

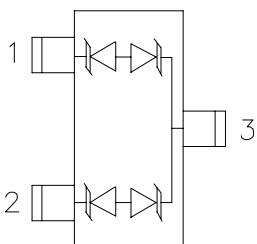
### Features

- ◆ 360W peak pulse power (8/20 $\mu$ s)
- ◆ Protects two bi-directional lines
- ◆ Ultra low leakage: nA level
- ◆ Operating voltage: 24.0V
- ◆ Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test  
Air discharge:  $\pm 30$ kV  
Contact discharge:  $\pm 30$ kV
  - IEC61000-4-4 (EFT) 40A (5/50ns)
  - IEC61000-4-5 (Lightning) 6A (8/20 $\mu$ s)
- ◆ RoHS Compliant
- ◆ Package: SOT-23

### Description

The ESDJ24BL0T1 is a Bi-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data and power line. The ESDJ24BL0T1 complies with the IEC 61000-4-2(ESD) standard with  $\pm 30$  kV air and  $\pm 30$  kV contact discharge. It is assembled into an ultra-small SOT-23 package. The small size and high ESD surge protection make ESDJ24BL0T1 an ideal choice to protect Power and many other portable applications.

### Circuit Diagram



### Applications

- ◆ Wireless System
- ◆ Networks
- ◆ Portable Instrumentation
- ◆ RS485 Ports

**Limiting Values(TA= 25 °C, unless otherwise specified)**

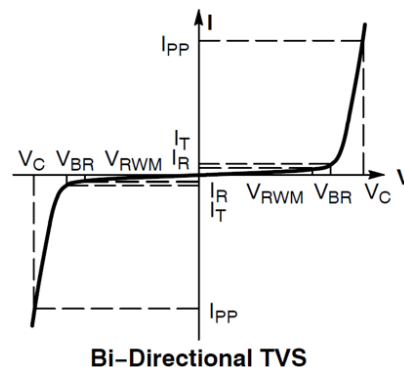
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	360	W
Peak Pulse Current (8/20μs)	IPP	6	A
ESD per IEC 61000-4-2 (Air)	VESD	±30	kV
ESD per IEC 61000-4-2 (Contact)		±30	
Operating Temperature Range	TJ	-55 to +125	°C
Storage Temperature Range	Tstg	-55 to +150	°C

