

静电保护元件 ESD (Electrostatic Discharge Devices)

YINT静电保护元件阵列可保护电子设备免受雷击和静电放电（ESD）等快速瞬态电压的破坏，为输入/输出接口和数字与模拟信号线提供了理想的保护方案。

Yint的ESD器件封装通常包括：SOD323, SOD523, SOD882, SOD923, SOT23, SOT553, SOT563, SOT353, SOT363, SOT143, SOT23-6L, SOP-8, and μ DFN等。

The array of ESD could preventing electronic equipment from damaging by fast transient voltages such as lightning and electrostatic discharge (ESD), providing an effective protection solution for input/output interfaces and digital and analog signal lines.

The packaging of ESD including: SOD323, SOD523, SOD882, SOD923, SOT23, SOT553, SOT563, SOT353, SOT363, SOT143, SOT23-6L, SOP-8, μ DFN, etc.



特点 Features

- ▲ 响应速度快 Fast response time
- ▲ 小尺寸封装 Small package size
- ▲ 低钳位电压 Low clamping voltage
- ▲ 低漏电流 Low leakage current
- ▲ YINT可提供三种类型的ESD器件：标准电容（大于100pf）,低电容（5-100pF）,超低电容（小于5pf）
YINT offers three types of TVS Diode Arrays: Standard Capacitance(more than 100pF), Low Capacitance (5-100pF), Ultra Low Capacitance(less than 5pF)
- ▲ 符合IEC 61000-4-2(ESD) : Air 15KV , Contact 8KV
Compatible with IEC 61000-4-2(ESD) : Air 15KV , Contact 8KV

Some of the applications discussed in this guide are:

- | | | |
|------------------------|------------------------------|---------------------------------|
| ▲ USB1.1/2.0/3.0 | ▲ 1394a/b | ▲ RS-232 |
| ▲ HDMI | ▲ LVDS | ▲ RS-485 |
| ▲ DisplayPort | ▲ Audio (Speaker/Microphone) | ▲ CAN Bus |
| ▲ DVI | ▲ Analog Video | ▲ Keypad/Push button |
| ▲ 10/100/1000 Ethernet | ▲ SIM Sockets | ▲ LCD/Camera display interfaces |
| ▲ eSATA | | |

Many of these applications can be found in electronic devices such as:

- ▲ PC' s
- ▲ Portable Medical Devices
- ▲ Set Top Boxes
- ▲ LCD/PDP
- ▲ Portable Navigation Devices
- ▲ Keyboards/Mouse
- ▲ Mobile Handsets
- ▲ MP3/PMP' s
- ▲ PDA' s
- ▲ Digital Cameras
- ▲ SIM/SD Cards
- ▲ External Storage
- ▲ Switches/Routers
- ▲ Smart Phone



Definitions and Terms

Reverse Standoff Voltage(V_{RWM})

The V_{RWM} of ESD should be equal to, or greater than the peak operating voltage of circuit(or part of the circuit)to be protected.This is to ensure the normal operation of circuit will not be affected.

Reverse breakdown Voltage(V_{BR})

Clamp Voltage(V_C)

Maximum voltage which can be measured across the protector when subjected to the maximum peak pulse current

Reverse Leakage Current(I_R)

Maximum of state current measured at specified voltage

Junction Capacitance (C)

$V_R=0V$, $f = 1MHz$ Between I/O pins or Any I/O pin to ground

术语定义

反向关断电压 (V_{RWM})

ESD的 V_{RWM} 必须大于或者等于被保护电路（或者被保护电路一部分）的峰值操作电压，这是为了确保ESD器件不影响电路的正常工作。

反向击穿电压(V_{BR})

钳位电压 (V_C)

当受到最大的浪涌电流冲击时，保护器件两端测量到的最大电压

反向漏电流 (I_R)

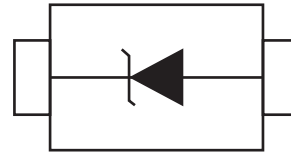
在额定电压下最大的漏电流

结电容 (C)

I/O pin之间或I/O pin与地之间的寄生电容

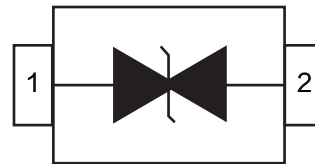
SOD323

| Part number | VRWM | IR (μA) | VBR (V) | IT(mA) | VC (V) @IPP=1A | Ppk | C | PACKAGE |
|-------------|------|---------|---------|--------|-------------------|-----|------|---------|
| | (V) | @ VRWM | @ IT | | | (W) | (pF) | |



| | | | | | | | | |
|----------|-----|----|------|---|------|-----|-----|---------|
| ESD3V3D3 | 3.3 | 10 | 5 | 1 | 6.5 | 350 | 500 | SOD-323 |
| ESD5V0D3 | 5 | 10 | 6 | | 9.8 | 350 | 350 | |
| ESD8V0D3 | 8 | 10 | 8.5 | | 13.4 | 350 | 150 | |
| ESD12VD3 | 12 | 1 | 13.3 | | 19 | 350 | 120 | |
| ESD15VD3 | 15 | 1 | 16.7 | | 24 | 350 | 100 | |
| ESD24VD3 | 24 | 1 | 26.7 | | 43 | 350 | 80 | |
| ESD36VD3 | 36 | 1 | 40 | | 60 | 350 | 30 | |

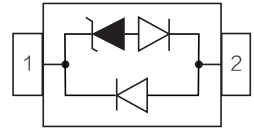
| Part number | VRWM | IR (μA) | VBR (V) | IT(mA) | VC (V) @IPP=1A | Ppk | C | PACKAGE |
|-------------|------|---------|---------|--------|-------------------|-----|------|---------|
| | (V) | @ VRWM | @ IT | | | (W) | (pF) | |



| | | | | | | | | |
|-----------|-----|-----|------|---|------|-----|-----|---------|
| ESD3V3D3B | 3.3 | 200 | 4 | 1 | 7 | 320 | 350 | SOD-323 |
| ESD5V0D3B | 5 | 10 | 6 | | 9.8 | 320 | 260 | |
| ESD8V0D3B | 8 | 5 | 8.5 | | 13.4 | 320 | 120 | |
| ESD12VD3B | 12 | 1 | 13.3 | | 19 | 320 | 110 | |
| ESD15VD3B | 15 | 1 | 16.7 | | 24 | 320 | 100 | |
| ESD24VD3B | 24 | 1 | 26.7 | | 43 | 320 | 75 | |
| ESD36VD3B | 36 | 1 | 40 | | 60 | 320 | 35 | |

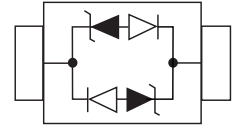
SOD323

| Part number | VRWM | IR (μA) | VBR (V) | IT(mA) | VC (V) | Ppk | C | PACKAGE |
|-------------|------|---------|---------|--------|---------|-----|---|---------|
| | (V) | @ VRWM | @ IT | | @IPP=1A | | | |



