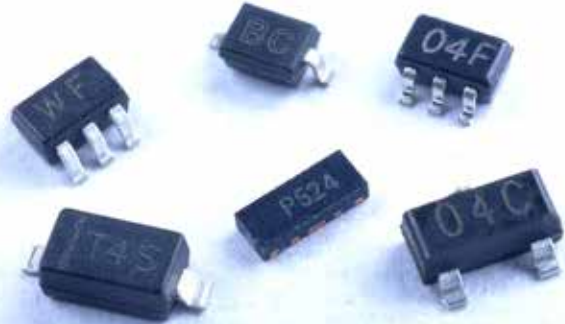


**RUILON**

瑞隆源电子



# TVS/ESD Arrays

RLST23Axx2V Series

**361°** Circuit Protection  
System

Revision:DEC-16

Please refer to <http://www.ruilon.com.cn> for current information.

## TVS/ESD Arrays - RLST23Axx2V Series

### Features

- 350 Watts Peak Pulse Power per Line ( $t_p = 8/20\mu s$ )
- Working voltages: 3.3V、 5V、 8V、 12V、 15V、 24V、 36V
- Low Leakage Current
- Low operating and clamping voltages
- Lead Free/RoHS compliant
- Solid-state silicon avalanche technology
- Provides ESD protection to IEC61000-4-2(ESD):
  - ±15kV (air discharge)
  - ±8kV (contact discharge)



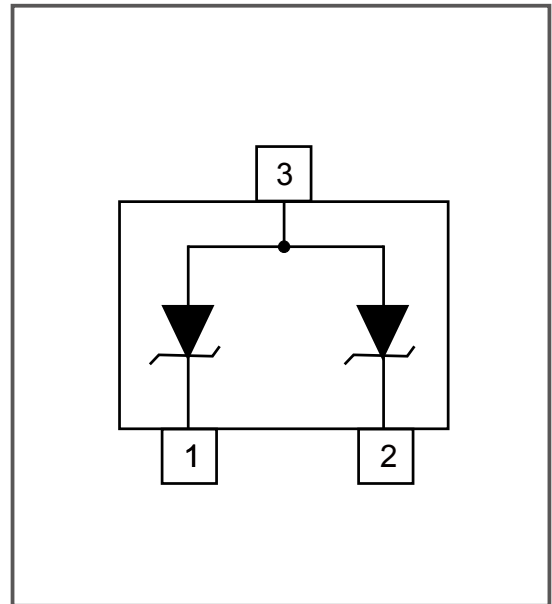
### Mechanical Characteristics

- SOT-23 package
- Molding compound flammability rating: UL 94V-0
- Quantity Per Reel : 3,000pcs
- Reel Size : 7 inch
- Lead Finish : Lead Free

### Applications

- High-Speed data lines
- Cellular handsets AND accessories
- Universal Serial Bus (USB) port protection
- Portable instrumentation
- LAN/WAN equipment
- Peripherals

### Pinout and Functional Block Diagram



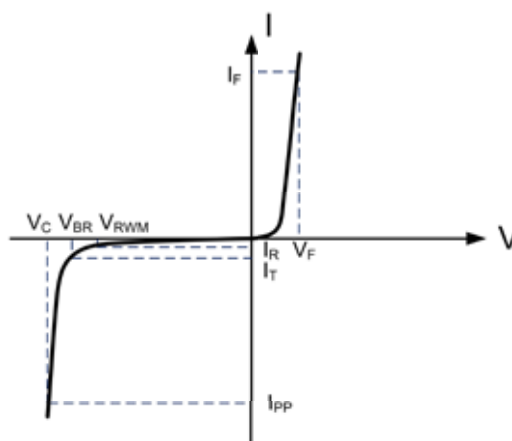
## TVS/ESD Arrays - RLST23Axx2V Series

### Absolute Maximum Rating

| Rating                        | Symbol           | Value         | Units |
|-------------------------------|------------------|---------------|-------|
| Peak Pulse Power (tp =8/20μs) | P <sub>PK</sub>  | 350           | Watts |
| ESD Voltage (Contact)         | V <sub>ESD</sub> | ±8            | Kv    |
| ESD Voltage (Air)             | V <sub>ESD</sub> | ±15           | Kv    |
| Lead Soldering Temperature    | T <sub>L</sub>   | 260 (10 sec.) | °C    |
| Operating Temperature         | T <sub>J</sub>   | -55 to +125   | °C    |
| Storage Temperature           | T <sub>STG</sub> | -55 to +150   | °C    |

