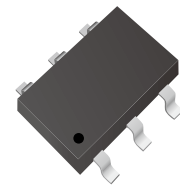


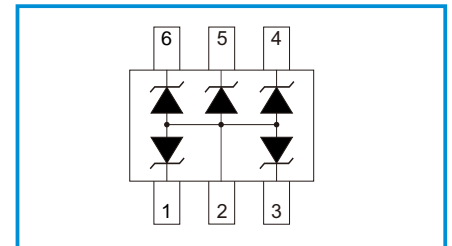
Ultra Low Capacitance ESD Protection Array

Features

- Transient protection for high-speed data lines
IEC 61000-4-2(ESD) $\pm 25\text{KV(Air)}$
 $\pm 20\text{KV(Contact)}$
IEC 61000-4-4(EFT)40A(5/50ns)
Cable Discharge Event(CDE)
- Package optimized for high-speed lines
- Small package(2.1mm*2.3mm*1.0mm)
- Protects four data lines and one Vcc line
- Low capacitance: 0.20pF (I/O to I/O)
- Low leakage current
- Low clamping voltage
- Each I/O pin can withstand over 1000 ESD strikes
for $\pm 8\text{KV}$ contact discharge



Functional Diagram



Mechanical Datas

- SOT-363 package
- Flammability Rating: UL 94V-0
- Terminal: Matte tin plated.
- Packaging: Tape and Reel
- High temperature soldering guaranteed: $260^{\circ}\text{C}/10\text{s}$
- Reel size: 7 inch
- Marking: F54

Applications

- Serial ATA
- MDDI Ports
- USB 2.0/3.0 Power and Data Line Protection
- Display Ports
- High Definition Multi-Media Interface (HDMI)
- Digital Visual Interface (DVI)

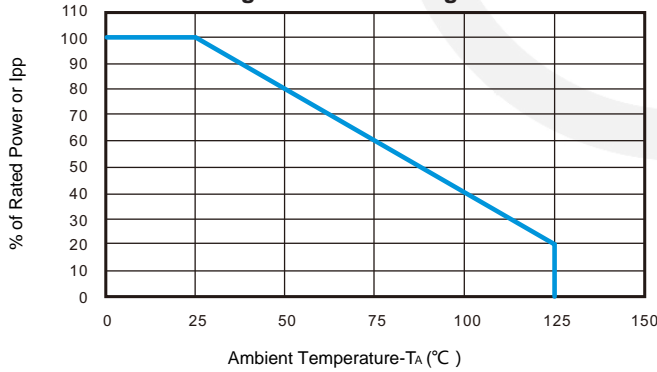
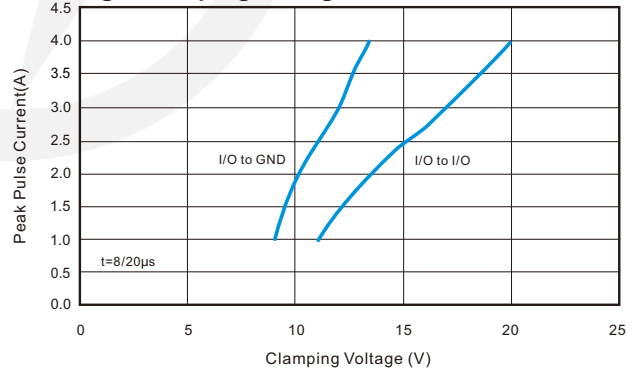
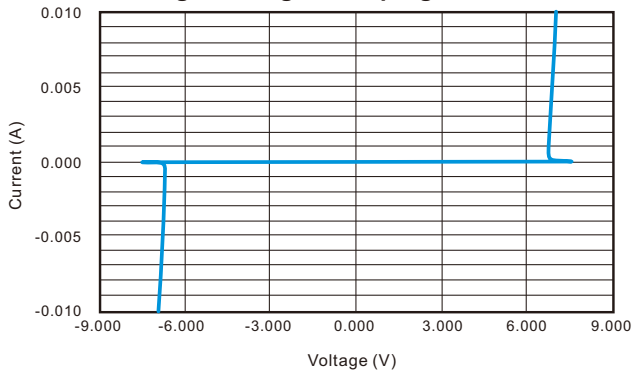
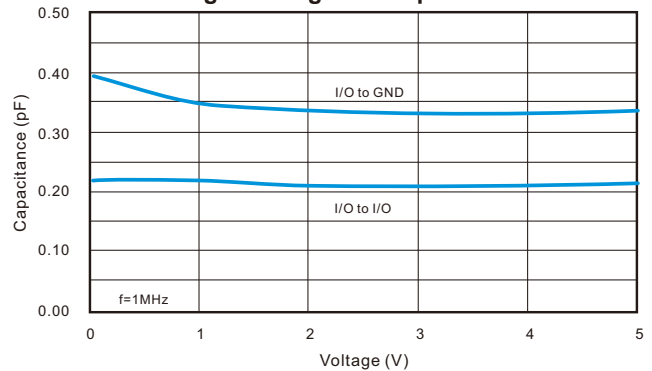
Absolute Maximum Ratings ($T_{amb}=25^{\circ}\text{C}$ unless otherwise specified)