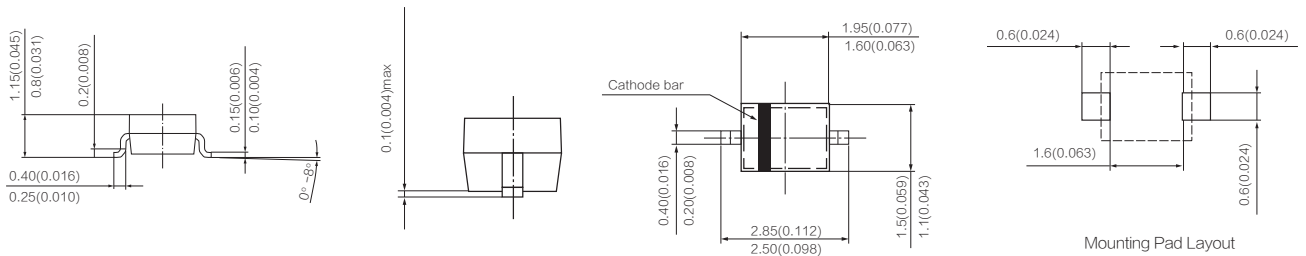
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|------------|-----|----|------|---|------|-----|---|---------|
| ESDLC3V3D3 | 3.3 | 40 | 4 | 1 | 5.15 | 350 | 1 | SOD-323 |
| ESDLC5V0D3 | 5 | 5 | 6 | | 9.8 | 350 | 1 | |
| ESDLC8V0D3 | 8 | 2 | 8.5 | | 13.4 | 350 | 1 | |
| ESDLC12VD3 | 12 | 1 | 13.3 | | 19 | 350 | 1 | |
| ESDLC15VD3 | 15 | 1 | 16.7 | | 24 | 350 | 1 | |
| ESDLC24VD3 | 24 | 1 | 26.7 | | 43 | 350 | 1 | |

| Part number | VRWM | IR (μA) | VBR (V) | IT(mA) | VC (V) | Ppk | C | PACKAGE |
|-------------|------|---------|---------|--------|---------|-----|---|---------|
| | (V) | @ VRWM | @ IT | | @IPP=1A | | | |



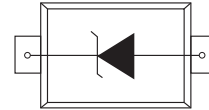
| | | | | | | | | |
|-------------|-----|----|------|---|------|-----|---|---------|
| ESDLC3V3D3B | 3.3 | 40 | 4 | 1 | 7.5 | 350 | 1 | SOD-323 |
| ESDLC5V0D3B | 5 | 5 | 6 | | 9.8 | 350 | 1 | |
| ESDLC8V0D3B | 8 | 2 | 8.5 | | 13.4 | 350 | 1 | |
| ESDLC12VD3B | 12 | 1 | 13.3 | | 19 | 350 | 1 | |
| ESDLC15VD3B | 15 | 1 | 16.7 | | 24 | 350 | 1 | |
| ESDLC24VD3B | 24 | 1 | 26.7 | | 43 | 350 | 1 | |

PACKAGE OUTLINE DIMENSIONS in millimeters (inches) :SOD323



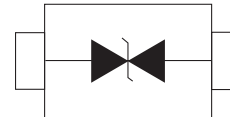
SOD523

| Part number | VRWM | IR (μA) | VBR (V) | IT(mA) | VC (V) @IPP=1A | Ppk | C | PACKAGE |
|-------------|------|---------|---------|--------|-------------------|-----|------|---------|
| | (V) | @ VRWM | @ IT | | | (W) | (pF) | |



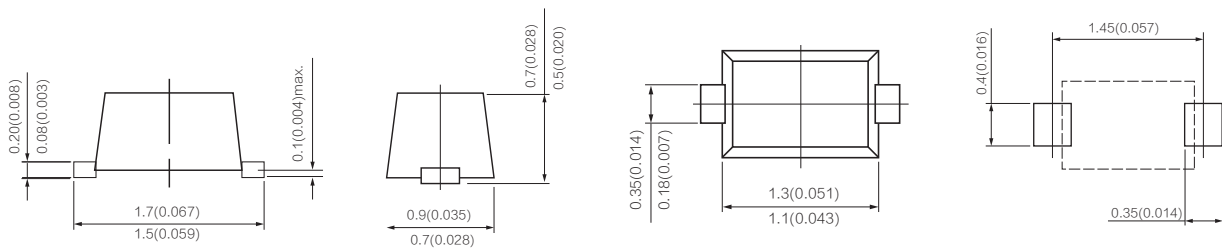
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|-------------|-----|---|------|---|------|-----|-----|--------|
| ESD3V3D5 | 3.3 | 1 | 4 | 1 | 7 | 200 | 105 | SOD523 |
| ESD5V0D5 | 5 | 1 | 6 | | 9.8 | 200 | 25 | |
| ESD8V0D5 | 8 | 5 | 8.5 | | 13 | 200 | 70 | |
| ESD12VD5 | 12 | 1 | 13.3 | | 15 | 200 | 45 | |
| ESD15VD5 | 15 | 1 | 16.6 | | 21 | 200 | 50 | |
| ESD24VD5 | 24 | 1 | 27 | | 40 | 200 | 40 | |
| ESDULC5V0D5 | 5 | 1 | 5.4 | | 12.9 | 200 | 0.5 | |

| Part number | VRWM | IR (μA) | VBR (V) | IT(mA) | VC (V) @IPP=1A | Ppk | C | PACKAGE |
|-------------|------|---------|---------|--------|-------------------|-----|------|---------|
| | (V) | @ VRWM | @ IT | | | (W) | (pF) | |



| | | | | | | | | |
|--------------|-----|-----|-----|---|------|-----|-----|--------|
| ESD3V3D5B | 3.3 | 2.5 | 4 | 1 | 7 | 100 | 18 | SOD523 |
| ESD5V0D5B | 5 | 1 | 6.2 | | 9.8 | 200 | 80 | |
| ESD8V0D5B | 8 | 1 | 8.5 | | 17.5 | 100 | 10 | |
| ESDULC5V0D5B | 5 | 1 | 6 | | 12.9 | 200 | 0.5 | |

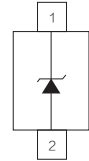
PACKAGE OUTLINE DIMENSIONS in millimeters (inches) :SOD523



Mounting Pad Layout

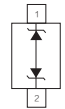
SOD882

| Part number | VRWM | IR (μA) | VBR (V) | IT(mA) | VC (V) | Ppk | C | PACKAGE |
|-------------|------|---------|---------|--------|---------|-----|------|---------|
| | (V) | @ VRWM | @ IT | | @IPP=1A | (W) | (pF) | |



