

FEATURES:

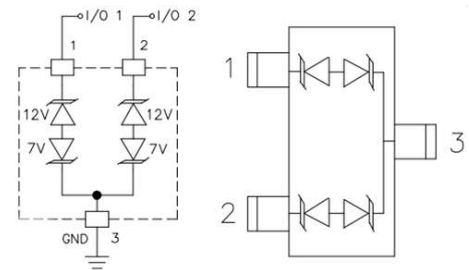
- ✧ Ultra low leakage: nA level
- ✧ Operating voltage: 7V or 12V
- ✧ Low clamping voltage
- ✧ Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 15\text{kV}$
 - Contact discharge: $\pm 8\text{kV}$
 - IEC61000-4-5 (Lightning) 13A for 12V (8/20 μs)
 - IEC61000-4-5 (Lightning) 18A for 7V (8/20 μs)
- ✧ 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 ($T_A=25^\circ\text{C}$, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power ($t_p = 8/20\mu\text{s}$), ($V_{RWM}=7\text{V}/V_{RWM}=12\text{V}$)	P_{PPM}	360	W
Peak Pulse Current ($t_p = 8/20\mu\text{s}$), ($V_{RWM}=7\text{V}/V_{RWM}=12\text{V}$)	I_{PPM}	18/13	A
ESD voltage IEC 61000-4-2 (air discharge)	V_{ESD}	15	kV
ESD voltage IEC 61000-4-2 (contact discharge)	V_{ESD}	8	kV
Maximum lead temperature for soldering during 10s	T_L	260	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to +150	$^\circ\text{C}$
Operating Temperature Range	T_{OP}	-55 to +125	$^\circ\text{C}$

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

Parameter	Symbol	Min	Typ	Max	Unit	Condition
Reverse Working Voltage	V _{RWM}	--	--	7.0	V	Pin3 to Pin1 or 2
		--	--	12.0		Pin1 or 2 to Pin3
Breakdown Voltage	V _{BR}	7.5	--	--	V	I _T =1mA, Pin3 to Pin1 or 2
		13.3	--	--		I _T =1mA, Pin1 or 2 to Pin3
Leakage Current I _{Leak}	I _R	--	--	1.0	μA	V _{RWM} =7V, Pin3 to Pin1 or 2
		--	--	1.0		V _{RWM} =12V, Pin1 or 2 to Pin3
Clamping Voltage	V _C	--	--	20.0	V	I _{PP} =18A, T _p =8/20μs, Pin3 to Pin1 or 2
		--	--	30.0		I _{PP} =13A, T _p =8/20μs, Pin1 or 2 to Pin3
Junction Capacitance	C _J	--	45.0	--	pF	V _R =0V, f=1MHz, Pin1 or 2 to Pin3

Characteristic Curves

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

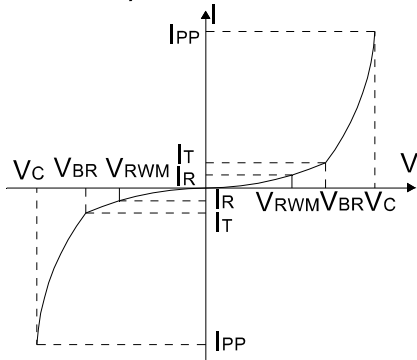


FIG.2: Pulse waveform (8/20μs)

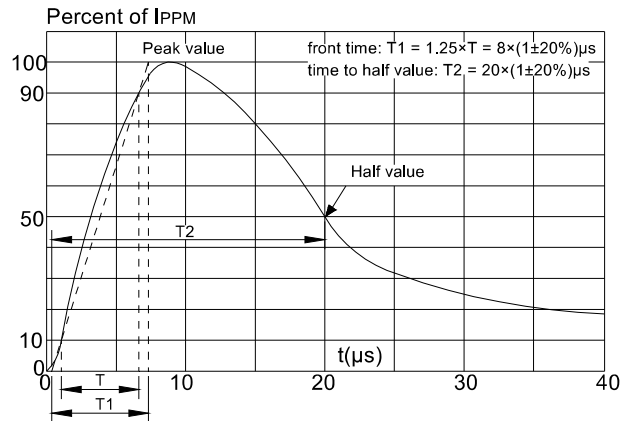


FIG.3: Pulse derating curve

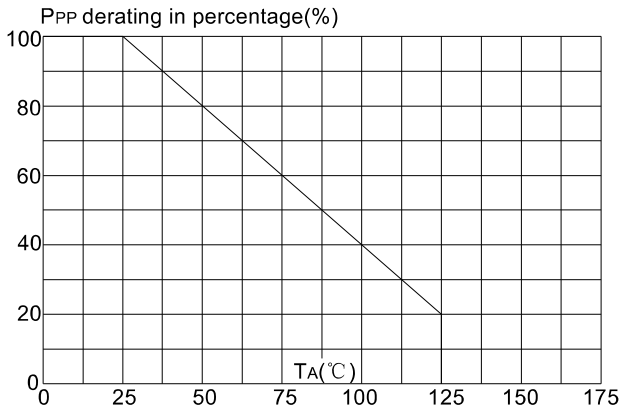
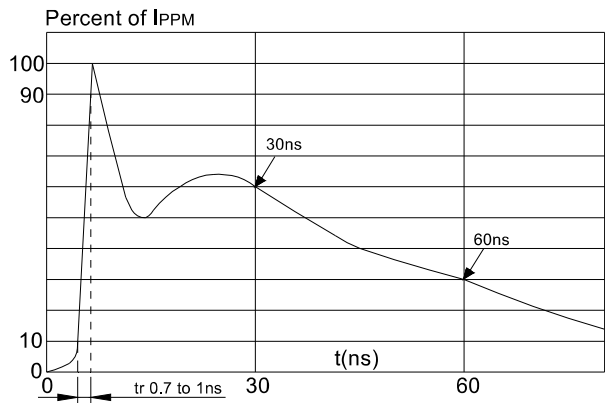
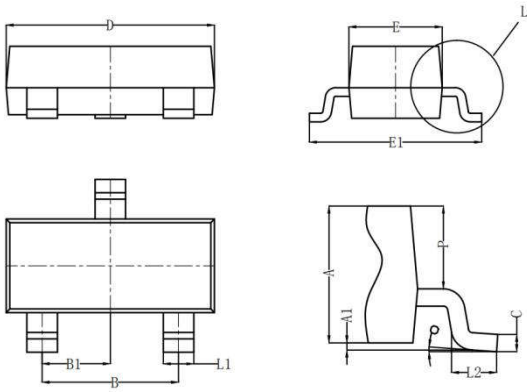


FIG.4: ESD clamping (8KV contact)



PACKAGE MECHANICAL DATA

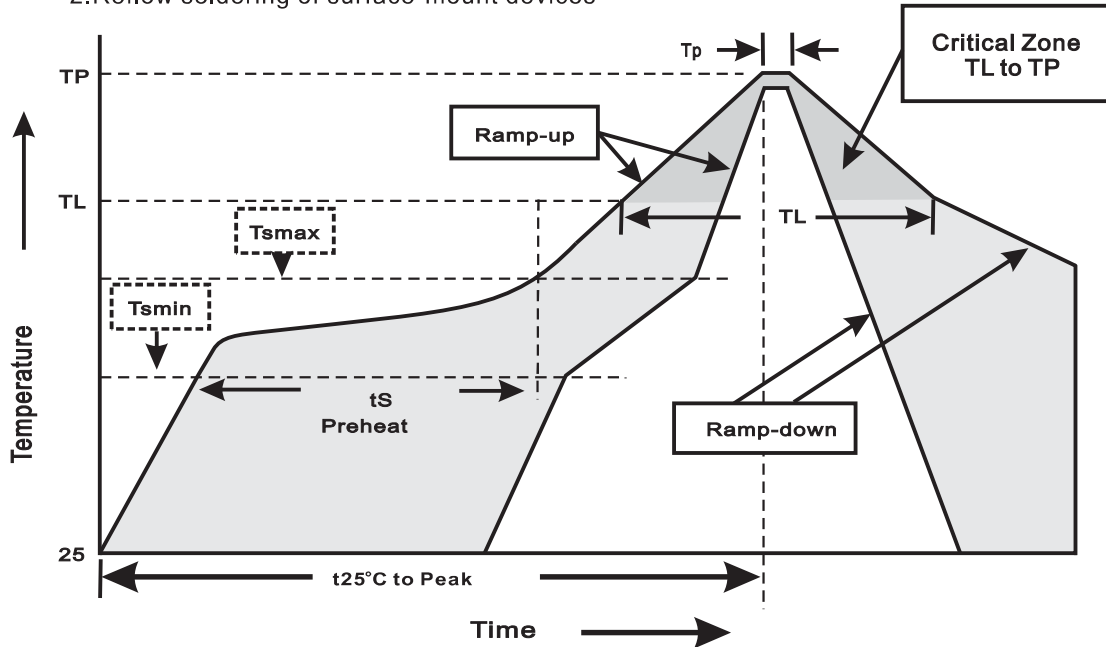


SOT-23

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

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