

### FEATURES:

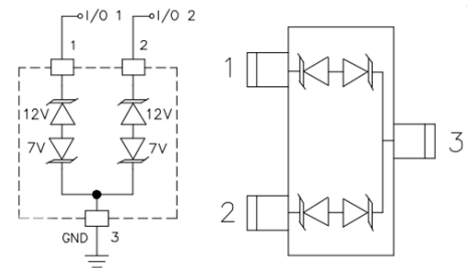
- ✧ Ultra low leakage: nA level
- ✧ Operating voltage: 7V or 12V
- ✧ Low clamping voltage
- ✧ Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge: ±15kV
    - Contact discharge: ±8kV
  - IEC61000-4-5 (Lightning) 10A for 12V (8/20µs)
  - IEC61000-4-5 (Lightning) 15A for 7V (8/20µs)
- ✧ RoHS Compliant



SOT-23

### MAIN APPLICATIONS

- ✧ USB 2.0 power and data line
- ✧ Set-top box and digital TV
- ✧ Digital video interface (DVI)
- ✧ Notebook Computers
- ✧ SIM Ports
- ✧ 10/100 Ethernet



PIN Configuration

### MECHANICAL CHARACTERISTICS

- ✧ Package SOT-23
- ✧ Molding Compound Flammability Rating : UL 94V-O
- ✧ Quantity Per Reel : 3,000pcs
- ✧ Lead Finish : Lead Free
- ✧ Marking : 712

### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub>=25°C, RH=45%-75%, unless otherwise noted)

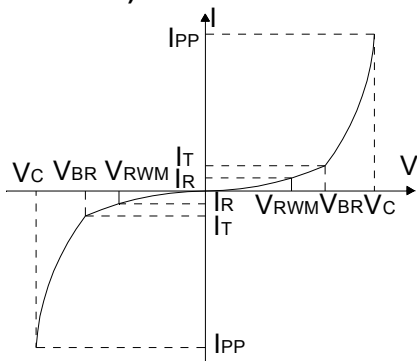
Parameter	Symbol	Value	Unit
Peak Pulse Power (tp = 8/20µs),(V <sub>RWM</sub> =7V/V <sub>RWM</sub> =12V)	P <sub>PPM</sub>	300/300	W
Peak Pulse Current (tp = 8/20µs),(V <sub>RWM</sub> =7V/V <sub>RWM</sub> =12V)	I <sub>PPM</sub>	15/10	A
ESD voltage IEC 61000-4-2 (air discharge)	V <sub>ESD</sub>	15	kV
ESD voltage IEC 61000-4-2 (contact discharge)	V <sub>ESD</sub>	8	kV
Maximum lead temperature for soldering during 10s	T <sub>L</sub>	260	°C
Storage Temperature Range	T <sub>stg</sub>	-55 to +150	°C
Operating Temperature Range	T <sub>OP</sub>	-40 to +125	°C

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

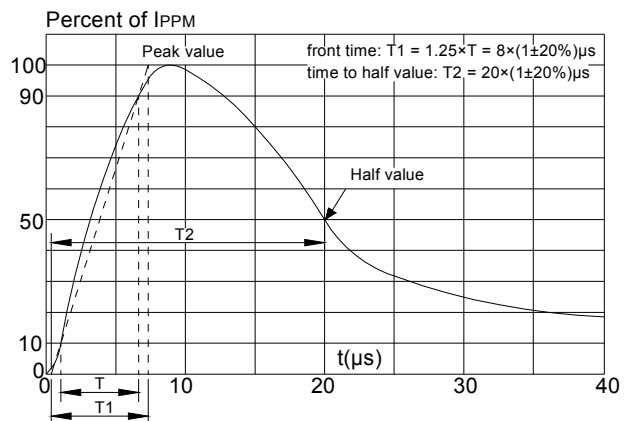
Parameter	Symbol	Min	Typ	Max	Unit	Condition
Reverse Working Voltage	V <sub>RWM</sub>	--	--	7.0	V	Pin3 to Pin1 or 2
		--	--	12.0		Pin1 or 2 to Pin3
Breakdown Voltage	V <sub>BR</sub>	7.5	--	--	V	I <sub>T</sub> =1mA, Pin3 to Pin1 or 2
		13.3	--	--		I <sub>T</sub> =1mA, Pin1 or 2 to Pin3
Leakage Current I <sub>Leak</sub>	I <sub>R</sub>	--	--	1.0	μA	V <sub>RWM</sub> =7V, Pin3 to Pin1 or 2
		--	--	1.0		V <sub>RWM</sub> =12V, Pin1 or 2 to Pin3
Clamping Voltage	V <sub>C</sub>	--	--	20.0	V	I <sub>PP</sub> =15A, T <sub>p</sub> =8/20μs, Pin3 to Pin1 or 2
		--	--	30.0		I <sub>PP</sub> =10A, T <sub>p</sub> =8/20μs, Pin1 or 2 to Pin3
Junction Capacitance	C <sub>J</sub>	--	--	20.0	pF	V <sub>R</sub> =0V, f=1MHz, Pin1 or 2 to Pin3

## Characteristic Curves

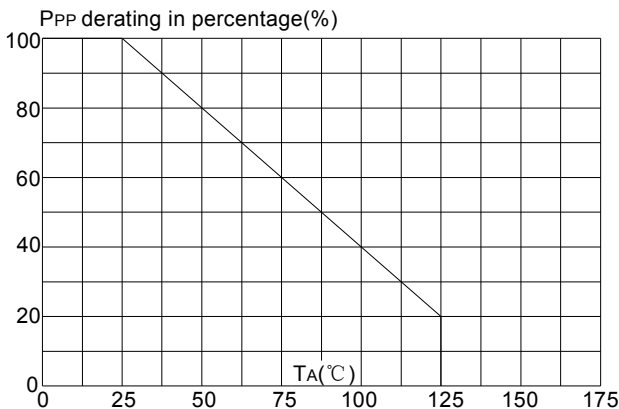
**FIG.1: V- I curve characteristics (Bi-directional)**



