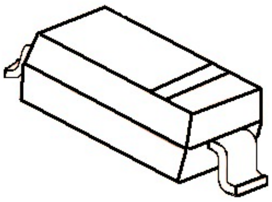
# SOD-123 贴片塑封稳压二极管
# SOD-123 Plastic-Encapsulate Zener Diode

**SOD-123**



## 特征 Features

- 齐纳击穿阻抗低; Low Zener Impedance
- 最大功率耗散 500mW; Power Dissipation of 500mW
- 高稳定性和可靠性。High Stability and High Reliability

## 机械数据 Mechanical Data

- 封装: SOD-123 封装 Flat Lead SOD-123 Small Outline Plastic Package
- 极性: 色环端为负极 Polarity: Color band denotes cathode end
- 安装位置: 任意 Mounting Position: Any

## 极限值和温度特性(TA = 25℃ 除非另有规定)

## Maximum Ratings & Thermal Characteristics (Ratings at 25℃ ambient temperature unless otherwise specified.)

| 参数 Parameters | 符号 Symbol | 数值 Value | 单位 Unit |
|---|---|---|---|
| 功率消耗 Power Dissipation | Pd | 500 1) | mW |
| 正向压降 Forward Voltage @IF=10mA | Vf | 0.9 2) | V |
| 存储温度 Storage temperature range | Ts | -65-+150 | ℃ |

1) Device mounted on ceramic PCB: 7.6mm x 9.4mm x 0.87mm with pad areas 25mm²
2) Short duration test pulse used to minimize self-heating effect
3) f=1KHz

## 电特性 (TA = 25℃ 除非另有规定)

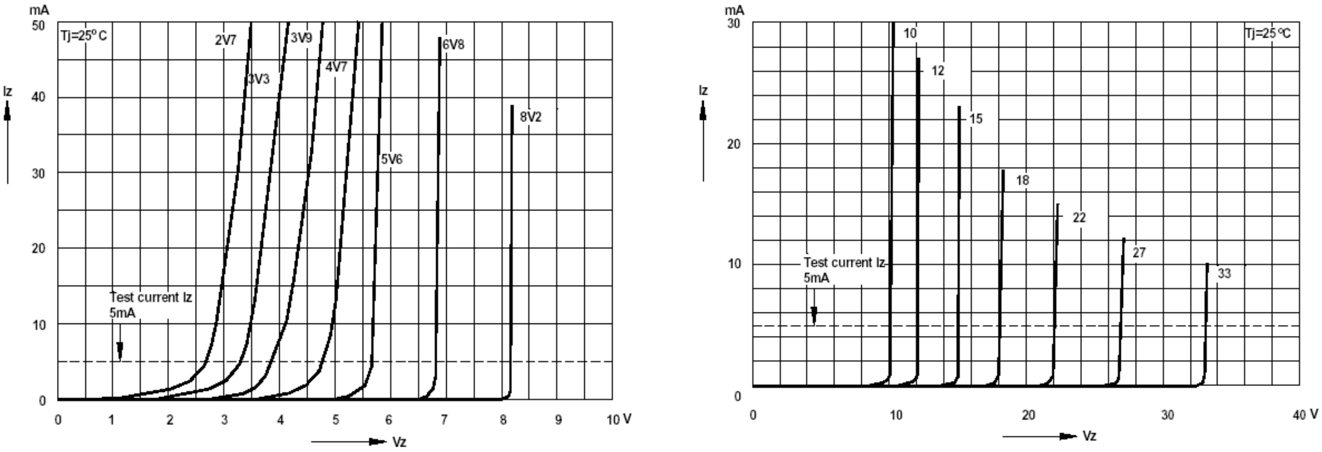
## Electrical Characteristics (Ratings at 25℃ ambient temperature unless otherwise specified).