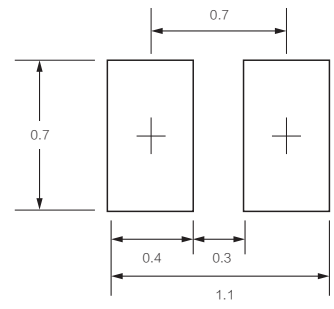
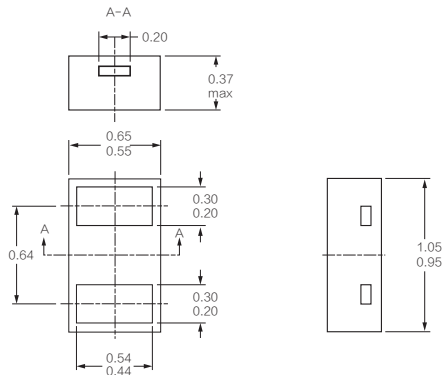
| | | | | | | | | |
|-------------|-----|-----|------|---|------|-----|-----|--------|
| ESD3V3D8 | 3.3 | 2.5 | 5 | 1 | 10.4 | 102 | 80 | SOD882 |
| ESD5V0D8 | 5 | 1 | 6.2 | | 12.3 | 107 | 65 | |
| ESD12VD8 | 12 | 1 | 13.3 | | 23.7 | 140 | 30 | |
| ESD24VD8 | 24 | 1 | 26.7 | | 36 | 100 | 25 | |
| ESDULC3V3D8 | 3.3 | 1 | 4.8 | | 12 | 60 | 0.5 | |
| ESDULC5V0D8 | 5 | 1 | 5.4 | | 9.8 | 120 | 0.5 | |

| Part number | VRWM | IR (μA) | VBR (V) | IT(mA) | VC (V) | Ppk | C | PACKAGE |
|-------------|------|---------|---------|--------|---------|-----|------|---------|
| | (V) | @ VRWM | @ IT | | @IPP=1A | (W) | (pF) | |



| | | | | | | | | |
|--------------|-----|---|------|---|------|-----|-----|--------|
| ESD3V3D8B | 3.3 | 1 | 5 | 1 | 8.4 | 150 | 25 | SOD882 |
| ESD5V0D8B | 5 | 1 | 5.6 | | 11.6 | 100 | 15 | |
| ESD12VD8B | 12 | 1 | 13.3 | | 18 | 72 | 9.5 | |
| ESDLC5V0D8B | 5 | 1 | 5.5 | | 11.5 | 100 | 3.5 | |
| ESDLC24VD8B | 24 | 1 | 27 | | 35 | 180 | 10 | |
| ESDULC3V3D8B | 3.3 | 1 | 4.8 | | 10 | 150 | 0.5 | |
| ESDULC5V0D8B | 5 | 1 | 6 | | 11 | 100 | 0.5 | |

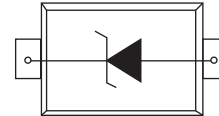
PACKAGE OUTLINE DIMENSIONS in millimeters :SOD882



ESD

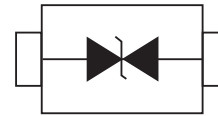
SOD923

| Part number | VRWM | IR (μA) | VBR (V) | IT(mA) | VC (V) @IPP=1A | Ppk | C | PACKAGE |
|-------------|------|---------|---------|--------|-------------------|-----|------|---------|
| | (V) | @ VRWM | @ IT | | | (W) | (pF) | |



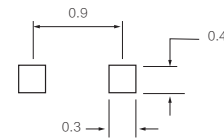
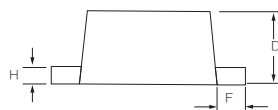
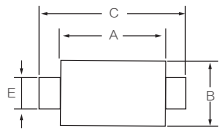
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|-------------|-----|-----|------|---|------|-----|-----|---------|
| ESD3V3D9 | 3.3 | 2.5 | 5 | 1 | 6.5 | 88 | 45 | SOD-923 |
| ESD5V0D9 | 5 | 1 | 6.2 | | 9.8 | 107 | 65 | |
| ESD12VD9 | 12 | 1 | 13.5 | | 23.7 | 140 | 30 | |
| ESDULC3V3D9 | 3.3 | 1 | 4.8 | | 12 | 50 | 0.5 | |
| ESDULC5V0D9 | 5 | 1 | 5.4 | | 9.8 | 50 | 0.5 | |

| Part number | VRWM | IR (μA) | VBR (V) | IT(mA) | VC (V) @IPP=1A | Ppk | C | PACKAGE |
|-------------|------|---------|---------|--------|-------------------|-----|------|---------|
| | (V) | @ VRWM | @ IT | | | (W) | (pF) | |



| | | | | | | | | |
|--------------|-----|---|------|---|------|-----|-----|---------|
| ESD3V3D9B | 3.3 | 1 | 5.1 | 1 | 14.1 | 150 | 25 | SOD-923 |
| ESD5V0D9B | 5 | 1 | 6 | | 18.6 | 150 | 15 | |
| ESD12V0D9B | 12 | 1 | 13.8 | | 30 | 150 | 14 | |
| ESDULC3V3D9B | 3.3 | 1 | 4.8 | | 10 | 50 | 0.9 | |
| ESDULC5V0D9B | 5 | 1 | 5.4 | | 12.9 | 50 | 0.9 | |

PACKAGE OUTLINE DIMENSIONS in millimeters (inches) :SOD923

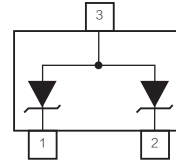


Mounting Pad Layout(mm)

| Dim | Inches | | Millimeters | |
|-----|--------|-------|-------------|------|
| | MIN | MAX | MIN | MAX |
| A | 0.030 | 0.033 | 0.75 | 0.85 |
| B | 0.022 | 0.026 | 0.55 | 0.65 |
| C | 0.037 | 0.041 | 0.95 | 1.05 |
| D | 0.014 | 0.017 | 0.36 | 0.43 |
| E | 0.006 | 0.010 | 0.15 | 0.25 |
| F | 0.002 | 0.006 | 0.05 | 0.15 |
| H | 0.003 | 0.007 | 0.07 | 0.17 |

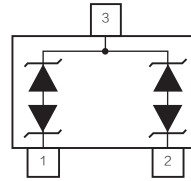
SOT23

| Part number | VRWM | IR (μ A) | VBR (V) | IT(mA) | VC (V) | Ppk | C | PACKAGE |
|-------------|------|---------------|---------|--------|---------|-----|------|---------|
| | (V) | @ VRWM | @ IT | | @IPP=1A | (W) | (pF) | |



| | | | | | | | | |
|----------|-----|----|------|---|------|-----|-----|-------|
| ESD3V3AP | 3.3 | 10 | 5.9 | 1 | 9.3 | 300 | 120 | SOT23 |
| ESD5V0AP | 5 | 10 | 6.2 | | 9.8 | 300 | 110 | |
| ESD8V0AP | 8 | 5 | 8.5 | | 16.9 | 300 | 250 | |
| ESD12VAP | 12 | 1 | 13.3 | | 19 | 300 | 60 | |
| ESD15VAP | 15 | 1 | 16.7 | | 30 | 300 | 100 | |
| ESD24VAP | 24 | 1 | 26.7 | | 49 | 300 | 90 | |
| ESD36VAP | 36 | 1 | 40 | | 76.8 | 300 | 75 | |

