



# TVS/ESD Arrays

RLST23A712C Series

## TVS/ESD Arrays - RLST23A712C Series

### Features

- 400 Watts Peak Pulse Power per Line ( $t_p = 8/20\mu s$ )
- Protects two +12V to -7V lines
- 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)



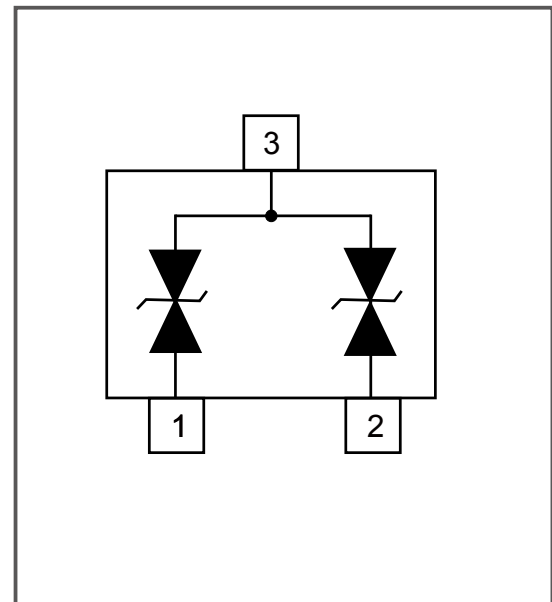
### Mechanical Characteristics

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

### Applications

- 10/100 Ethernet
- WAN/LAN Equipment
- Switching Systems
- Desktops, Servers, Notebooks & Handhelds
- Laser Diode Protection
- Base Stations

### Pinout and Functional Block Diagram



## TVS/ESD Arrays - RLST23A712C Series

### Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power (tp =8/20μs)	P <sub>PK</sub>	400	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 Characteristics Per Lin (@ 25°C Unless Otherwise Specified)

#### Pin3 to Pin1 /Pin2

Parameter	Symbol	Conditions	MIN	TYP	MAX	Units
Reverse Stand-Off Voltage	V <sub>RWM</sub>		-	-	7	V
Reverse Breakdown Voltage	V <sub>BR</sub>	I <sub>BR</sub> =1mA	7.5	-	-	V
Reverse leakage current	I <sub>R</sub>	V <sub>R</sub> =7V	-	-	20	μA
Clamping voltage (tp=8/20s)	V <sub>C</sub>	I <sub>PP</sub> =5A	-	-	10	V
Off state junction capacitance	C <sub>J</sub>	0Vdc, f=1MHZ between I/O pins and GND	-	-	75	pF

#### Pin1/Pin2 to Pin3

Parameter	Symbol	Conditions	MIN	TYP	MAX	Units
Reverse Stand-Off Voltage	V <sub>RWM</sub>		-	-	12	V
Reverse Breakdown Voltage	V <sub>BR</sub>	I <sub>BR</sub> =1mA	13.3	-	-	V
Reverse leakage current	I <sub>R</sub>	V <sub>R</sub> =12V	-	-	1	μA
Clamping voltage (tp=8/20s)	V <sub>C</sub>	I <sub>PP</sub> =5A	-	-	20	V
Off state junction capacitance	C <sub>J</sub>	0Vdc, f=1MHZ between I/O pins and GND	-	-	75	pF

