

TVS/ESD Arrays

RLST23AxxxV Series

TVS/ESD Arrays - RLST23AxxxV Series

Features

- 400 Watts peak pulse power ($t_p = 8/20\mu s$)
- Transient protection for high speed data lines to IEC 61000-4-2 (ESD) $\pm 15kV$ (air), $\pm 8kV$ (contact)
IEC 61000-4-4 (EFT) 40A (5/50ns)
IEC 61000-4-5 (Lightning) 24A (8/20 μs)
- One device protects one unidirectional line
- Two devices protect two high-speed line pairs
- Low leakage current
- Low operating and clamping voltages
- Solid-state EPD TVS process technology



Mechanical Characteristics

- SOT-23 package
- Molding compound flammability rating: UL 94V-0
- Packaging: Tape and Reel per EIA 481
- Lead Finish: Matte tin
- RoHS Compliant

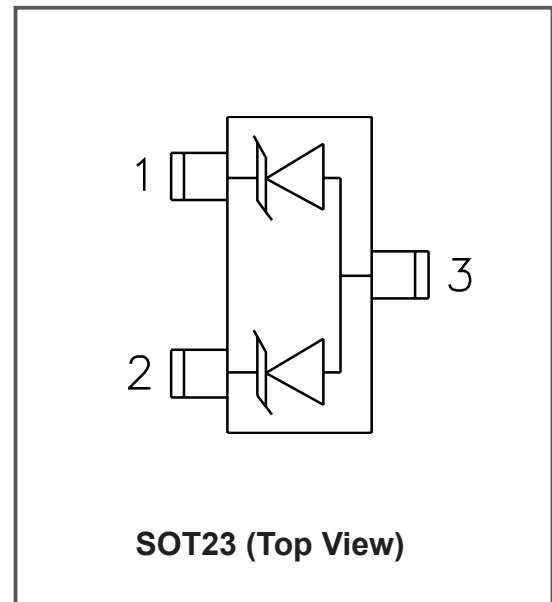
Applications

- Cellular Handsets and Accessories
- Portable Electronics
- Industrial Controls
- Set-Top Box
- Servers, Notebook, and Desktop PC

Life Support Note

- Not Intended for Use in Life Support or Life Saving Applications
- The products shown herein are not designed for use in life sustaining or life saving applications unless otherwise expressly indicated

Pinout and Functional Block Diagram



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Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power (tp =8/20μs)	Ppk	400	Watts
Lead Soldering Temperature	T _L	260 (10 sec.)	°C
Operating Temperature	T _J	-55 to +125	°C
Storage Temperature	T _{STG}	-55 to +150	°C

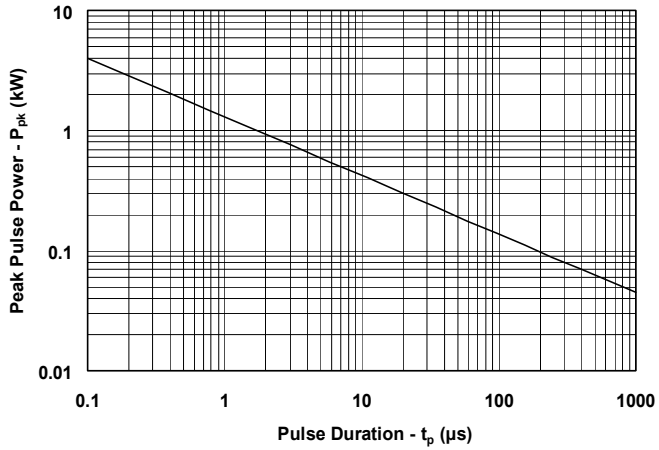
Electrical Characteristics Per Lin (@ 25°C Unless Otherwise Specified)

Type Number	Peak Power Dissipation @8/20μS Pppm	Reverse Stand-Off Voltage	Peak Pulse Voltage @8/20μS Pppm	Peak Pulse Current @8/20μS Pppm	Reverse Leakage @Vrwm	Maximum Capacitance @1MHZ
		Vrwm	Vc@IPP	IPP	IR@Vrwm	Co
		Max			Max	Max
	W	V	V	A	μA	BI(pF)
RLST23A032V	400	3.3	6.5	43	125	300
RLST23A052V	400	5	10	20	10	220
RLST23A122V	400	12	25	20	1	100
RLST23A152V	400	15	30	20	1	90
RLST23A242V	400	24	45	15	1	80
RLST23A362V	400	36	75	7	1	70

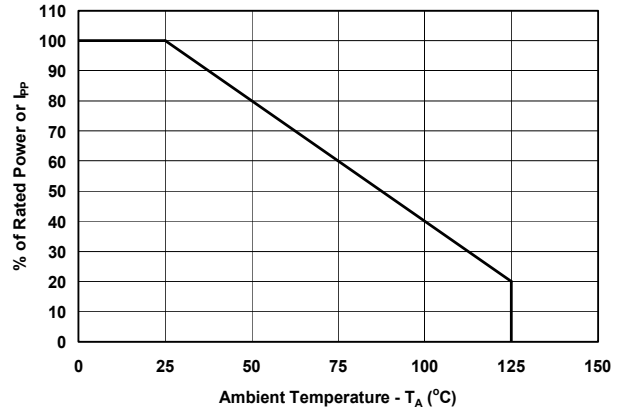
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Typical Characteristics

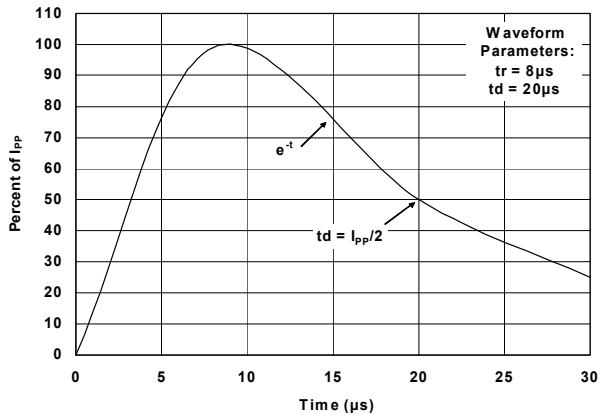
Non-Repetitive Peak Pulse Power vs. Pulse Time



Power Derating Curve



Pulse Waveform



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Applications Information

Device Connection Options

The RLST23A032V and RLST23A362V series is designed to protect one bidirectional or two unidirectional data or I/O lines operating at 5 to 36 volts. Connection options are as follows:

- Bidirectional: Pin 1 is connected to the data line and pin 2 is connected to ground (Since the device is symmetrical, these connections may be reversed). The ground connection should be made directly to a ground plane. The path length should be kept as short as possible to minimize parasitic inductance. Pin 3 is not connected.
- Unidirectional: Data lines are connected to pin 1 and pin 2. Pin 3 is connected to ground. For best results, this pin should be connected directly to a ground plane on the board. The path length should be kept as short as possible to minimize parasitic inductance.

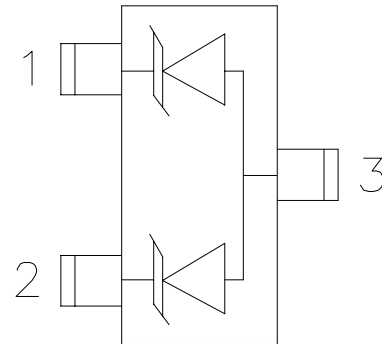
Circuit Board Layout Recommendations for Suppression of ESD. Good circuit board layout is critical for the suppression of fast rise-time transients such as ESD. The following guidelines are recommended (Refer to application note SI99-01 for more detailed information):

- Place the TVS near the input terminals or connectors to restrict transient coupling.
- Minimize the path length between the TVS and the protected line.
- Minimize all conductive loops including power and ground loops.
- The ESD transient return path to ground should be kept as short as possible.
- Never run critical signals near board edges.
- Use ground planes whenever possible.

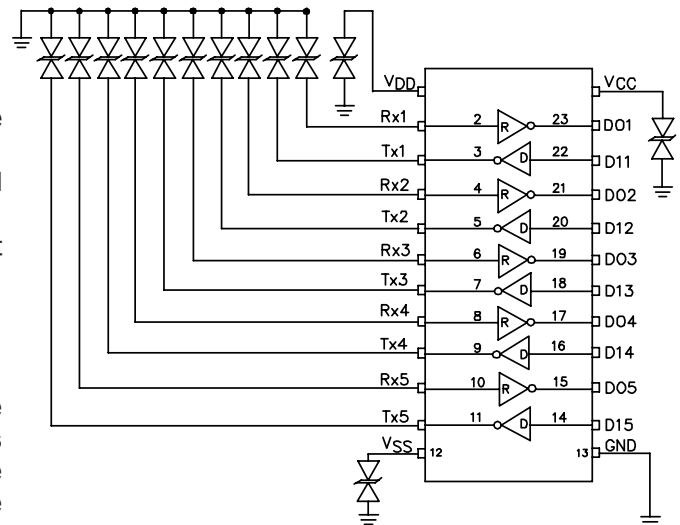
Matte Tin Lead Finish

Matte tin has become the industry standard lead-free replacement for SnPb lead finishes. A matte tin finish is composed of 100% tin solder with large grains. Since the solder volume on the leads is small compared to the solder paste volume that is placed on the and pattern of the PCB, the reflow profile will be determined by the requirements of the solder paste. Therefore, these devices are compatible with both lead-free and SnPb assembly techniques. In addition, unlike other lead-free compositions, matte tin does not have any added alloys that can cause degradation of the solder joint.

Device Schematic & Pin Configuration

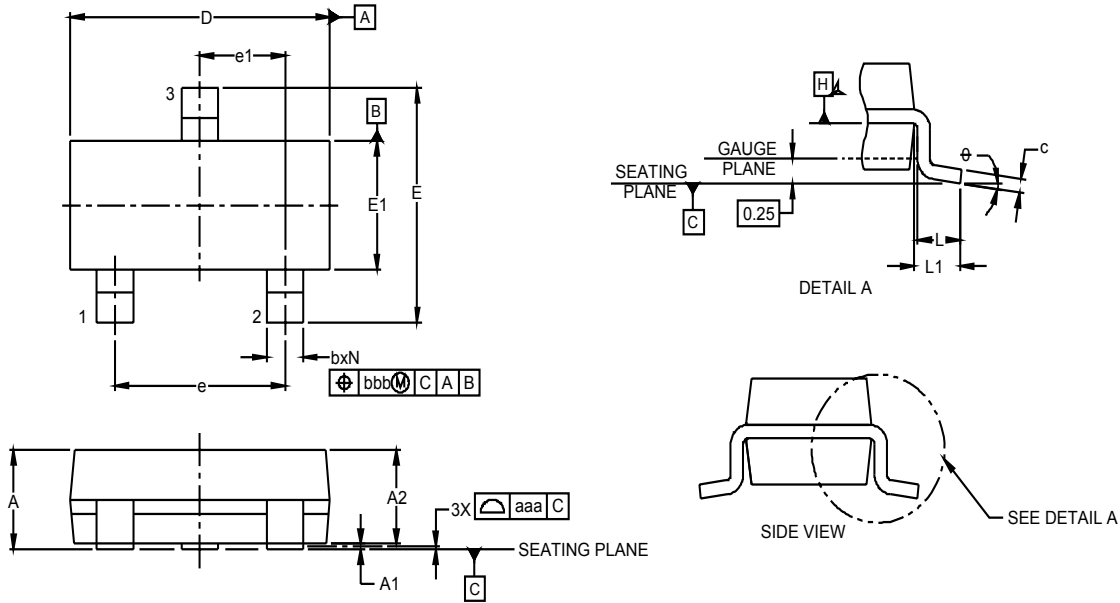


RS-232 Transceiver Protection Example



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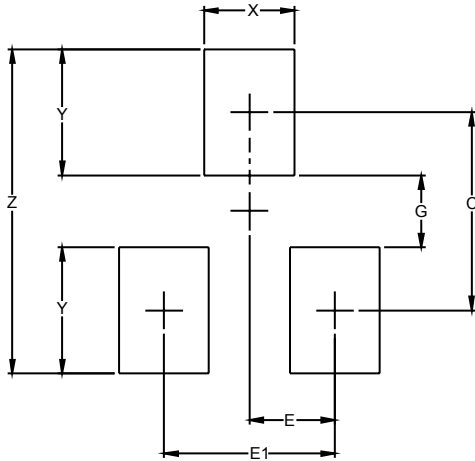
Soldering footprint



Dimensions						
DIM	Inches			Millimeters		
	Min	Nom	Max	Min	Nom	Max
A	.035	-	.044	0.89	-	1.12
A1	-	-	.004	0.01	-	0.10
A2	.035	.037	.040	0.01	-	0.10
b	.012	-	.020	0.30	-	0.51
c	.003	-	.007	0.08	-	0.18
D	.110	.114	.120	2.80	2.90	3.04
E	.082	.093	.104	2.10	2.37	2.64
E1	0.47	.051	.055	1.20	1.30	1.40
e		.075			1.90 BCS	
e1		.037			0.95 BCS	
L	.015	.020	.024	0.40	0.50	0.60
L1		.022			(0.55)	
N		3			3	

