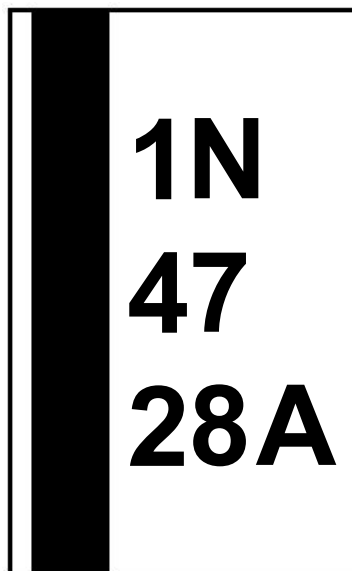


Dimensions in mm



Standard Glass Case
JEDEC DO-41

Marking



Excel Semiconductor