### Electrical Parameters (T=25°C)

| Symbol           | Parameter  |
|------------------|--|
| I <sub>PP</sub>  | Maximum Reverse Peak Pulse Current                 |
| V <sub>C</sub>   | Clamping Voltage @ I <sub>PP</sub>                 |
| V <sub>RWM</sub> | Working Peak Reverse Voltage                       |
| I <sub>R</sub>   | Maximum Reverse Leakage Current @ V <sub>RWM</sub> |
| V <sub>BR</sub>  | Breakdown Voltage @ I <sub>T</sub>                 |
| I <sub>T</sub>   | Test Current                                       |
| I <sub>F</sub>   | Forward Current                                    |
| V <sub>F</sub>   | Forward Voltage @ I <sub>F</sub>                   |



### Electrical Characteristics(@ 25°C Unless Otherwise Specified)

| Type Number | Reverse Stand-Off Voltage | Minimum Breakdown Voltage | Peak Pulse Voltage @8/20μS | Peak Pulse Current @8/20μS | Reverse Leakage @V <sub>RWM</sub> | Typical Capacitance            |
|-------------|---------------------------|---------------------------|----------------------------|----------------------------|-----------------------------------|--------------------------------|
|             | V <sub>RWM</sub>          | V <sub>BR@1mA</sub>       | V <sub>C@1A</sub>          | I <sub>PP</sub>            | I <sub>R@V<sub>RWM</sub></sub>    | DC=0V<br>C <sub>J@ 1 MHz</sub> |
|             | V                         | V                         | V                          | A                          | μA                                | pF                             |
| RLST23A032V | 3.3                       | 4.0                       | 7                          | 13                         | 100                               | 300                            |
| RLST23A052V | 5                         | 6.0                       | 9.8                        | 10                         | 10                                | 220                            |
| RLST23A082V | 8                         | 8.5                       | 13.4                       | 8                          | 5                                 | 150                            |
| RLST23A122V | 12                        | 13.3                      | 19                         | 5                          | 1                                 | 100                            |
| RLST23A152V | 15                        | 16.7                      | 24                         | 4                          | 1                                 | 90                             |
| RLST23A242V | 24                        | 26.7                      | 43                         | 3                          | 1                                 | 80                             |
| RLST23A362V | 36                        | 40                        | 60                         | 2                          | 1                                 | 70                             |