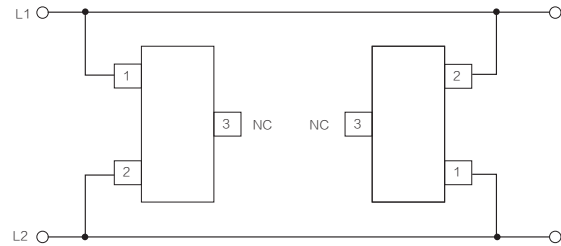
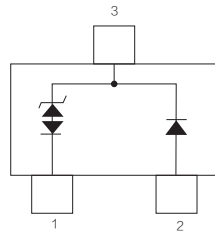
| Part number | VRWM | IR (μ A) | VBR (V) | IT(mA) | VC (V) | Ppk | C | PACKAGE |
|-------------|------|---------------|---------|--------|---------|-----|------|---------|
| | (V) | @ VRWM | @ IT | | @IPP=1A | (W) | (pF) | |



| | | | | | | | | |
|-------------|-----|----|------|---|------|-----|-----|-------|
| ESD3V3APB | 3.3 | 40 | 4 | 1 | 10.5 | 350 | 220 | SOT23 |
| ESD5V0APB | 5 | 1 | 6 | | 12 | 300 | 80 | |
| ESD8V0APB | 8 | 1 | 8.5 | | 24 | 350 | 75 | |
| ESD12VAPB | 12 | 1 | 13.3 | | 30 | 300 | 35 | |
| ESD15VAPB | 15 | 1 | 16.7 | | 38 | 350 | 60 | |
| ESD24VAPB | 24 | 1 | 27 | | 45 | 300 | 25 | |
| ESD36VAPB | 36 | 1 | 38 | | 60 | 300 | 20 | |
| ESDLC5V0APB | 5 | 1 | 5.8 | | 10 | 50 | 15 | |

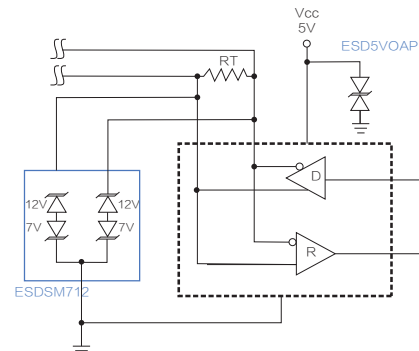
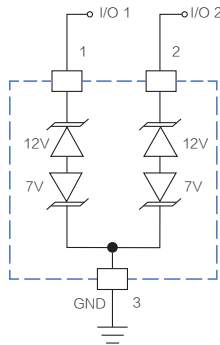
SOT23

| Part number | VRWM | IR (μA) | VBR (V) | IT(mA) | VC (V) @IPP=1A | Ppk | C | PACKAGE |
|-------------|------|---------|---------|--------|-------------------|-----|------|---------|
| | (V) | @ VRWM | @ IT | | | (W) | (pF) | |



| | | | | | | | | |
|------------|-----|---|---|---|----|-----|---|-------|
| ESDSLVU2.8 | 2.8 | 1 | 3 | 1 | 15 | 400 | 2 | SOT23 |
|------------|-----|---|---|---|----|-----|---|-------|

| Part number | VRWM | IR (μA) | VBR (V) | IT(mA) | VC (V) @IPP=1A | Ppk | C | PACKAGE |
|-------------|------|---------|---------|--------|-------------------|-----|------|---------|
| | (V) | @ VRWM | @ IT | | | (W) | (pF) | |



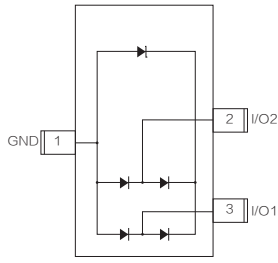
| | | | | | | | | | |
|----------|-----------------|----|----|------|---|----|-----|----|-------|
| ESDSM712 | Pin 1 or 2 to 3 | 12 | 1 | 13.3 | 1 | 26 | 400 | 45 | SOT23 |
| | Pin 3 to 1 or 2 | 7 | 20 | 7.5 | | 12 | | | |

SOT23

| Part number | VRWM | IR (μA) | VBR (V) | IT(mA) | VC (V) @IPP=1A | Ppk | C | PACKAGE |
|-------------|------|---------|---------|--------|-------------------|-----|------|---------|
| | (V) | @ VRWM | @ IT | | | (W) | (pF) | |



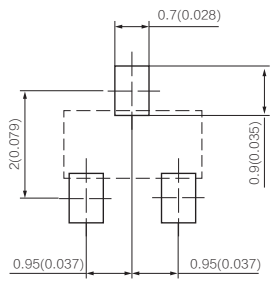
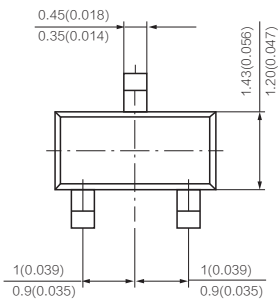
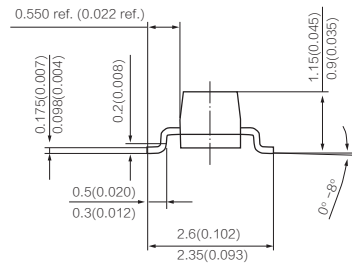
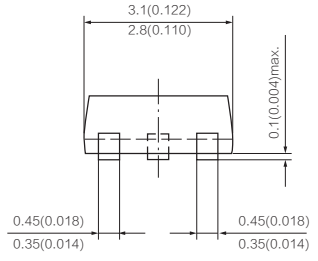
SOT-23



SOT-23-3L(Top view)

| | | | | | | | | |
|-----------|---|---|---|---|-----|-----|-----|--------|
| ESDSR05AP | 5 | 1 | 6 | 1 | 8.5 | 150 | 1.2 | SOT-23 |
|-----------|---|---|---|---|-----|-----|-----|--------|

PACKAGE OUTLINE DIMENSIONS in millimeters (inches) :SOT-23

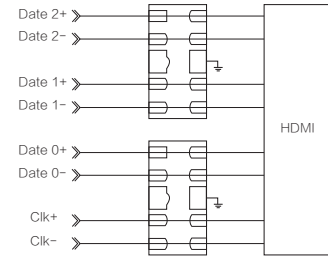
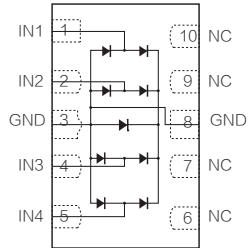