**Electrical Characteristics(TA= 25 °C unless otherwise specified)**

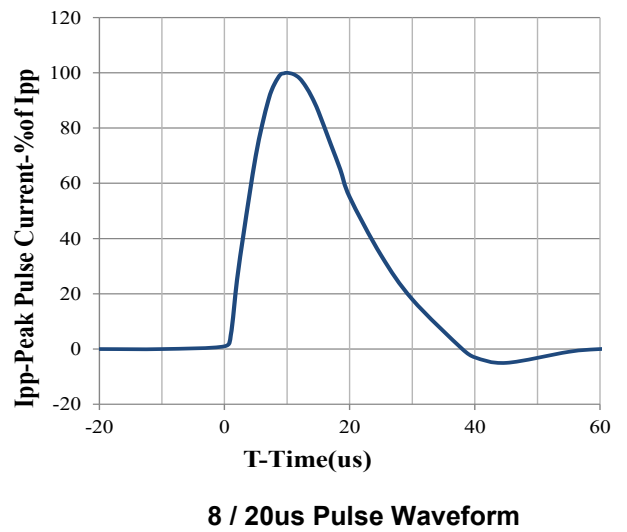
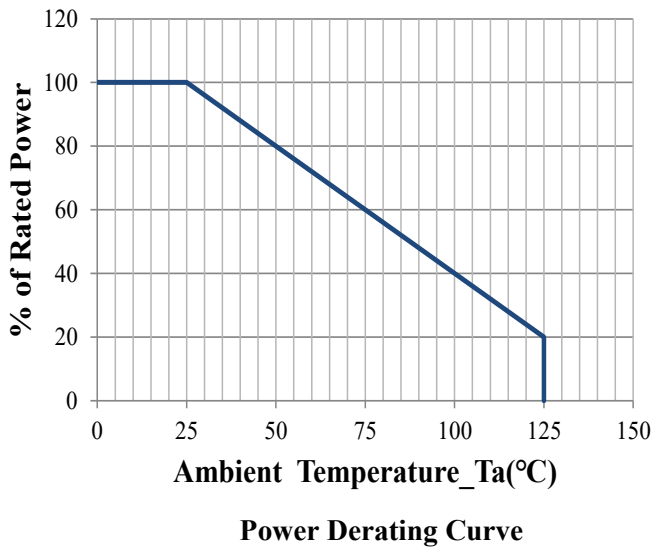
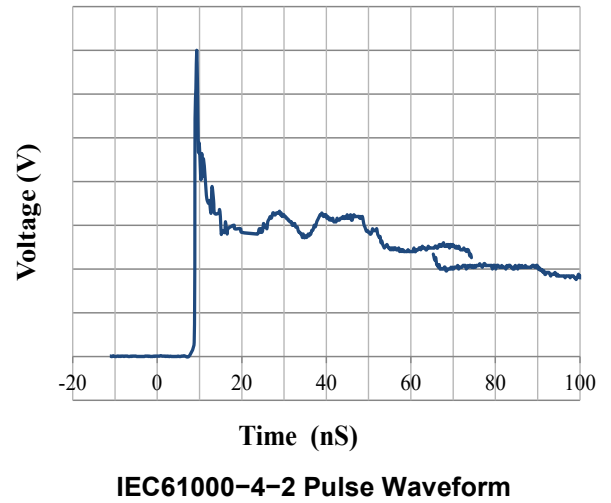
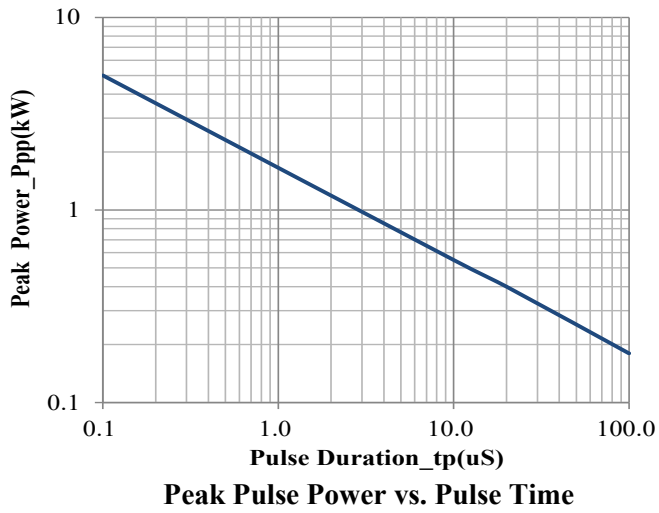
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V <sub>RWM</sub>				24	V
Breakdown Voltage	V <sub>BR</sub>	I <sub>T</sub> = 1mA, Pin1/Pin2-Pin3	27		31.5	V
Breakdown Voltage	V <sub>BR</sub>	I <sub>T</sub> = 1mA, Pin1-Pin2	54		62	V
Reverse Leakage Current	I <sub>R</sub>	V <sub>RWM</sub> = 24V			0.5	μA
Clamping Voltage	V <sub>C</sub>	I <sub>PP</sub> = 1A (8 / 20μs pulse), Pin1/Pin2-Pin3			43	V
Clamping Voltage	V <sub>C</sub>	I <sub>PP</sub> = 6A (8 / 20μs pulse), Pin1/Pin2-Pin3			60	V
Clamping Voltage	V <sub>C</sub>	I <sub>PP</sub> = 1A (8 / 20μs pulse), Pin1-Pin2			86	V
Clamping Voltage	V <sub>C</sub>	I <sub>PP</sub> = 6A (8 / 20μs pulse), Pin1-Pin2			120	V
Junction Capacitance	C <sub>J</sub>	V <sub>R</sub> = 0V, f = 1MHz, Pin1/Pin2-Pin3		15	20	pF
Junction Capacitance	C <sub>J</sub>	V <sub>R</sub> = 0V, f = 1MHz, Pin1-Pin2		8	10	pF

**Portion Electronics Parameter**

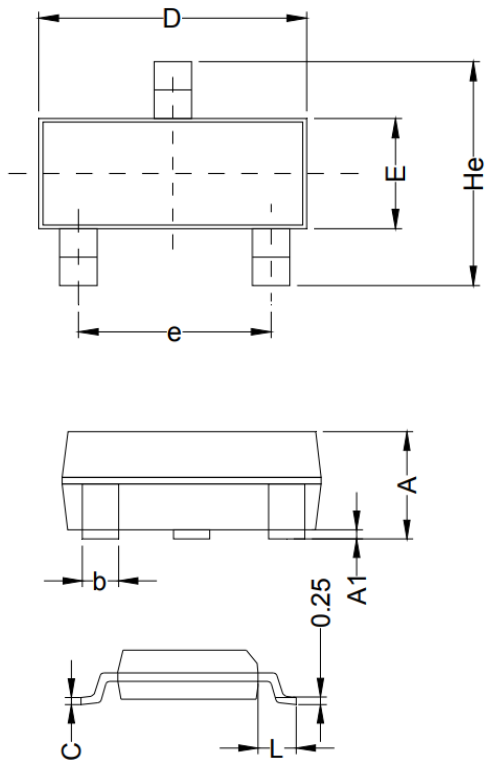
Symbol	Parameter
V <sub>RWM</sub>	Peak Reverse Working Voltage
I <sub>R</sub>	Reverse Leakage Current @ V <sub>RWM</sub>
V <sub>BR</sub>	Breakdown Voltage @I <sub>T</sub>
I <sub>T</sub>	Test Current
I <sub>PP</sub>	Maximum Reverse Peak Pulse Current
V <sub>C</sub>	Clamping Voltage @I <sub>PP</sub>



