



# TVS/ESD Arrays

RLST23Axx2V Series

## 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)



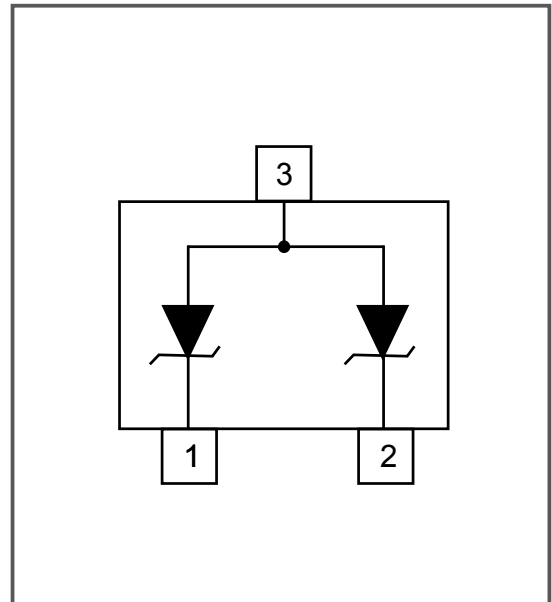
### Mechanical Characteristics

- JEDEC SOT-23 Package
- Molding Compound Flammability Rating : UL 94V-0
- Weight 8 Milligrams (Approximate)
- 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



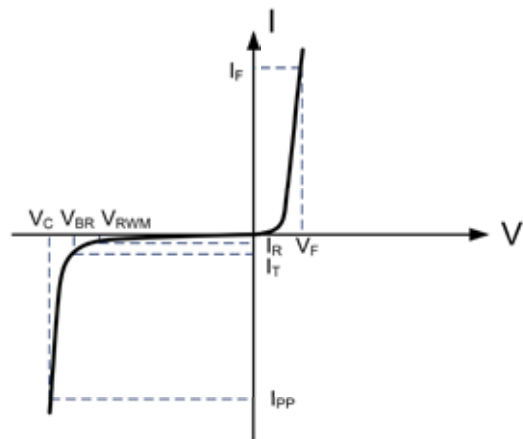
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### Absolute Maximum Rating

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 Per Lin (@ 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 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