## TVS/ESD Arrays - RLST23Axx2V Series

### Characteristic Curves

Fig1. 8/20 $\mu$ s Pulse Waveform

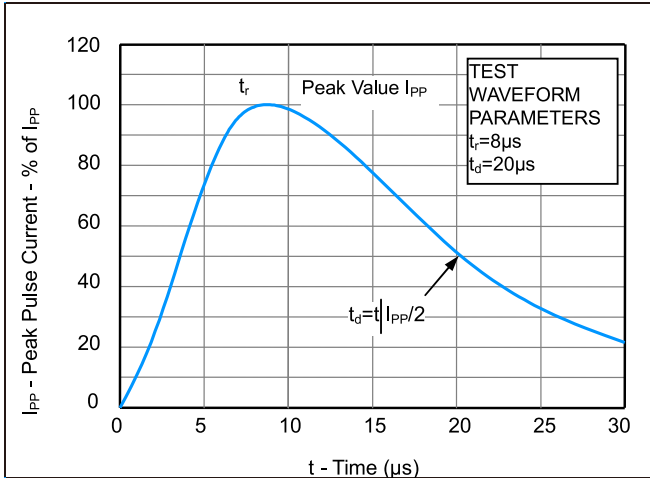


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

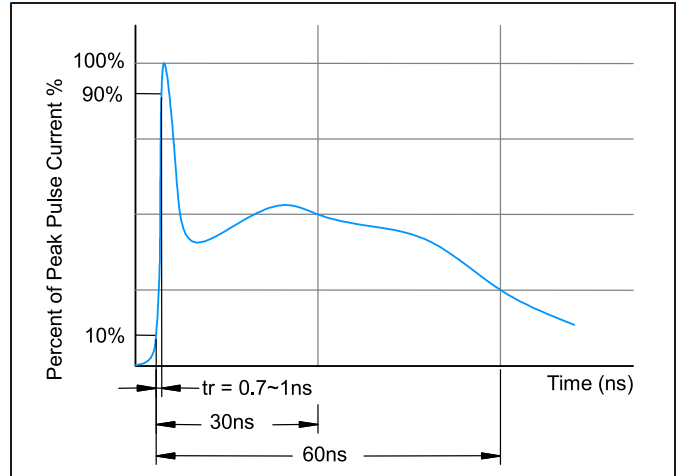


Fig3. Power Derating Curve

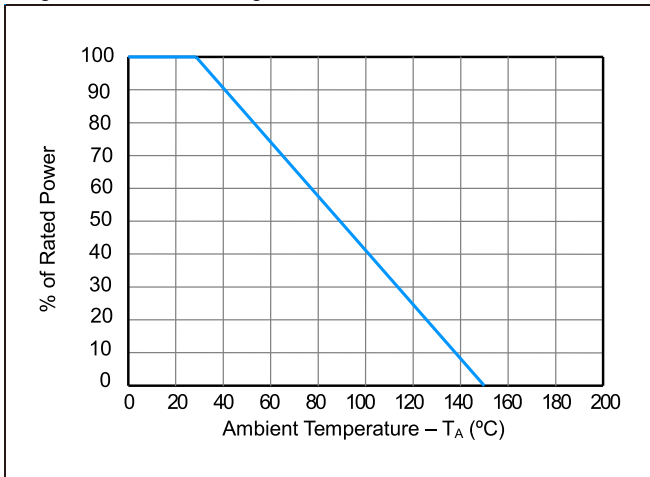
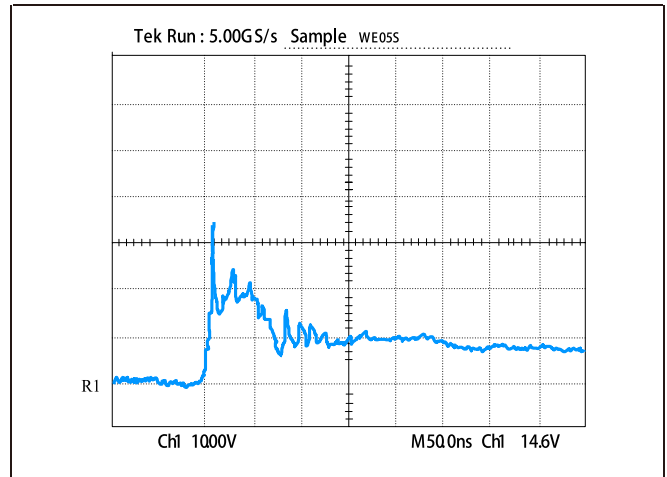
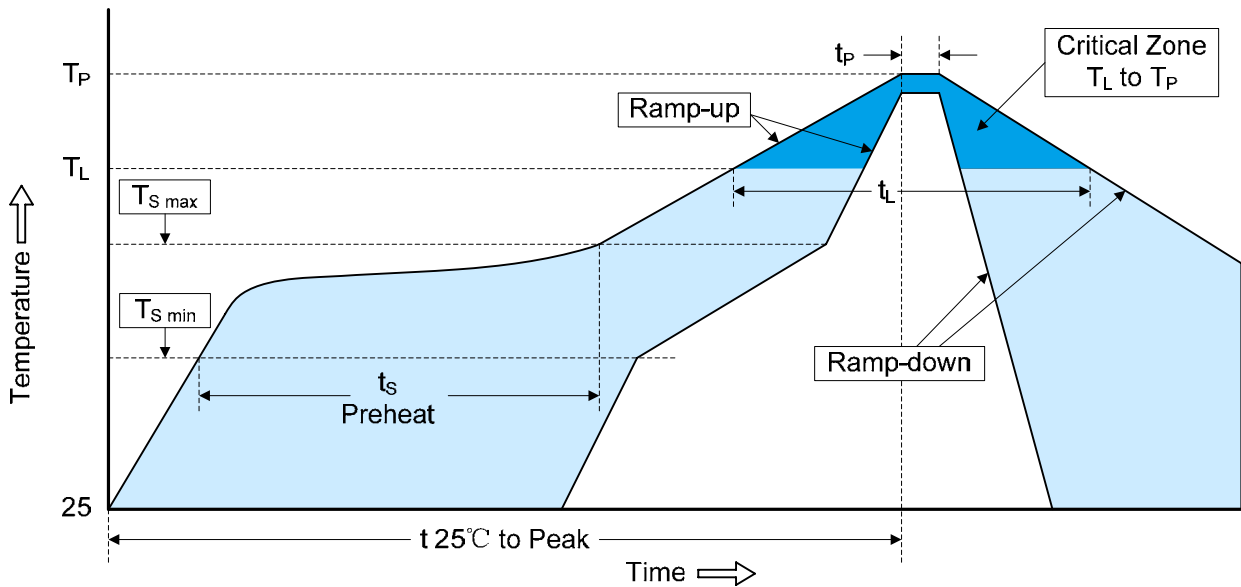