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### Characteristic Curves

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

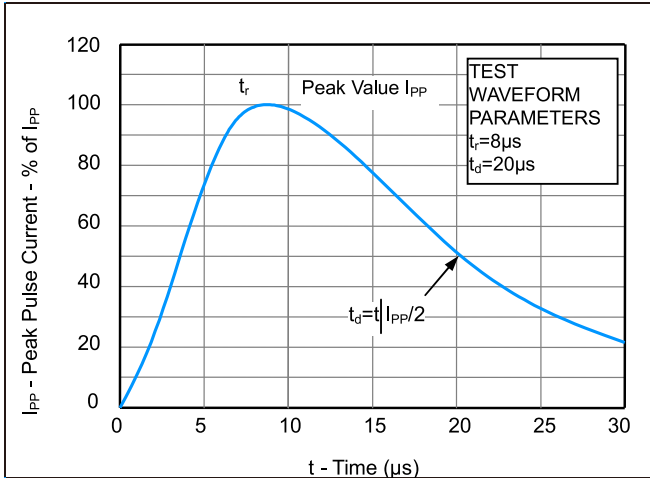


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

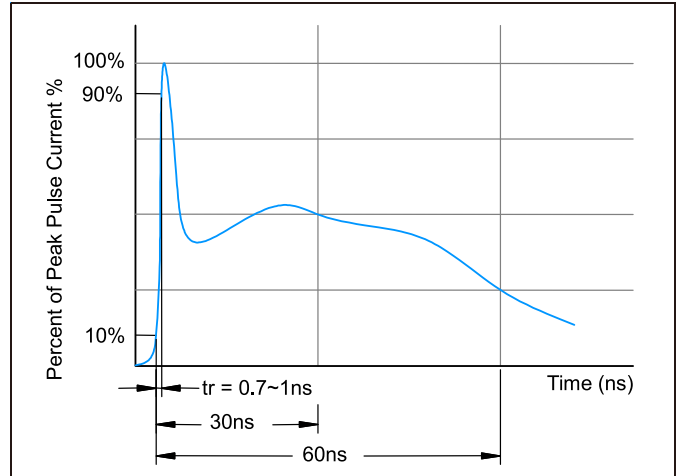


Fig3. Power Derating Curve

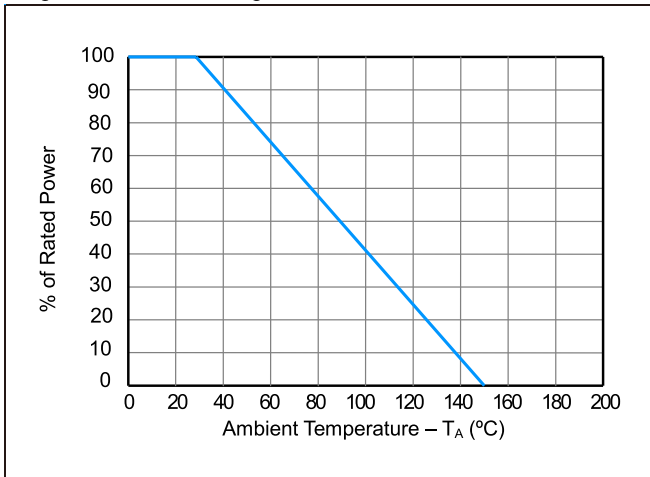
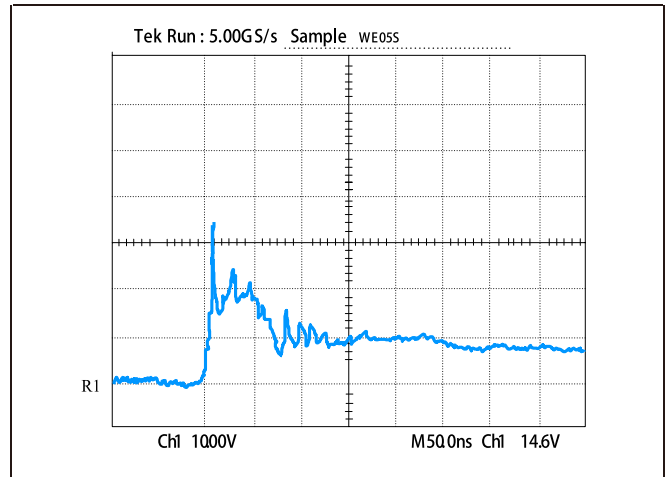
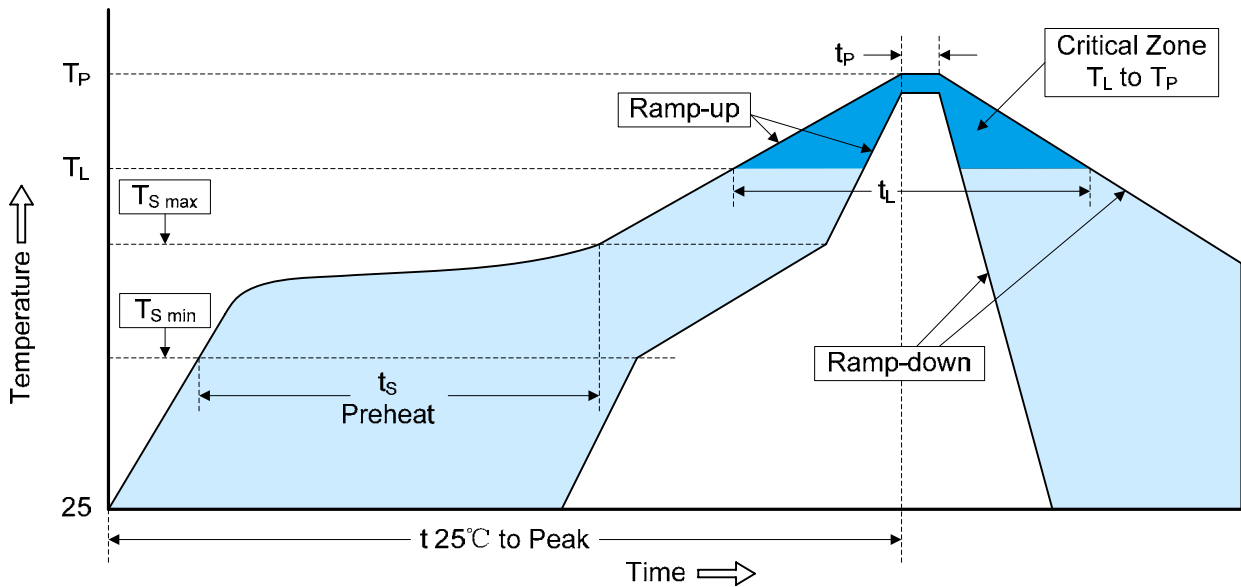


Figure 4: ESD Clamping (8kV Contact per IEC 61000-4-2)



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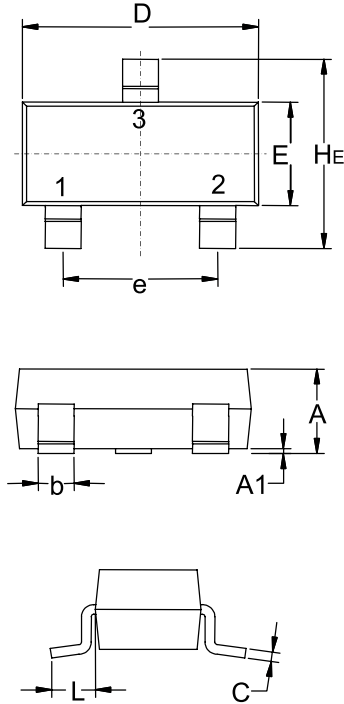
### Recommended Soldering Conditions



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 - RLST23A712C 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

R	L	S	T	2	3	A	7	1	2	C
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
LOGO			Package			Straight foot	V <sub>RWM</sub> :7/12V			V= Unidirectional
			SOT-23			overhanging				C= Bidirectional

### Ordering Information

Part Number	Package	Min. Order Qty.
RLST23A712C	SOT-23	3000pcs

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