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### Characteristic Curves

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

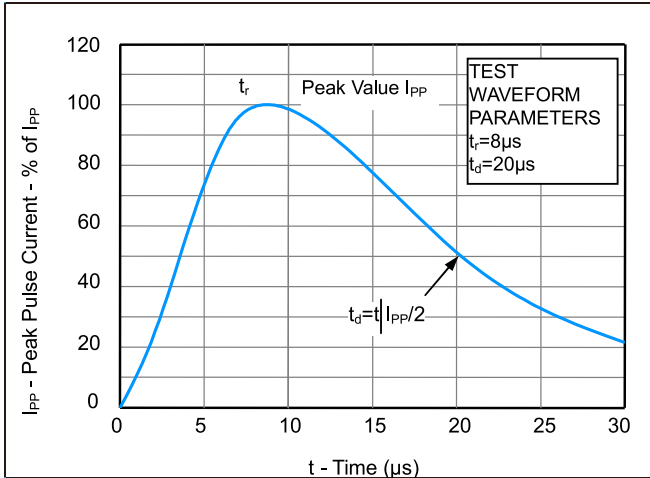


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

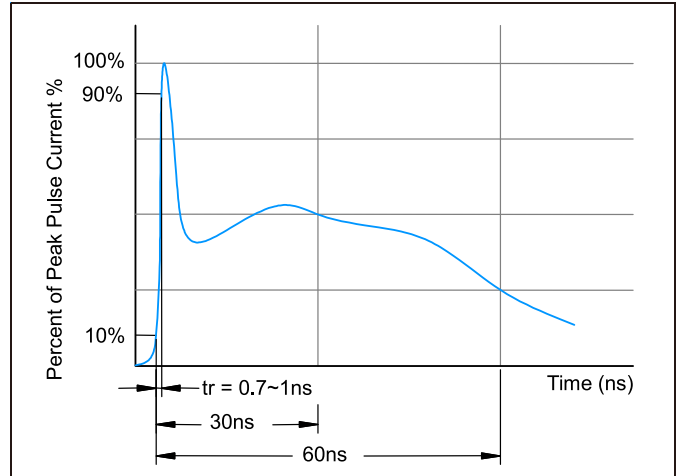


Fig3. Power Derating Curve

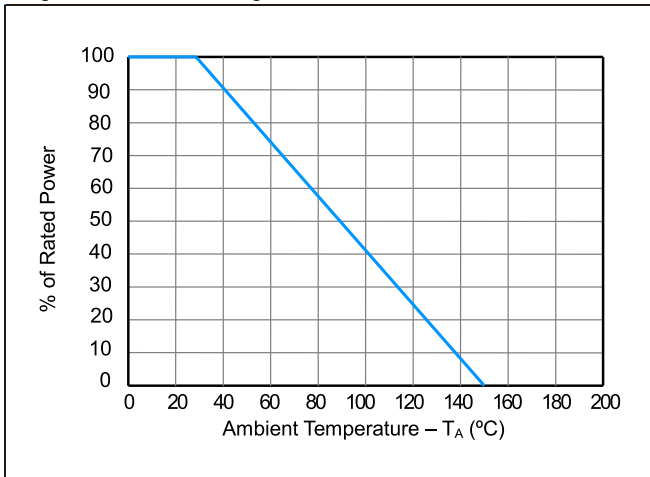
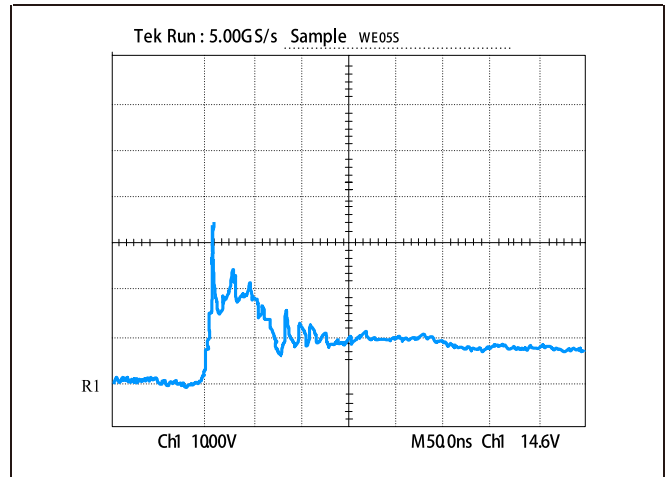
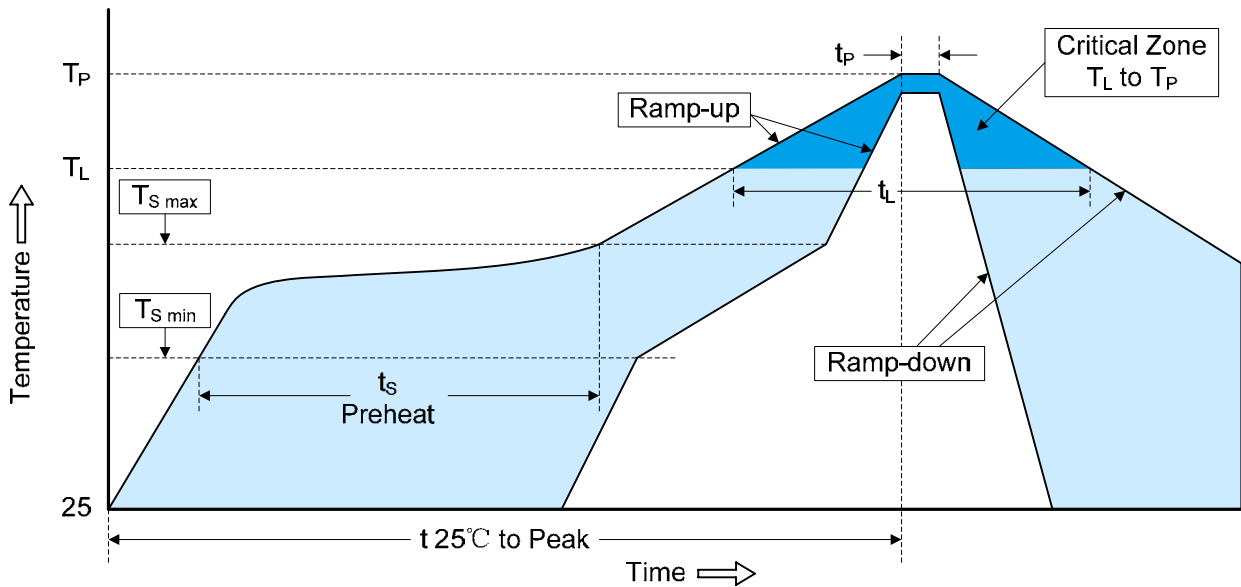