Figure 4: ESD Clamping (8kV Contact per IEC 61000-4-2)



## TVS/ESD Arrays - RLST23Axx2V Series

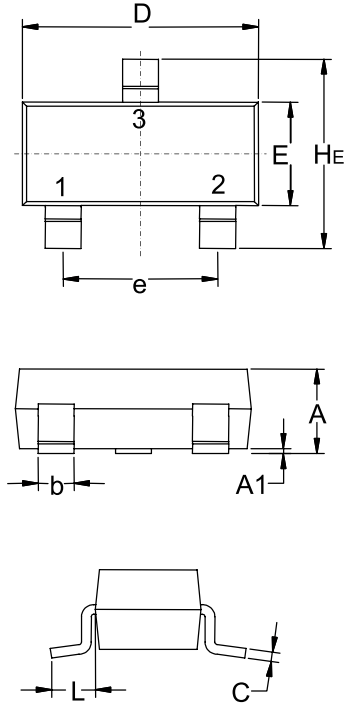
### Recommended Soldering Conditions



| Profile Feature                                      | Pb-Free Assembly |
|--|------------------|
| Average ramp-up rate ( $T_L$ to $T_P$ )              | 3°C/second max.  |
| Preheat  |                  |
| -Temperature Min ( $T_{S\ min}$ )                    | 150°C            |
| -Temperature Max ( $T_{S\ max}$ )                    | 200°C            |
| -Time (min to max) ( $t_s$ )                         | 60-180 seconds   |
| $T_{S\ max}$ to $T_L$                                |                  |
| -Ramp-up Rate  | 3°C/second max.  |
| Time maintained above:                               |                  |
| -Temperature ( $T_L$ )                               | 217°C            |
| -Time ( $t_L$ )                                      | 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.   |

## TVS/ESD Arrays - RLST23Axx2V Series

### Package dimension SOT-23



| DIM | Dimensions |       |       |             |      |      |
|-----|------------|-------|-------|-------------|------|------|
|     | Inches     |       |       | Millimeters |      |      |
|     | Min        | Nom   | Max   | Min         | Nom  | Max  |
| A   | 0.035      | 0.040 | 0.044 | 0.89        | 1.00 | 1.12 |
| A1  | 0.001      | 0.002 | 0.004 | 0.01        | 0.06 | 0.10 |
| b   | 0.015      | 0.018 | 0.020 | 0.37        | 0.44 | 0.50 |
| C   | 0.003      | 0.005 | 0.007 | 0.09        | 0.13 | 0.18 |
| D   | 0.110      | 0.114 | 0.120 | 2.80        | 2.90 | 3.04 |
| E   | 0.047      | 0.051 | 0.055 | 1.20        | 1.30 | 1.40 |
| e   | 0.070      | 0.075 | 0.081 | 1.78        | 1.90 | 2.04 |
| L   | 0.014      | 0.021 | 0.029 | 0.35        | 0.54 | 0.69 |
| HE  | 0.083      | 0.094 | 0.104 | 2.1         | 2.4  | 2.64 |

### Part Number Code