Mounting Pad Layout

ESD

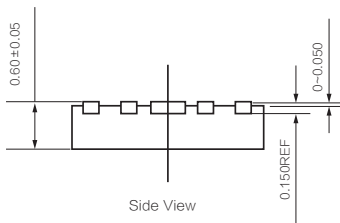
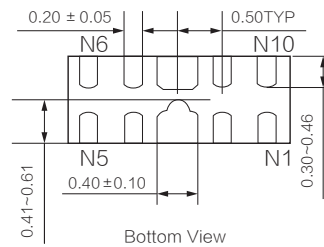
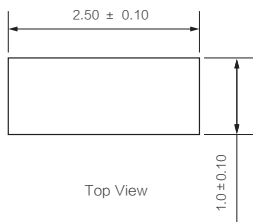
DFN

| Part number | VRWM | IR (μA) | VBR (V) | IT(mA) | VC (V) | Ppk | C | PACKAGE |
|-------------|------|---------|---------|--------|----------|-----|------|---------|
| | (V) | @ VRWM | @ IT | | @ IPP=1A | (W) | (pF) | |



| | | | | | | | | |
|----------|---|---|---|---|-----|-----|------|------------------------|
| ESD0524P | 5 | 1 | 6 | 1 | 8.5 | 150 | 0.35 | DFN-10-2.5*1.0*0.6-0.5 |
|----------|---|---|---|---|-----|-----|------|------------------------|

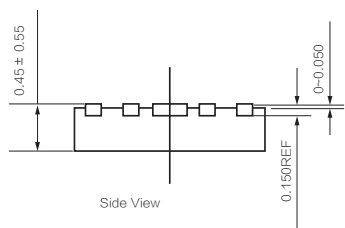
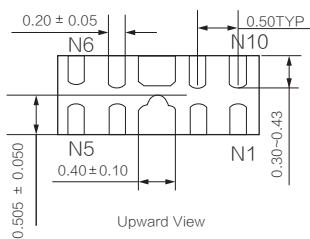
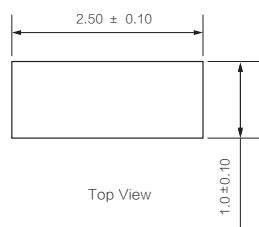
DFN-10-2.5*1.0*0.6-0.5 (1)



DFN

ESD

DFN-10-2.5*1.0*0.6-0.5 (2)



DFN

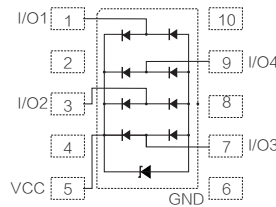
| Part number | VRWM | IR (μA) | VBR (V) | IT(mA) | VC (V) @IPP=1A | Ppk | C | PACKAGE |
|-------------|------|---------|---------|--------|-------------------|-----|------|---------|
| | (V) | @ VRWM | @ IT | | | (W) | (pF) | |



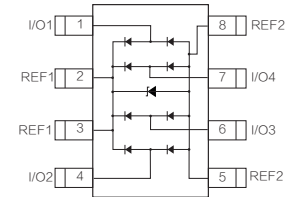
DFN-10-2.5X2.5X0.6-0.5



SOP-8-255-1.27



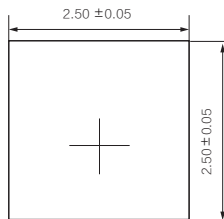
DFN-10-2.5X2.5X0.6-0.5(Top view)



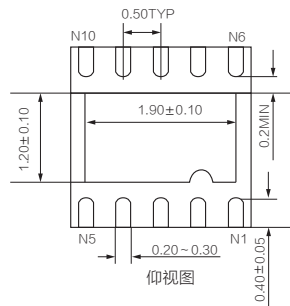
SOP-8-225-1.27(Top view)

| | | | | | | | | |
|----------|-----|---|-----|---|----|-----|-----|------------------------|
| ESD3304P | 3.3 | 1 | 3.8 | 1 | 12 | 450 | 3.5 | DFN-10-2.5*2.5*0.6-0.5 |
| ESD3304S | 3.3 | 1 | 3.8 | 1 | 12 | 450 | 3.5 | SOP-8-225-1.27 |

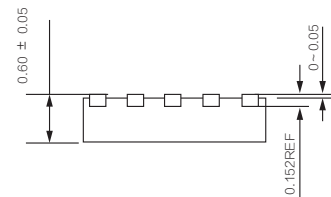
DFN-10-2.5 × 2.5 × 0.6-0.5



俯视图

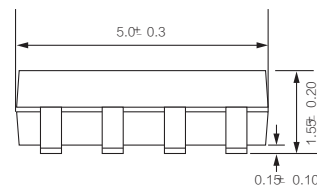
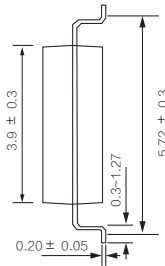
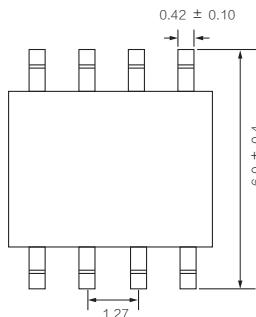


仰视图



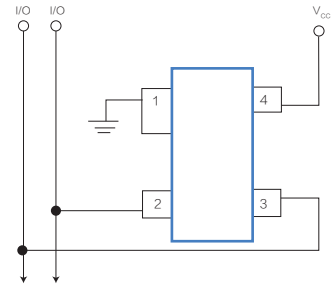
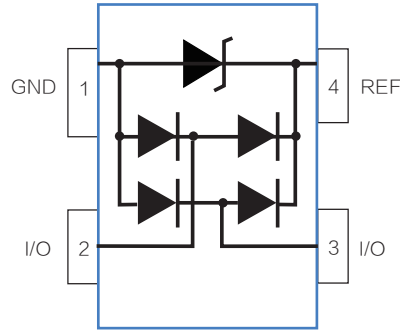
侧视图

SOP-8-225-1.27



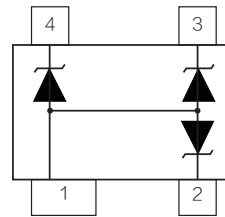
SOT-143

| Part number | VRWM | IR (μA) | VBR (V) | IT(mA) | VC (V) | IPP | Ppk | C | PACKAGE |
|-------------|------|---------|---------|--------|---------|-----|-----|---|---------|
| | (V) | @ VRWM | @ IT | | @IPP=1A | | | | |



| | | | | | | | | | |
|---------|---|---|---|---|-----|----|-----|-----|---------|
| ESDSR05 | 5 | 5 | 6 | 1 | 9.8 | 12 | 500 | 2.5 | SOT-143 |
|---------|---|---|---|---|-----|----|-----|-----|---------|

| Part number | VRWM | IR (μA) | VBR (V) | IT(mA) | VC (V) | IPP | Ppk | C | PACKAGE |
|-------------|------|---------|---------|--------|---------|-----|-----|---|---------|
| | (V) | @ VRWM | @ IT | | @IPP=1A | | | | |

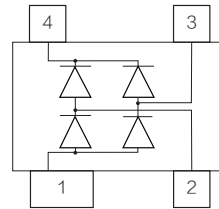


| | | | | | | | | | |
|----------|---|---|---|---|-----|----|-----|----|---------|
| ESD5V0L3 | 5 | 5 | 6 | 1 | 9.8 | 12 | 100 | 30 | SOT-143 |
|----------|---|---|---|---|-----|----|-----|----|---------|