| Symbol | Parameter | Value | Units |
|-----------|--|----------------------|--------------------|
| P_{PP} | Peak Pulse Power (8/20 μs) | 60 | W |
| V_{ESD} | ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact) | ± 25 ± 20 | kV |
| T_{OPT} | Operating Temperature | -55/+125 | $^{\circ}\text{C}$ |
| T_{STG} | Storage Temperature | -55/+150 | $^{\circ}\text{C}$ |

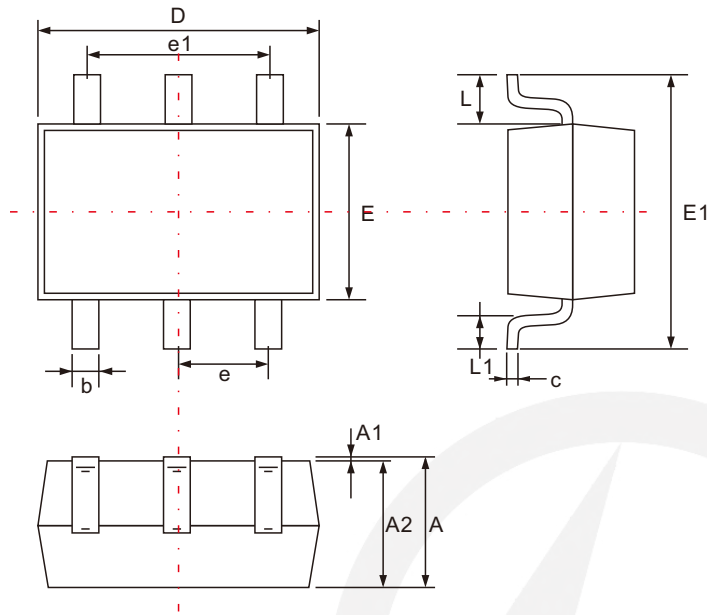
Electrical Characteristics($T_A=25^{\circ}\text{C}$ unless otherwise specified)

| Symbol | Parameter | Test Condition | Min | Typ | Max | Units |
|-----------|---------------------------|---|-----|------|------|---------------|
| V_{RWM} | Reverse Working Voltage | Any I/O pin to GND | | | 5.0 | V |
| V_{BR} | Reverse Breakdown Voltage | $I_T = 1\text{mA}$ Any I/O pin to GND | 6.0 | | 9.0 | V |
| I_R | Reverse Leakage Current | $V_{RWM} = 5\text{V}$ Any I/O pin to GND | | | 1.0 | μA |
| V_C | Clamping Voltage | $I_{PP} = 1\text{A}, t_p = 8/20\mu\text{s}$ Any I/O pin to GND | | | 10 | V |
| | | $I_{PP} = 4\text{A}, t_p = 8/20\mu\text{s}$ Any I/O pin to GND | | | 15 | V |
| | | $I_{PP} = 8\text{A}, t_p = 8/20\mu\text{s}$ Vcc pin to GND | | | 15 | V |
| C_{ESD} | Parasitic Capacitance | $V_R = 0\text{V}, f = 1\text{MHz}$ Between I/O and I/O | | 0.20 | 0.50 | pF |
| | | $V_R = 0\text{V}, f = 1\text{MHz}$ Between I/O and GND | | 0.45 | 0.80 | pF |
| | | $V_R = 0\text{V}, f = 1\text{MHz}$ Between Vcc and GND | | 0.80 | | pF |

Note: I/O Pins are pin 1,3,4,6. Pin 5 is Vcc. Pin 2 is GND.