| Device | Marking | Zener Voltage Range | | | | Maximum Zener Impedance | | | Maximum Reverse Current | | Typical Temperature coefficent @ IZTC=mV/℃ | | Test Current IZTC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Vz@Izt | | | Izt | Zzt @Izt | Zzk @Izk | Izk | IR | VR | | | |
| | | Nom(V) | Min(V) | Max(V) | mA | Ω | | mA | uA | V | Min | Max | mA |
| BZT52C2V4 | WX | 2.4 | 2.2 | 2.6 | 5 | 100 | 600 | 1.0 | 50 | 1.0 | -3.5 | 0 | 5 |
| BZT52C2V7 | W1 | 2.7 | 2.5 | 2.9 | 5 | 100 | 600 | 1.0 | 20 | 1.0 | -3.5 | 0 | 5 |
| BZT52C3V0 | W2 | 3.0 | 2.8 | 3.2 | 5 | 95 | 600 | 1.0 | 10 | 1.0 | -3.5 | 0 | 5 |
| BZT52C3V3 | W3 | 3.3 | 3.1 | 3.5 | 5 | 95 | 600 | 1.0 | 5 | 1.0 | -3.5 | 0 | 5 |
| BZT52C3V6 | W4 | 3.6 | 3.4 | 3.8 | 5 | 90 | 600 | 1.0 | 5 | 1.0 | -3.5 | 0 | 5 |
| BZT52C3V9 | W5 | 3.9 | 3.7 | 4.1 | 5 | 90 | 600 | 1.0 | 3 | 1.0 | -3.5 | 0 | 5 |
| BZT52C4V3 | W6 | 4.3 | 4.0 | 4.6 | 5 | 90 | 600 | 1.0 | 3 | 1.0 | -3.5 | 0 | 5 |
| BZT52C4V7 | W7 | 4.7 | 4.4 | 5.0 | 5 | 80 | 500 | 1.0 | 3 | 2.0 | -3.5 | 0.2 | 5 |
| BZT52C5V1 | W8 | 5.1 | 4.8 | 5.4 | 5 | 60 | 480 | 1.0 | 2 | 2.0 | -2.7 | 1.2 | 5 |
| BZT52C5V6 | W9 | 5.6 | 5.2 | 6.0 | 5 | 40 | 400 | 1.0 | 1 | 2.0 | -2.0 | 2.5 | 5 |
| BZT52C6V2 | WA | 6.2 | 5.8 | 6.6 | 5 | 10 | 150 | 1.0 | 3 | 4.0 | 0.4 | 3.7 | 5 |
| BZT52C6V8 | WB | 6.8 | 6.4 | 7.2 | 5 | 15 | 80 | 1.0 | 2 | 4.0 | 1.2 | 4.5 | 5 |
| BZT52C7V5 | WC | 7.5 | 7.0 | 7.9 | 5 | 15 | 80 | 1.0 | 1 | 5.0 | 2.5 | 5.3 | 5 |
| BZT52C8V2 | WD | 8.2 | 7.7 | 8.7 | 5 | 15 | 80 | 1.0 | 0.7 | 5.0 | 3.2 | 6.2 | 5 |
| BZT52C9V1 | WE | 9.1 | 8.5 | 9.6 | 5 | 15 | 100 | 1.0 | 0.5 | 6.0 | 3.8 | 7.0 | 5 |
| BZT52C10 | WF | 10 | 9.4 | 10.6 | 5 | 20 | 150 | 1.0 | 0.2 | 7.0 | 4.5 | 8.0 | 5 |
| BZT52C11 | WG | 11 | 10.4 | 11.6 | 5 | 20 | 150 | 1.0 | 0.1 | 8.0 | 5.4 | 9.0 | 5 |
| BZT52C12 | WH | 12 | 11.4 | 12.7 | 5 | 25 | 150 | 1.0 | 0.1 | 8.0 | 6.0 | 10.0 | 5 |
| BZT52C13 | WI | 13 | 12.4 | 14.1 | 5 | 30 | 170 | 1.0 | 0.1 | 8.0 | 7.0 | 11.0 | 5 |

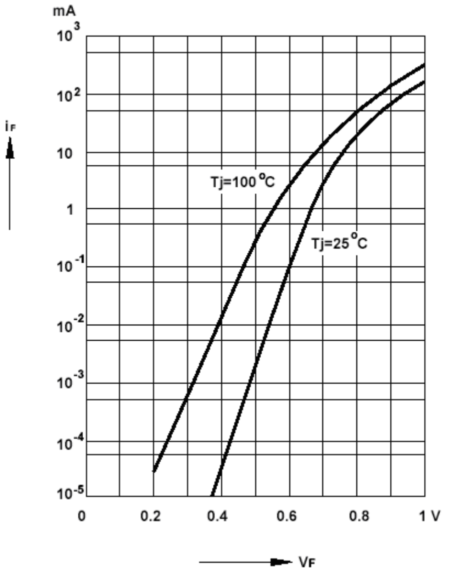
| Device | Marking | Zener Voltage Range | | | | Maximum Zener Impedance | | | Maximum Reverse Current | | Typical Temperature coefficent @ IZTC=mV/℃ | | Test Current IZTC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Vz@Izt | | | Izt | Zzt @Izt | Zzk @Izk | Izk | IR | VR | | | |
| | | Nom(V) | Min(V) | Max(V) | mA | Ω | | mA | uA | V | Min | Max | mA |
| BZT52C15 | WJ | 15 | 13.8 | 15.6 | 5 | 30 | 200 | 1.0 | 0.1 | 10.5 | 9.2 | 13.0 | 5 |
| BZT52C16 | WK | 16 | 15.3 | 17.1 | 5 | 40 | 200 | 1.0 | 0.1 | 11.2 | 10.4 | 14.0 | 5 |
| BZT52C18 | WL | 18 | 16.8 | 19.1 | 5 | 45 | 225 | 1.0 | 0.1 | 12.6 | 12.4 | 16.0 | 5 |
| BZT52C20 | WM | 20 | 18.8 | 21.2 | 5 | 55 | 225 | 1.0 | 0.1 | 14.0 | 14.4 | 18.0 | 5 |
| BZT52C22 | WN | 22 | 20.8 | 23.3 | 5 | 55 | 250 | 1.0 | 0.1 | 15.4 | 16.4 | 20.0 | 5 |
| BZT52C24 | WO | 24 | 22.8 | 25.6 | 5 | 70 | 250 | 1.0 | 0.1 | 16.8 | 18.4 | 22.0 | 5 |
| BZT52C27 | WP | 27 | 25.1 | 28.9 | 2 | 80 | 300 | 0.5 | 0.1 | 18.9 | 21.4 | 25.3 | 2 |
| BZT52C30 | WQ | 30 | 28.0 | 32.0 | 2 | 80 | 300 | 0.5 | 0.1 | 21.0 | 24.4 | 29.4 | 2 |
| BZT52C33 | WR | 33 | 31.0 | 35.0 | 2 | 80 | 325 | 0.5 | 0.1 | 23.1 | 27.4 | 33.4 | 2 |
| BZT52C36 | WS | 36 | 34.0 | 38.0 | 2 | 90 | 350 | 0.5 | 0.1 | 25.2 | 30.4 | 37.4 | 2 |
| BZT52C39 | WT | 39 | 37.0 | 41.0 | 2 | 130 | 350 | 0.5 | 0.1 | 27.3 | 33.4 | 41.2 | 2 |
| BZT52C43 | WU | 43 | 40.0 | 46.0 | 2 | 100 | 700 | 1.0 | 0.1 | 32.0 | 10.0 | 12.0 | 5 |
| BZT52C47 | WV | 47 | 44.0 | 50.0 | 2 | 100 | 750 | 1.0 | 0.1 | 35.0 | 10.0 | 12.0 | 5 |
| BZT52C51 | WW | 51 | 48.0 | 54.0 | 2 | 100 | 750 | 1.0 | 0.1 | 38.0 | 10.0 | 12.0 | 5 |

## Breakdown characteristics

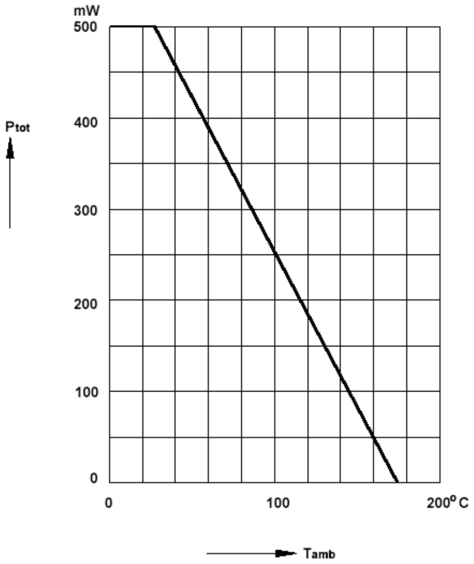
**at Tj=constant (pulsed)**



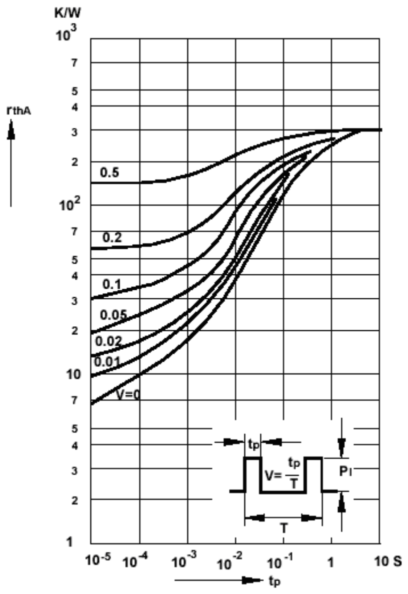
**Forward characteristics**



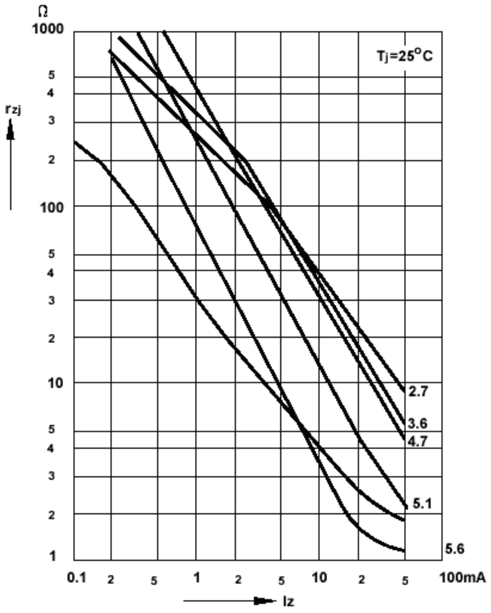
**Admissible power dissipation versus ambient temperature**



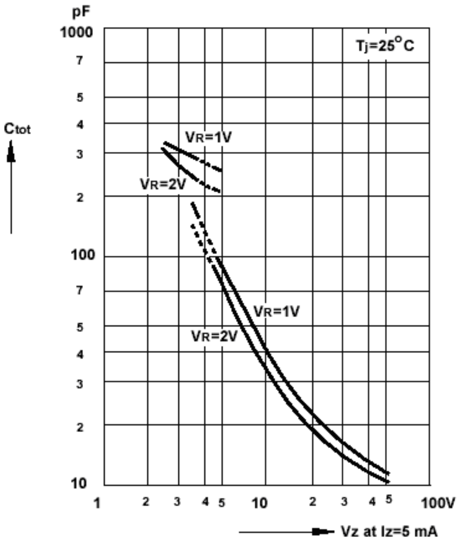
### Pulse thermal resistance versus pulse duration



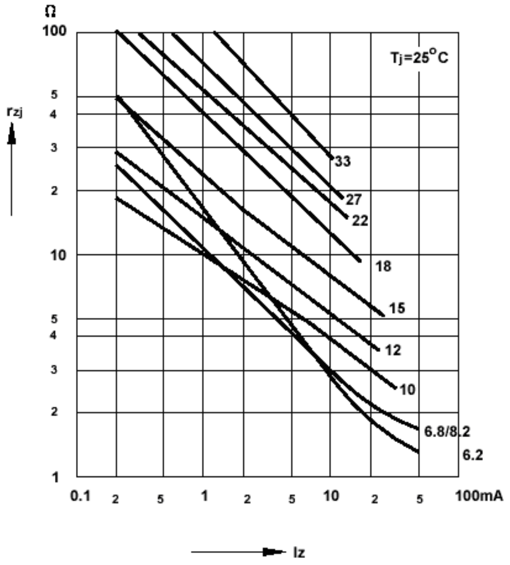
### Dynamic resistance versus Zener current



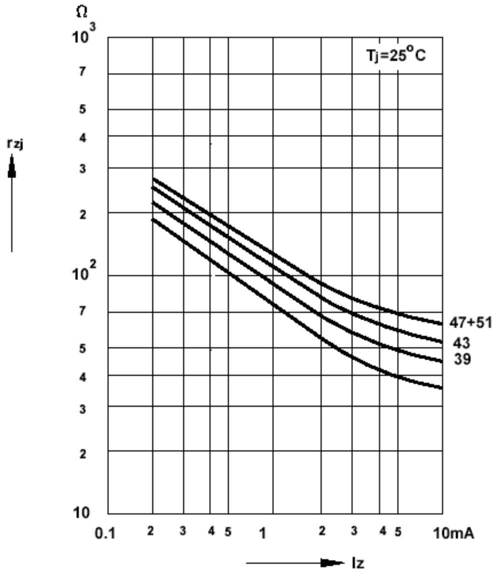
### Capacitance versus Zener voltage



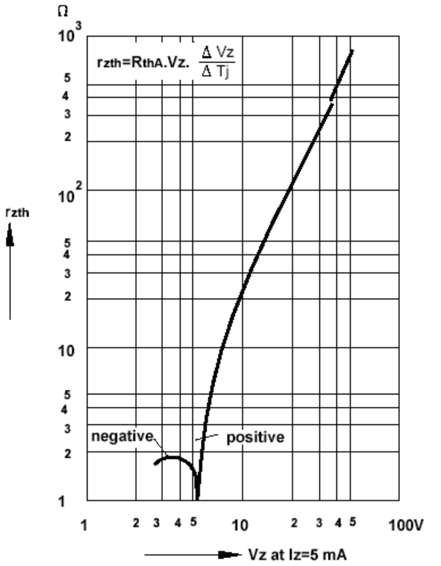
### Dynamic resistance versus Zener current



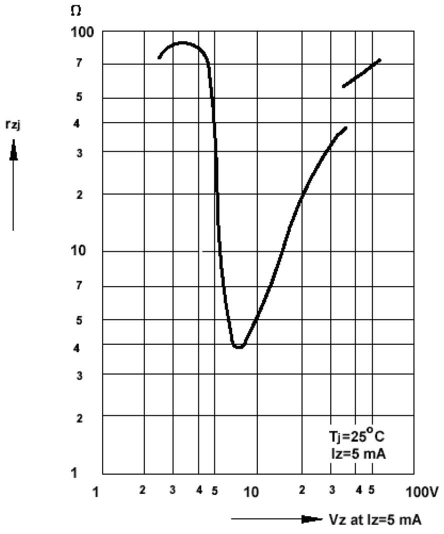
### Dynamic resistance versus Zener current



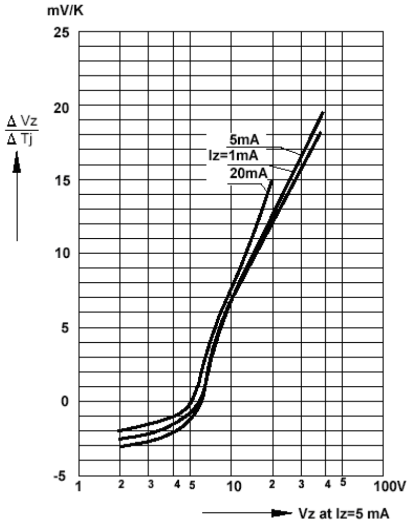
### Thermal differential resistance versus Zener voltage



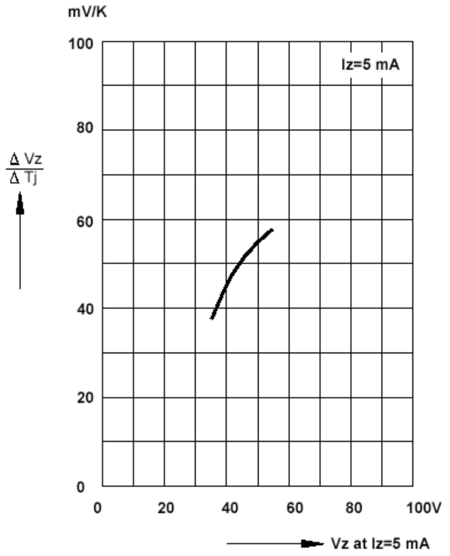
## Dynamic resistance versus Zener voltage



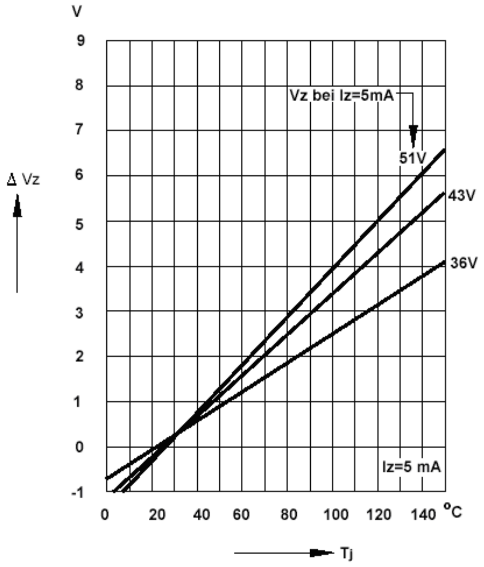
## Temperature dependence of Zener voltage versus Zener voltage



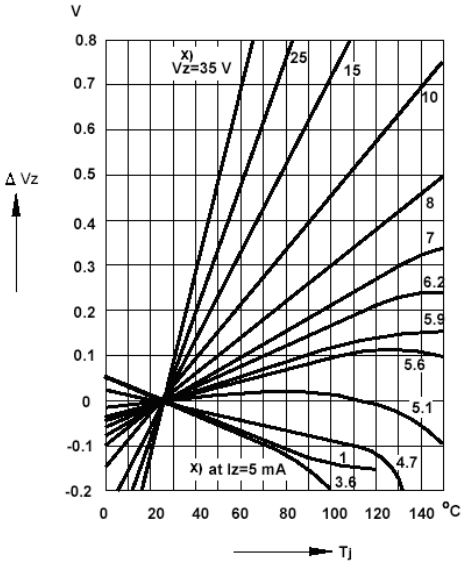
## Temperature dependence of Zener voltage versus Zener voltage



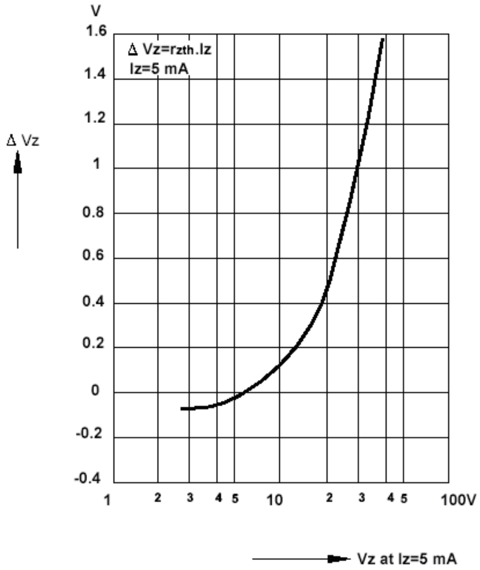
## Change of Zener voltage versus junction temperature



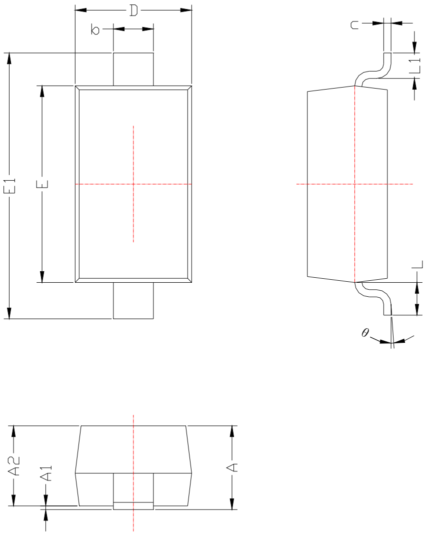
## Change of Zener voltage versus junction temperature



## Change of Zener voltge from turn-on up to the point of thermal equilibrium versus Zener voltage



## SOD-123 PACKAGE OUTLINE Plastic surface mounted package

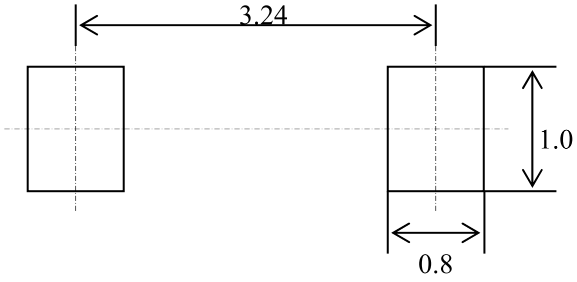


| SYMBOL | DIMENSIONS | |
|---|---|---|
| | MIN. | MAX. |
| A | 1.050 | 1.250 |
| A1 | 0.000 | 0.100 |
| A2 | 1.050 | 1.150 |
| b | 0.450 | 0.650 |
| c | 0.080 | 0.150 |
| D | 1.500 | 1.700 |
| E | 2.600 | 2.800 |
| E1 | 3.550 | 3.850 |
| L | 0.500REF | |
| L1 | 0.250 | 0.450 |
| θ | 0° | 8° |

焊盘设计参考

Precautions: PCB Design

Recommended land dimensions for SOD-123 diode. Electrode patterns for PCBs



中心距: 3.24
脚　宽: 0.55
焊盘宽: 1.00
脚　长: 0.50
焊盘长: 0.80

技术要求:

1, 塑封体尺寸: 2.70 X 1.60
2: 未注公差为: ±0.05
3, 所有单位: mm