ESD

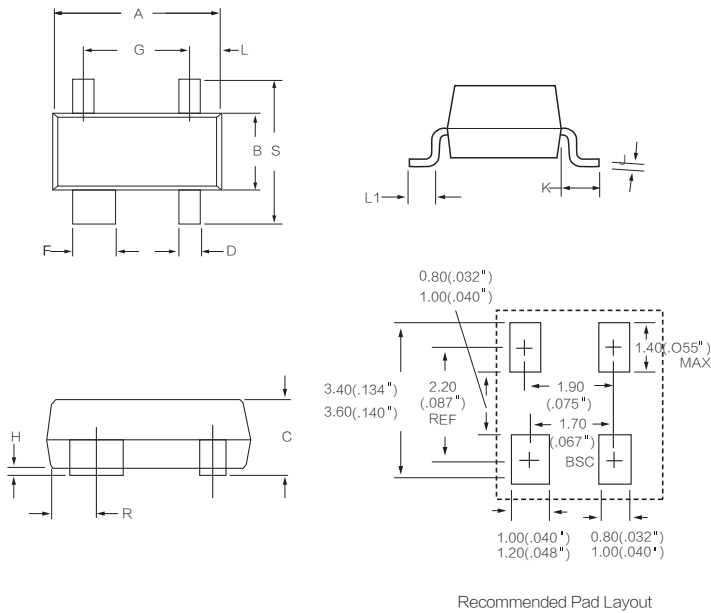
SOT-143

| Part number | VRWM | IR (μA) | VBR (V) | IT(mA) | VC (V) | IPP | Ppk | C | PACKAGE |
|-------------|------|---------|---------|--------|---------|-----|-----|------|---------|
| | (V) | @ VRWM | @ IT | | @IPP=1A | (A) | (W) | (pF) | |



| | | | | | | | | | |
|---------|----|---|----|----|-----|----|---|---|---------|
| ESDSR70 | 70 | 5 | 85 | 50 | 1.5 | 24 | / | 3 | SOT-143 |
|---------|----|---|----|----|-----|----|---|---|---------|

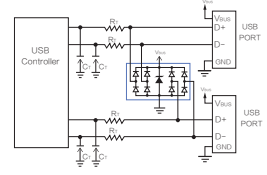
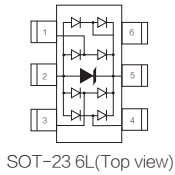
PACKAGE OUTLINE DIMENSIONS in inches (millimeters) SOT-143



| Dim | Inches | | Millimeters | |
|-----|--------|------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 2.80 | 3.04 | 0.110 | 0.120 |
| B | 1.20 | 1.39 | 0.047 | 0.055 |
| C | 0.84 | 1.14 | 0.033 | 0.045 |
| D | 0.39 | 0.50 | 0.015 | 0.020 |
| F | 0.79 | 0.93 | 0.031 | 0.037 |
| G | 1.78 | 2.03 | 0.070 | 0.080 |
| J | 0.08 | 0.15 | 0.003 | 0.006 |
| K | 0.46 | 0.60 | 0.018 | 0.024 |
| L | 0.045 | 0.60 | 0.0175 | 0.024 |
| L1 | 0.4 | 0.60 | 0.016 | 0.024 |
| R | 0.72 | 0.83 | 0.028 | 0.033 |
| S | 2.11 | 2.48 | 0.083 | 0.098 |

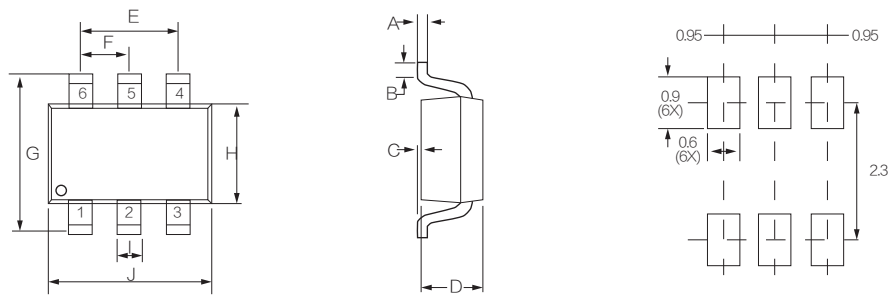
SOT23-6L

| Part number | VRWM | IR (μA) | VBR (V) | IT(mA) | VC (V) | Ppk | C | PACKAGE |
|-------------|------|---------|---------|--------|---------|-----|------|---------|
| | (V) | @ VRWM | @ IT | | @IPP=1A | (W) | (pF) | |



| | | | | | | | | |
|--------------|---|---|---|---|------|-----|-----|----------|
| ESDSRV05-4 | 5 | 1 | 6 | 1 | 12.5 | 350 | 2.5 | SOT23-6L |
| ESDSRVLC05-4 | 5 | 1 | 6 | 1 | 12.5 | 350 | 0.8 | |

PACKAGE OUTLINE DIMENSIONS in inches (millimeters) SOT23-6L

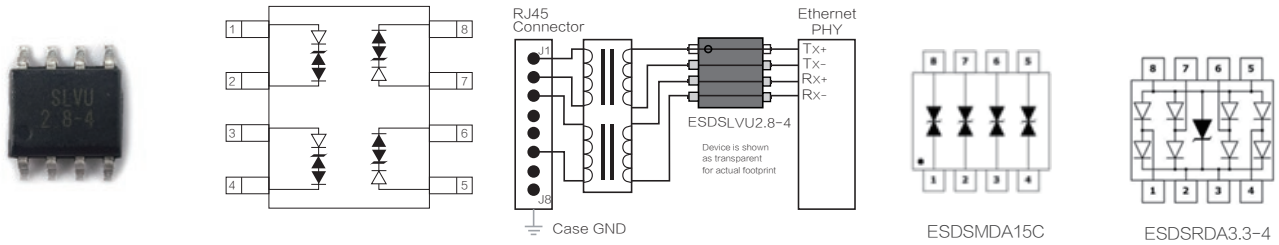


| SYMBOL | DIMENSIONS | | | |
|--------|------------|-------|-------------|------|
| | INCHES | | MILLIMETERS | |
| | MIN | MAX | MIN | MAX |
| A | 0.004 | 0.007 | 0.11 | 0.19 |
| B | 0.016 | - | 0.40 | - |
| C | - | 0.004 | - | 0.10 |
| D | 0.039 | 0.047 | 1.00 | 1.20 |
| E | 0.074 | 0.075 | 1.88 | 1.92 |
| F | 0.037 | 0.038 | 0.93 | 0.97 |
| G | 0.102 | 0.118 | 2.60 | 3.00 |
| H | 0.059 | 0.067 | 1.50 | 1.70 |
| I | 0.016 | 0.016 | 41 | 41 |
| J | 0.110 | 0.118 | 2.80 | 3.00 |