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Land Pattern SOT-23

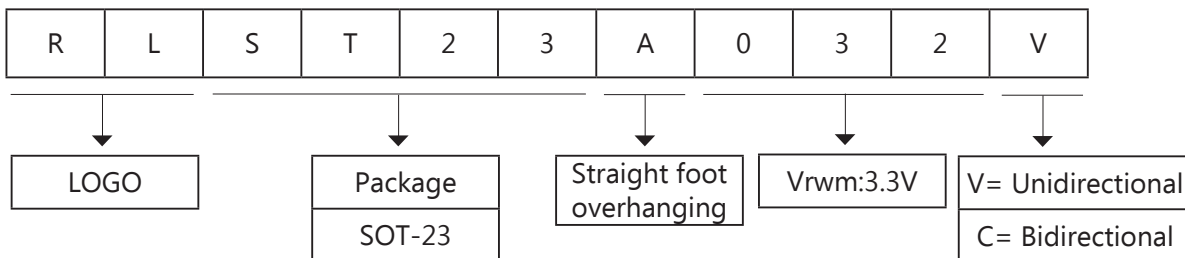


DIMENSIONS		
DIM	INCHES	MILLIMETERS
C	(.087)	(2.20)
E	.037	0.95
E1	.075	1.90
G	.031	0.80
X	.039	1.00
Y	.055	1.40
Z	.141	3.60

NOTES:

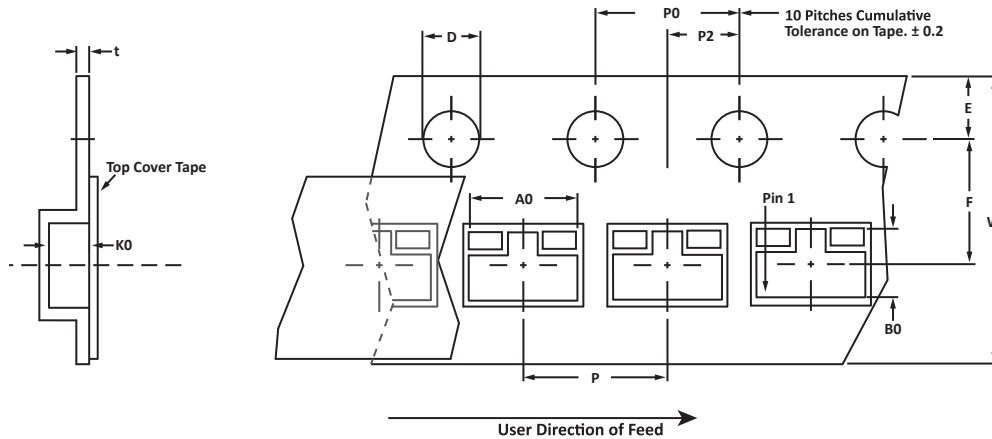
1. THIS LAND PATTERN IS FOR REFERENCE PURPOSES ONLY CONSULT YOUR MANUFACTURING GROUP TO ENSURE YOUR COMPANY'S MANUFACTURING GUIDELINES ARE MET.
2. REFERENCE IPC-SM-782A.

Part Number Code



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Ordering Information



SPECIFICATIONS

REEL DIA.	TAPE WIDTH	A0	B0	K0	D	E	F	W	P0	P2	P	tmax
178mm (7")	8mm	3.15 ± 0.10	2.77 ± 0.10	1.30 ± 0.10	1.55 ± 0.10	1.75 ± 0.10	3.50 ± 0.05	8.00 ± 0.30	4.00 ± 0.10	2.00 ± 0.05	4.00 ± 0.10	0.228

NOTES

- Dimensions are in millimeters.
- Surface mount product is taped and reeled in accordance with EIA-481.
- Suffix - T7 = 7" Reel - 3,000 pieces per 8mm tape.
- Suffix - T13 = 13" Reel - 10,000 pieces per 8mm tape.
- Marking on Part - marking code (see page 2) and date code.

Package outline, pad layout and tape specifications per document number 06012.R2 8/10.

Ordering Information

Part Number	Package	Min. Order Qty.
RLST23AxxxV	SOT-23	3000pcs

Warehouse Storage Conditions of Products

· Storage Conditions:

1. Storage Temperature: -10°C~+40°C
2. Relative Humidity: ≤75%RH
3. Keep away from corrosive atmosphere and sunlight.
4. Period of Storage: 1 year

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