Figure 4: ESD Clamping (8kV Contact per IEC 61000-4-2)



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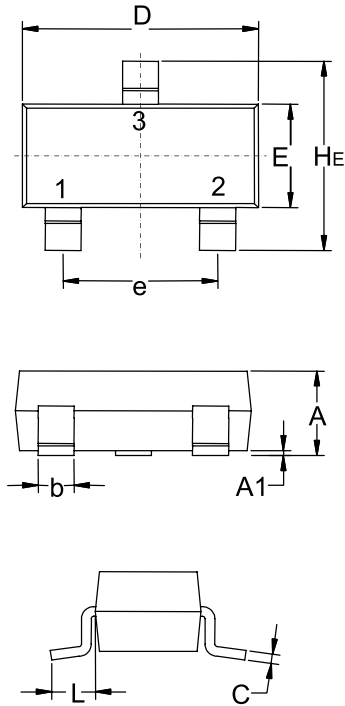
### Recommended Soldering Conditions



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.

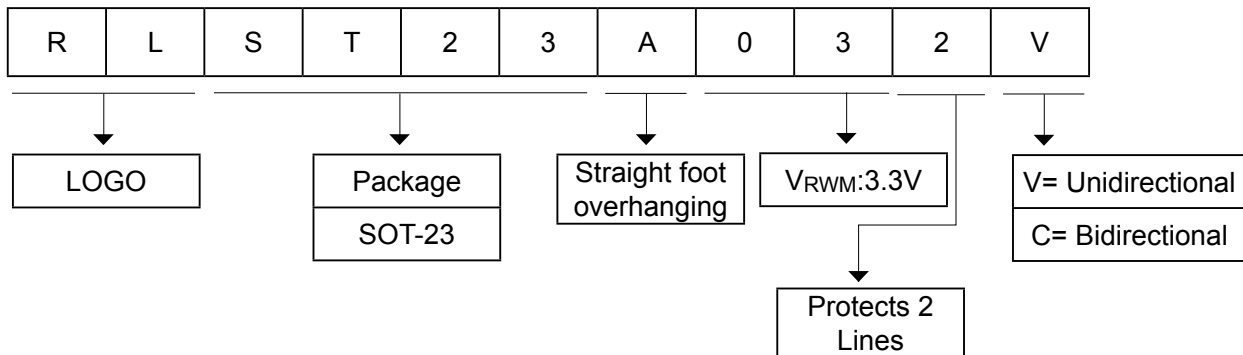
## TVS/ESD Arrays - RLST23Axx2V Series

### 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



### Ordering Information

Part Number	Package	Min. Order Qty.
RLST23Axx2V	SOT-23	3000pcs

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