ESD

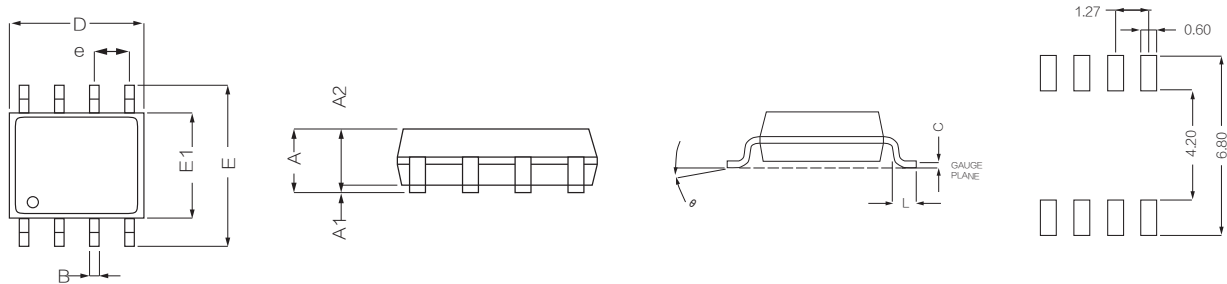
SOP-8

| Part number | VRWM | IR (μA) | VBR (V) | IT(mA) | VC (V) | IPP | Ppk | C | PACKAGE |
|-------------|------|---------|---------|--------|----------|-----|-----|------|---------|
| | (V) | @ VRWM | @ IT | | @ IPP=1A | (A) | (W) | (pF) | |



| | | | | | | | | | |
|--------------|-----|----|------|---|------|----|-----|----|-------|
| ESDSLVU2.8-4 | 2.8 | 1 | 3 | 1 | 5.5 | 24 | 400 | 3 | SOP-8 |
| ESDSMDA15C | 15 | 1 | 16.7 | 1 | 30 | 5 | 500 | 80 | |
| ESDSRDA3.3-4 | 3.3 | 40 | 4 | 1 | 15.5 | 27 | 500 | 5 | |

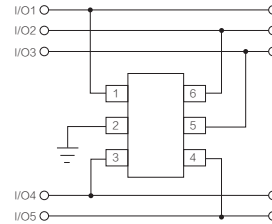
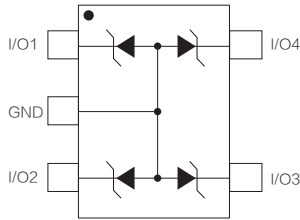
PACKAGE OUTLINE DIMENSIONS SOP-8



| SYMBOL | DIMENSIONS | | | |
|--------|------------|-------|-------------|------|
| | INCHES | | MILLIMETERS | |
| | MIN | MAX | MIN | MAX |
| A | 0.053 | 0.069 | 1.35 | 1.75 |
| A1 | 0.004 | 0.010 | 0.10 | 0.25 |
| A2 | 0.050 | 0.065 | 1.25 | 1.65 |
| B | 0.012 | 0.020 | 0.31 | 0.51 |
| c | 0.007 | 0.010 | 0.17 | 0.25 |
| D | 0.189 | 0.197 | 4.80 | 5.00 |
| E | 0.228 | 0.244 | 5.80 | 6.20 |
| E1 | 0.150 | 0.157 | 3.80 | 4.00 |
| e | 0.050BSC | | 1.27BSC | |
| L | 0.016 | 0.050 | 0.40 | 1.27 |

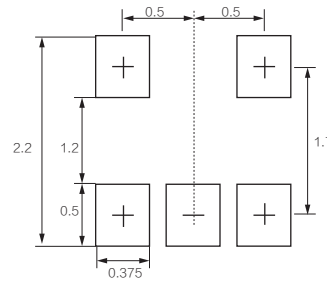
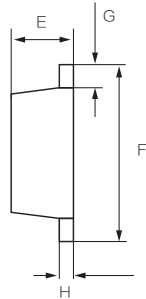
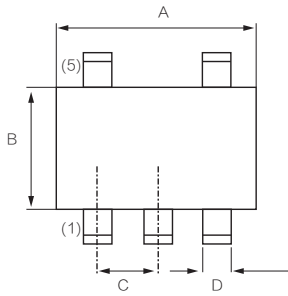
SOT-553

| Part number | VRWM | IR (μA) | VBR (V) | IT(mA) | VC (V) @IPP=1A | Ppk | C | PACKAGE |
|-------------|------|---------|---------|--------|-------------------|-----|------|---------|
| | (V) | @ VRWM | @ IT | | | (W) | (pF) | |



| | | | | | | | | |
|----------|---|---|-----|---|-----|----|----|---------|
| ESD5V0L4 | 5 | 1 | 6 | 1 | 9.8 | 20 | 8 | SOT-553 |
| ESD3V0J4 | 3 | 1 | 5.3 | 1 | 8 | 20 | 9 | SOT-353 |
| ESD5V0J4 | 5 | 5 | 6 | 1 | 12 | 60 | 30 | SOT-353 |

PACKAGE OUTLINE DIMENSIONS : SOT - 553

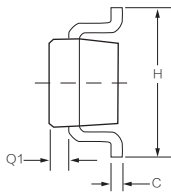
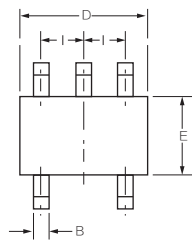
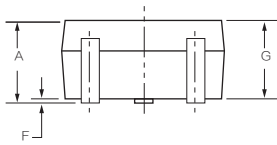


| SYMBOL | DIMENSIONS | | | |
|--------|------------|------|-------------|-------|
| | INCHES | | MILLIMETERS | |
| | MIN | MAX | MIN | MAX |
| A | 1.50 | 1.70 | 0.059 | 0.067 |
| B | 1.10 | 1.30 | 0.043 | 0.051 |
| C | 0.50BSC | | 0.020BSC | |
| D | 0.17 | 0.27 | 0.007 | 0.011 |
| E | 0.50 | 0.60 | 0.020 | 0.024 |
| F | 1.50 | 1.70 | 0.059 | 0.067 |
| G | 0.10 | 0.30 | 0.004 | 0.012 |
| H | 0.08 | 0.16 | 0.003 | 0.006 |

ESD

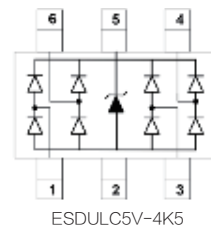
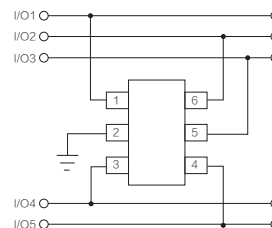
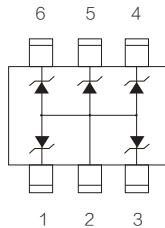
SOT-353

PACKAGE OUTLINE DIMENSIONS : SOT - 353



| Dimension | MM (INCHES) | |
|-----------|-----------------|----------------------|
| | MAX | MIN |
| A | 0.80 (0.031) | 1.10 (0.043) |
| B | 0.15 (0.006) | 0.30 (0.012) |
| C | 0.10 (0.004) | 0.18 (0.007) |
| D | 1.80 (0.071) | 2.20 (0.087) |
| E | 1.15 (0.045) | 1.35 (0.053) |
| F | | 0.10 (0.004) |
| G | 0.80 (0.031) | 1.00 (0.039) |
| H | 1.80 (0.071) | 2.40 (0.094) |
| I | | TYP: 0.65 (0.026) |
| Q1 | 0.10 (0.004) | 0.40 (0.016) |