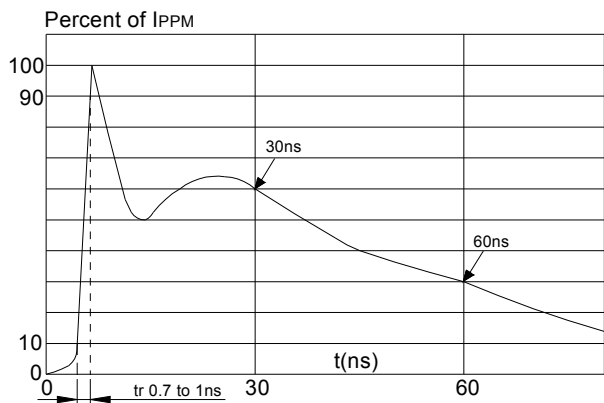
**FIG.2: Pulse waveform (8/20μs)**



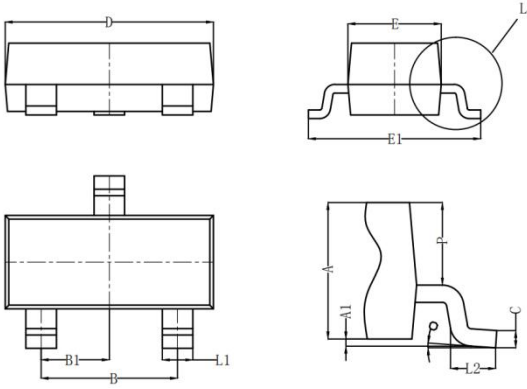
**FIG.3: Pulse derating curve**



**FIG.4: ESD clamping (8KV contact)**



## PACKAGE MECHANICAL DATA

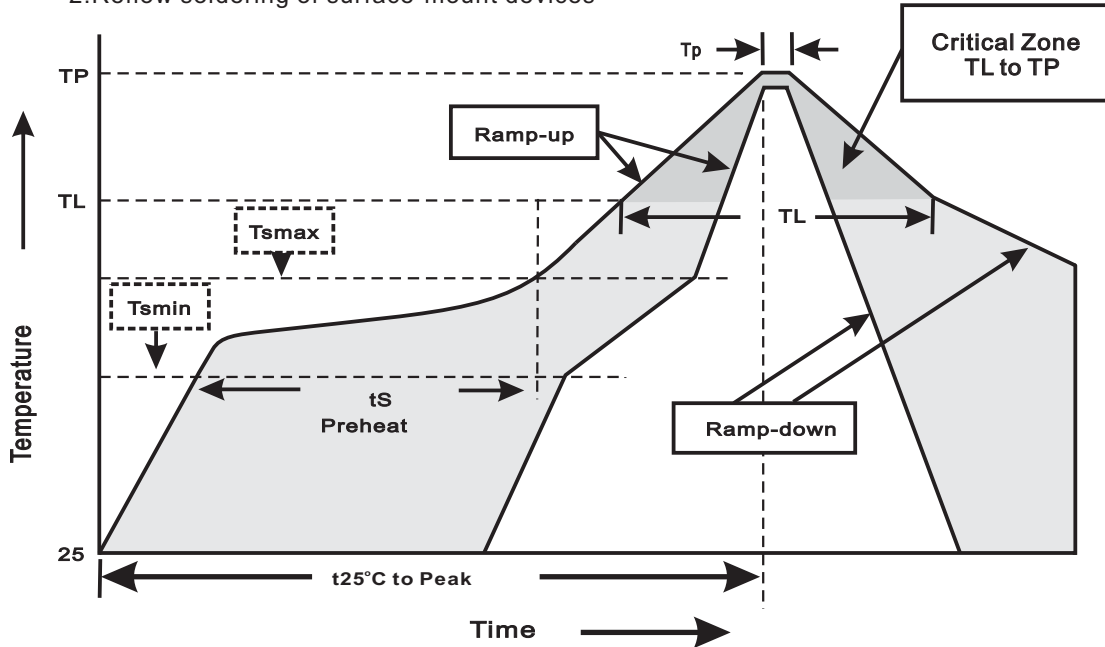


SOT-23

Symbol	Dimensions (mm)		
	Min	Typ	Max
A	0.900	1.000	1.1100
A1	0.000	0.050	0.100
L1	0.350	0.400	0.500
C	0.100	0.110	0.120
D	2.800	2.900	3.000
E	1.250	1.300	1.350
E1	2.250	2.400	2.550
B	1.800	1.900	2.000
B1	0.950 Typ		
L2	0.200	0.350	0.450
P	0.550	0.575	0.600

## Suggested thermal profiles for soldering processes

- 1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
- 2.Reflow soldering of surface-mount devices



### 3.Reflow soldering

Profile Feature	Soldering Condition
Average ramp-up rate(TL to TP)	<3°C/sec
Preheat -Temperature Min(Tsmin) -Temperature Max(Tsmax) -Time(min to max)(ts)	150°C 200°C 60~120sec
Tsmax to TL -Ramp-upRate	<3°C/sec
Time maintained above: -Temperature(TL) -Time(tL)	217°C 60~260sec
Peak Temperature(TP)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(tp)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes