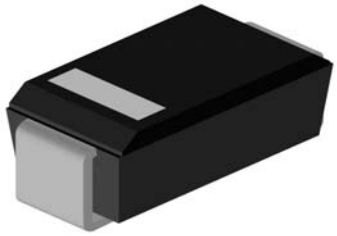
# Zener diode

## Features

1. 1.0W power dissipation
2. For surface mounted applications
3. Zener voltage 5.1V to 39V
4. $V_Z$-tolerance±5%



## Applications

Voltage stabilization

## Absolute Maximum Ratings

$T_j$=25℃

| Parameter | Test Conditions | Type | Symbol | Value | Unit |
|---|---|---|---|---|---|
| Power dissipation | $T_{amb}$≤50℃ | | $P_d$ | 1 | W |
| Z-current | | | $I_{ZM}$ | $P_d/V_Z$ | mA |
| Junction temperature | | | $T_j$ | 175 | ℃ |
| Storage temperature range | | | $T_{stg}$ | -65~+150 | ℃ |

## Maximum Thermal Resistance

$T_j$=25℃

| Parameter | Test Conditions | Symbol | Value | Unit |
|---|---|---|---|---|
| Junction ambient | l=9.5mm(3/8") $T_L$=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℃

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

| Type | Device marking | $V_{Znom}$ [1] | $I_{ZT}$ for $Z_{ZT}$ | | $Z_{ZK}$ at $I_{ZK}$ | | $I_R$ at $V_R$ | |
|---|---|---|---|---|---|---|---|---|
| | | V | mA | Ω | Ω | mA | μA | V |
| SMAZ5V1 | Z5V1 | 5.1 | 100 | <5 | <500 | 1 | <2.5 | 1 |
| SMAZ5V6 | Z5V6 | 5.6 | 100 | <2 | <250 | 2 | <5 | 2 |
| SMAZ6V2 | Z6V2 | 6.2 | 100 | <2 | <200 | 2 | <5 | 3 |
| SMAZ6V8 | Z6V8 | 6.8 | 100 | <2 | <200 | 1 | <5 | 4 |
| SMAZ7V5 | Z7V5 | 7.5 | 100 | <2 | <450 | 1 | <5 | 5 |
| SMAZ8V2 | Z8V2 | 8.2 | 100 | <2 | <200 | 1 | <5 | 6 |
| SMAZ9V1 | Z9V1 | 9.1 | 50 | <4 | <200 | 1 | <5 | 7 |
| SMAZ10 | Z10 | 10 | 50 | <4 | <200 | 1 | <1 | 7.6 |
| SMAZ12 | Z12 | 12 | 50 | <7 | <150 | 1 | <1 | 9.1 |
| SMAZ15 | Z15 | 15 | 50 | <10 | <150 | 1 | <1 | 11.4 |
| SMAZ16 | Z16 | 16 | 25 | <15 | <150 | 1 | <0.5 | 12.2 |
| SMAZ18 | Z18 | 18 | 25 | <15 | <150 | 1 | <0.5 | 13.7 |
| SMAZ20 | Z20 | 20 | 25 | <15 | <180 | 1 | <0.5 | 15.2 |
| SMAZ22 | Z22 | 22 | 25 | <15 | <180 | 1 | <0.5 | 16.7 |
| SMAZ24 | Z24 | 24 | 25 | <15 | <180 | 1 | <0.5 | 18.2 |
| SMAZ27 | Z27 | 27 | 25 | <15 | <200 | 1 | <0.5 | 20.5 |
| SMAZ30 | Z30 | 30 | 25 | <15 | <250 | 1 | <0.5 | 22.8 |
| SMAZ33 | Z33 | 33 | 25 | <15 | <300 | 1 | <0.5 | 25.1 |
| SMAZ36 | Z36 | 36 | 10 | <40 | <350 | 1 | <0.5 | 27.4 |
| SMAZ39 | Z39 | 39 | 10 | <40 | <450 | 1 | <0.5 | 29.6 |

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

## Characteristics ($T_j$=25℃ unless otherwise specified)

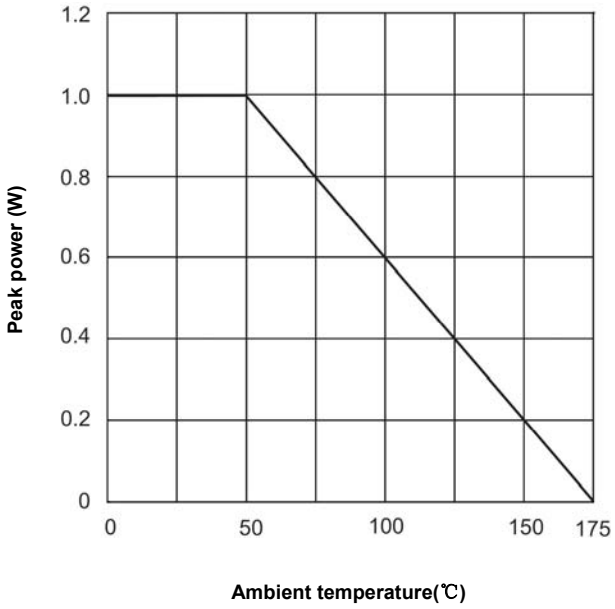



Fig.1 Power dissipation vs ambient temperature

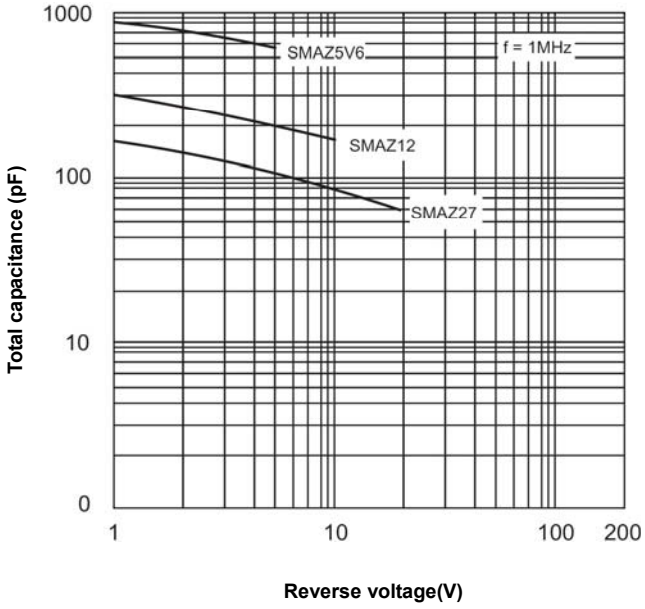



Fig.2 Total capacitance vs reverse voltage

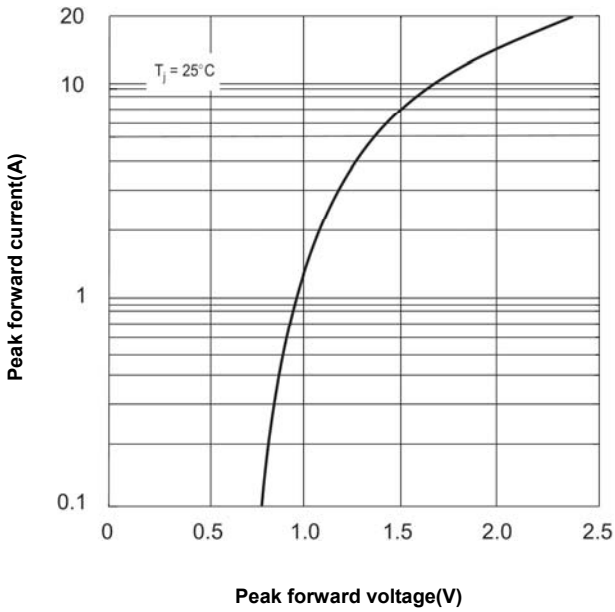



Fig.3 Peak forward current vs peak forward voltage

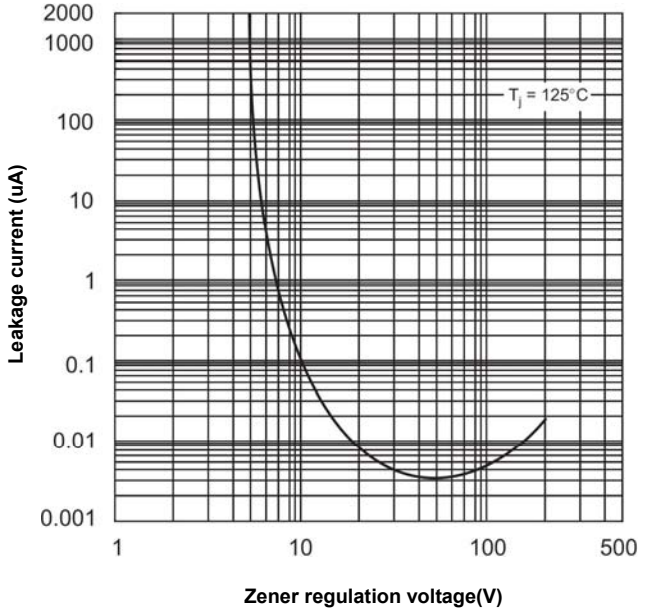



Fig.4 Leakage current vs regulation voltage

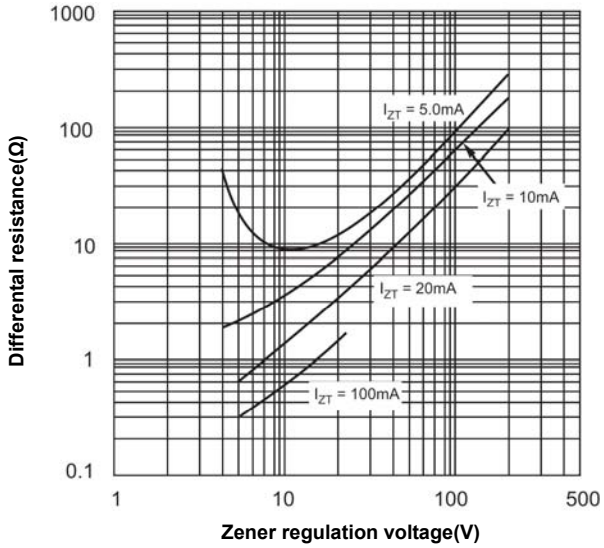
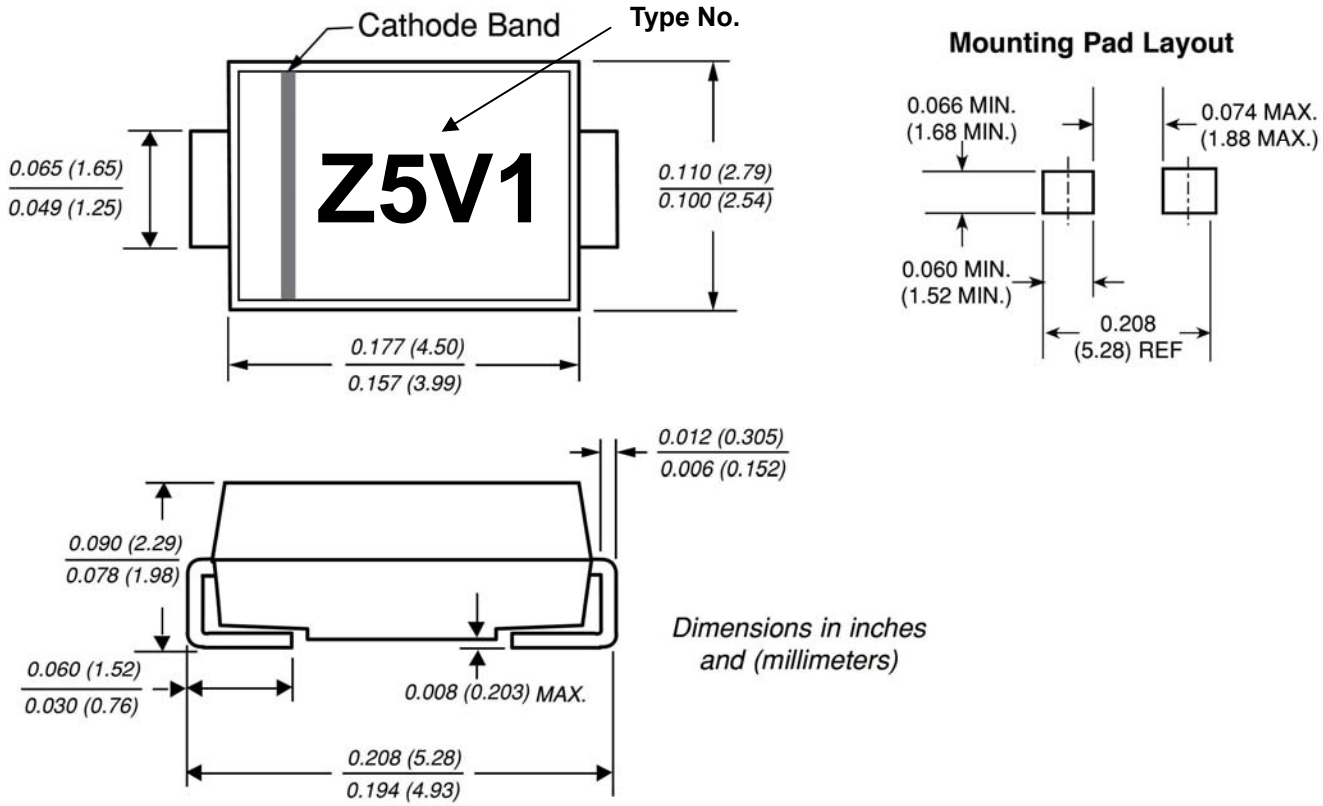



**Fig.5 Differential resistance regulation voltage**

## Dimensions in inches (mm)




DO-214AC（SMA）