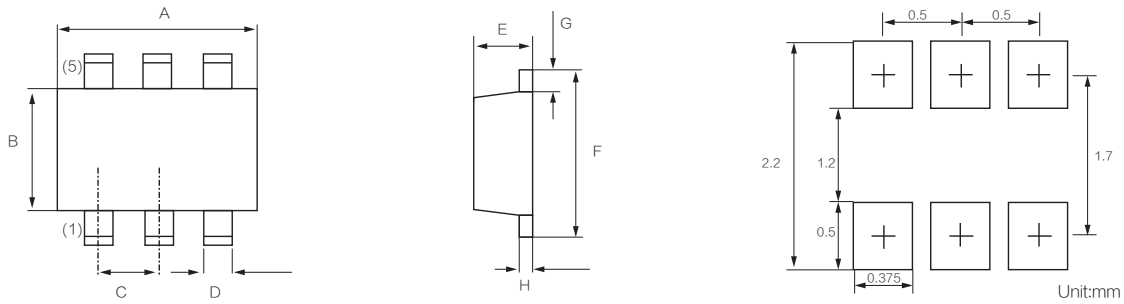
| Part number | VRWM | IR (μA) | VBR (V) | IT(mA) | VC (V) @IPP=1A | Ppk | C | PACKAGE |
|-------------|------|---------|---------|--------|-------------------|-----|------|---------|
| | (V) | @ VRWM | @ IT | | | (W) | (pF) | |



| | | | | | | | | |
|--------------|---|---|---|---|----|-----|-----|---------|
| ESD5V0M5 | 5 | 5 | 6 | 1 | 12 | 60 | 30 | SOT-563 |
| ESD5V0K5 | 5 | 5 | 6 | 1 | 12 | 60 | 30 | SOT-363 |
| ESDULC5V-4K5 | 5 | 1 | 6 | 1 | 20 | 100 | 0.8 | SOT-363 |

SOT-563

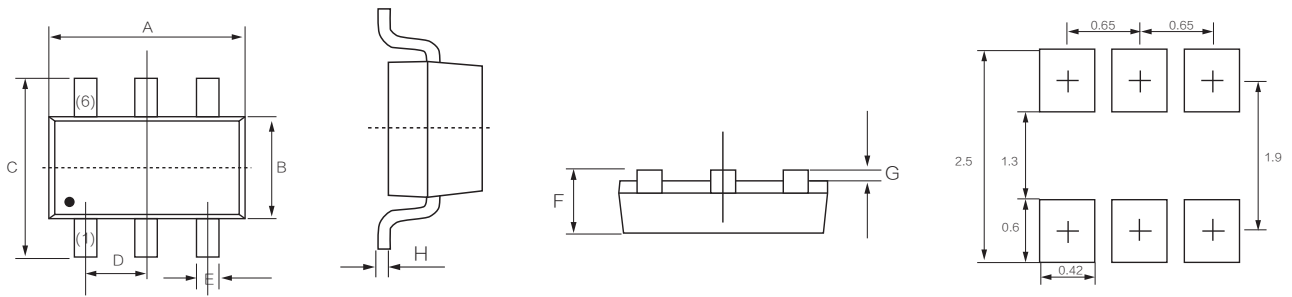
PACKAGE OUTLINE DIMENSIONS in millimeters (inches) :SOT-563



| SYMBOL | DIMENSIONS | | | |
|--------|------------|------|-------------|-------|
| | INCHES | | MILLIMETERS | |
| | MIN | MAX | MIN | MAX |
| A | 1.50 | 1.70 | 0.059 | 0.067 |
| B | 1.10 | 1.30 | 0.043 | 0.051 |
| C | 0.50BSC | | 0.020BSC | |
| D | 0.17 | 0.27 | 0.007 | 0.011 |
| E | 0.50 | 0.60 | 0.020 | 0.024 |
| F | 1.50 | 1.70 | 0.059 | 0.067 |
| G | 0.10 | 0.30 | 0.004 | 0.012 |
| H | 0.08 | 0.16 | 0.003 | 0.006 |

SOT-363

PACKAGE OUTLINE DIMENSIONS : SOT-363



| SYMBOL | DIMENSIONS | | | |
|--------|------------|------|-------------|-------|
| | INCHES | | MILLIMETERS | |
| | MIN | MAX | MIN | MAX |
| A | 2.0 | 2.2 | 0.079 | 0.087 |
| B | 1.15 | 1.35 | 0.045 | 0.053 |
| C | 2.15 | 2.45 | 0.085 | 0.096 |
| D | 0.65BSC | | 0.026BSC | |
| E | 0.15 | 0.35 | 0.006 | 0.014 |
| F | 0.90 | 1.10 | 0.035 | 0.043 |
| G | 0.00 | 0.10 | 0.000 | 0.004 |
| H | 0.08 | 0.15 | 0.003 | 0.006 |

ESD抑制器电容很小，可适用于高速信号电路(IEEE 1394, USB 2.0, HDMI, DVI, etc.)的保护，并且有单路和多路的封装，在提供ESD保护的同时，也可保证信号的完整性。

ESD Suppressors offer extremely low capacitance which makes them ideal for use in high-speed data circuits (IEEE 1394, USB 2.0, HDMI, DVI, etc.). Available in single-line and multi-line packages, they provide ESD protection while ensuring that signal integrity is maintained.

| Part Number | Working Voltage DC | Clamping Voltage 8/20 μ S 1A | Reverse Leakage Current | Capacitance | IEC61000-4-2 |
|---------------|--------------------|-------------------------------------|-------------------------|-------------|------------------------------|
| | V | VC Max | I _R | @1MHZ | |
| | | | | Ref.PF | |
| ESD040205P015 | 5.0 | 30 | 1 | 0.15 | Contact :>8KV Air : >15KV |
| ESD040208P030 | 8.0 | 45 | 1 | 0.3 | |
| ESD040212P060 | 12.0 | 50 | 1 | 0.6 | |
| ESD040215P080 | 15.0 | 60 | 1 | 0.8 | |
| ESD040218P080 | 18.0 | 65 | 1 | 0.8 | |
| ESD040224P080 | 24.0 | 80 | 1 | 0.8 | |
| ESD060305P015 | 5.0 | 30 | 1 | 0.15 | |
| ESD060308P030 | 8.0 | 45 | 1 | 0.3 | |
| ESD060312P060 | 12.0 | 50 | 1 | 0.6 | |
| ESD060315P080 | 15.0 | 60 | 1 | 0.8 | |
| ESD060318P080 | 18.0 | 65 | 1 | 0.8 | |
| ESD060324P080 | 24.0 | 80 | 1 | 0.8 | |

- ▲ The application tolerates very little added capacitance (high speed data lines or RF circuits)
- ▲ ESD is the only transient threat
- ▲ Protection is required on data, signal, and control lines (not power supply lines)