Characteristic Curves
Fig 1 Power Derating Curve

Fig2 Clamping Voltage vs Peak Pulse Current

Fig3 Voltage Sweeping of I/O to I/O

Fig4 Voltage vs Capacitance


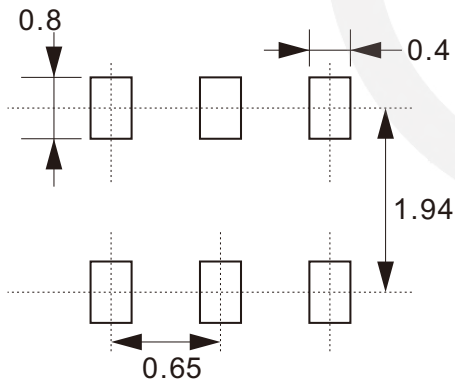
SOT-363 Package Outline



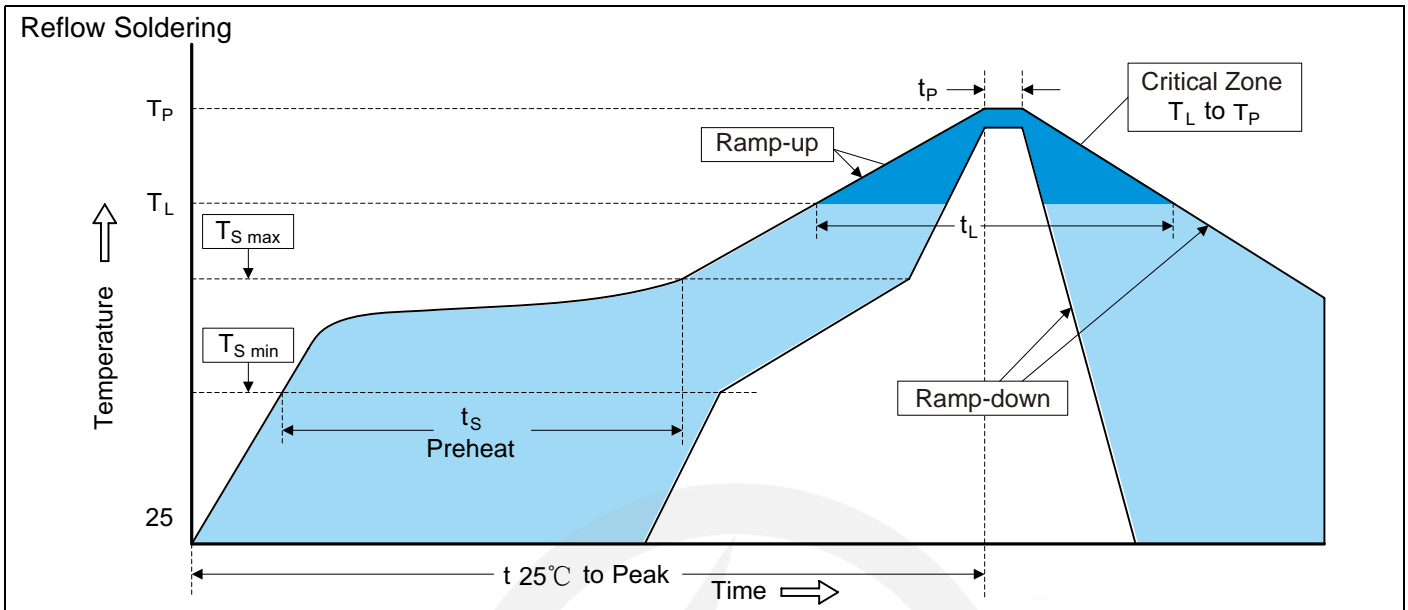
Unit: mm

| SYMBOL | DIMENSIONS | |
|--------|------------|-------|
| | MIN. | MAX. |
| A | 0.900 | 1.100 |
| A1 | 0.000 | 0.100 |
| A2 | 0.900 | 1.000 |
| b | 0.150 | 0.350 |
| c | 0.080 | 0.150 |
| D | 2.000 | 2.200 |
| E | 1.150 | 1.350 |
| E1 | 2.150 | 2.450 |
| e | 0.650 TYP. | |
| e1 | 1.200 | 1.400 |
| L | 0.525 TYP. | |
| L1 | 0.260 | 0.460 |
| θ | 0° | 8° |

SOT-363 Suggested Pad Layout



- Note:
1. Controlling dimension: in millimeters.
 2. General tolerance: $\pm 0.05\text{mm}$
 3. The pad layout is for reference purpose only.

Recommended Soldering Conditions

Recommended Conditions

| Profile Feature | Pb-Free Assembly |
|---|----------------------------------|
| Average ramp-up rate (T_L to T_P) | 3°C/second max. |
| Preheat -Temperature Min ($T_{S\ min}$) -Temperature Max ($T_{S\ max}$) -Time (min to max) (t_s) | 150°C 200°C 60-180 seconds |
| $T_{S\ max}$ to T_L -Ramp-up Rate | 3°C/second max. |
| Time maintained above: -Temperature (T_L) -Time (t_L) | 217°C 60-150 seconds |
| Peak Temperature (T_P) | 260°C |
| Time within 5°C of actual Peak Temperature (t_P) | 20-40 seconds |
| Ramp-down Rate | 6°C/second max. |
| Time 25°C to Peak Temperature | 8 minutes max. |

7" Reel


| | |
|----|----------------------|
| D2 | $\Phi 178.0 \pm 2.0$ |
|----|----------------------|

| | |
|----|--------------------------|
| D3 | $\Phi 50.0 \text{ Min.}$ |
|----|--------------------------|

| | |
|----|---------------------|
| D4 | $\Phi 13.0 \pm 0.5$ |
|----|---------------------|

| | |
|----|----------------|
| W1 | 16.0 ± 2.0 |
|----|----------------|

Quantity: 3000PCS