### Typical Characteristics

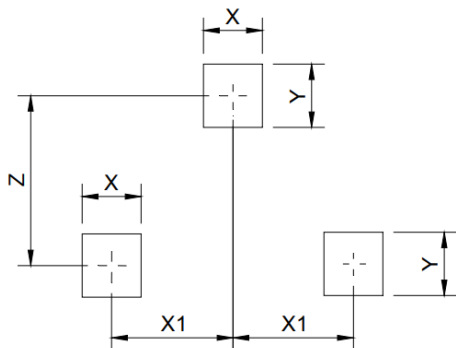


### SOT-23 Package Outline Drawing

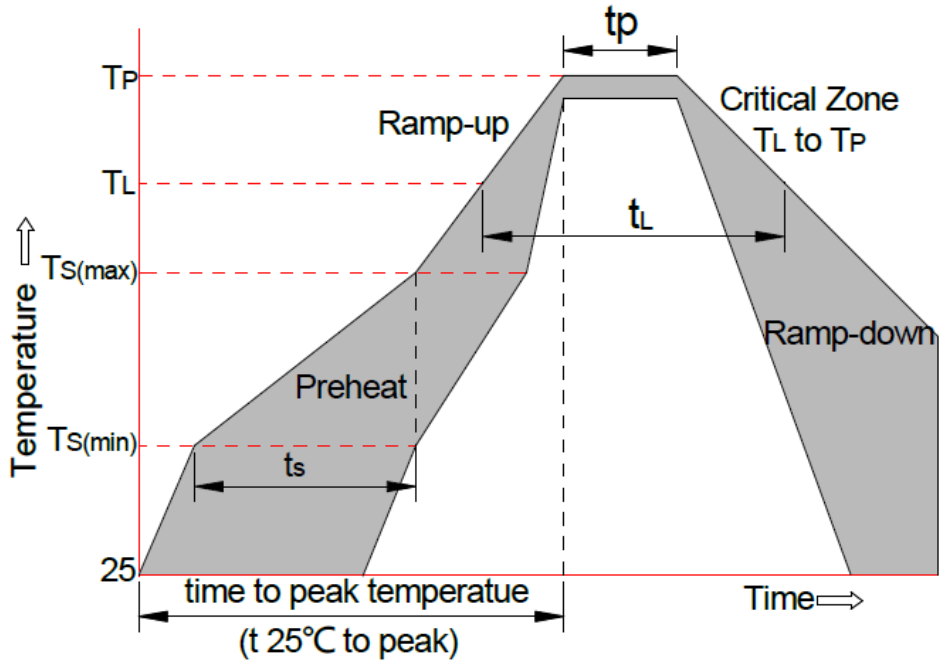


Symbol	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	0.90	1.063	1.15	0.035	0.042	0.045
A1	0.00	0.075	0.14	0.000	0.003	0.006
b	0.30	0.40	0.50	0.012	0.016	0.020
C	0.07	0.10	0.15	0.003	0.004	0.006
D	2.80	2.90	3.00	0.110	0.114	0.118
e	1.80	1.90	2.00	0.071	0.075	0.079
E	1.20	1.30	1.40	0.047	0.051	0.055
L	0.55REF			0.022REF		
He	2.25	2.40	2.55	0.089	0.094	0.100
X	0.80			0.031		
X1	0.95			0.037		
Y	0.80			0.031		
Z	2.02			0.080		

### Suggested Land Pattern



## Soldering Parameters



Reflow Condition		Pb-Free Assembly
Pre-heat	-Temperature Min (Ts (min))	+150°C
	-Temperature Max (Ts (max))	+200°C
	-Time (Min to Max) (ts)	60-180 secs
Average ramp up rate( Liquid us Temp (TL) to peak)		3°C/sec. Max
Ts (max) to TL-Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature (TL) (Liquid us)	+217°C
	-Temperature (tL)	60-150 secs
Peak Temp (Tp)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (tp)		30 secs. Max
Ramp-down Rate		6 °C/secs. Max
xTime 25°C to Peak Temp (Tp)		8 min. Max
Do not exceed		+260°C