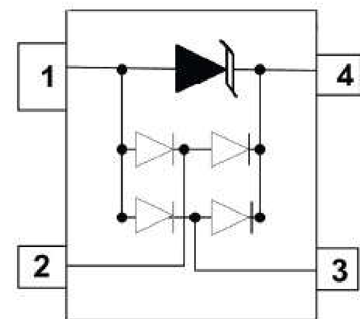
FEATURES:

- Protects one bi-directional I/O line
- Low clamping voltage
- Low operating voltage: 5.0V
- ROHS compliant

SOT-143

MAIN APPLICATIONS

- Fire wire & USB
- Sensitive analog inputs
- Notebook computers
- Portable electronics
- LAN/WAN equipment
- Video line protection
- Microcontroller input protection



PIN Configuration

PROTECTION SOLUTION TO MEET

- IEC61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)

MECHANICAL CHARACTERISTICS

- Package SOT-143
- Molding Compound Flammability Rating : UL 94V-O
- Quantity Per Reel : 3,000pcs
- Lead Finish : Lead Free
- Marking : E5R

ABSOLUTE MAXIMUM RATINGS (T_A=25ºC, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Storage temperature range	T_{stg}	-55 to +150	℃
Operating junction temperature range	T_j	-55 to +125	℃
Lead Soldering Temperature	T_L	260 (10 sec.)	℃
Peak pulse power dissipation on 8/20 µs waveform	P_{PP}	60	W
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	+/- 15 +/- 8	kV

ELECTRICAL CHARACTERISTICS (T_A=25℃)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse working voltage	V_{RWM}				5.0	V
Reverse breakdown voltage	V_{BR}	I_T = 1mA	6.0			V
Reverse leakage current	I_R	V_{RWM} = 5V pin4 to pin1			1	μA
Clamping voltage (I/O pin to Ground)	V_C	I_{PP} =1A, tp =8/20μs		9	10	V
		I_{PP} =5A, tp =8/20μs		12	13	V
Junction capacitance	C_J	V_{RWM} = 0V, f = 1MHz Any I/O pin to Ground		0.8	1.0	pF
		V_{RWM} = 0V, f = 1MHz Between I/O pins		0.4	0.6	

RATINGS AND V-I CHARACTERISTICS CURVES (T_A=25ºC, unless otherwise noted)

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

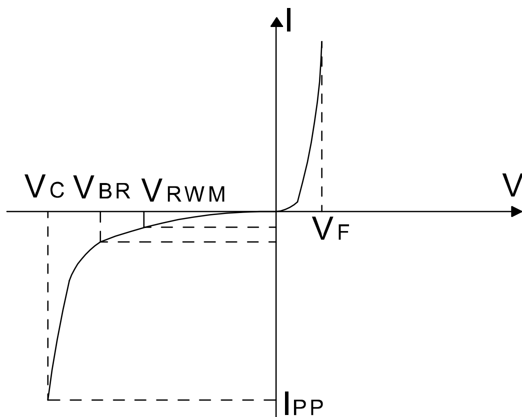


FIG.2: Pulse waveform (8/20μs)

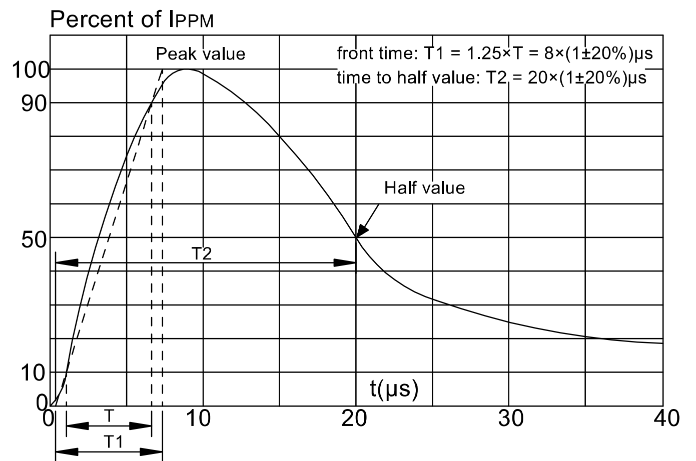


FIG.3: Pulse derating curve

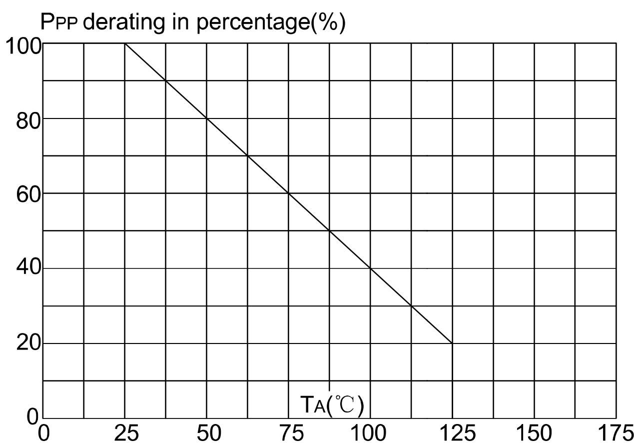
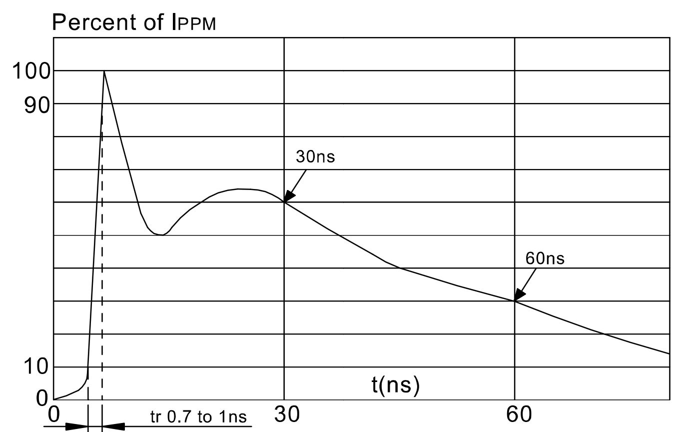
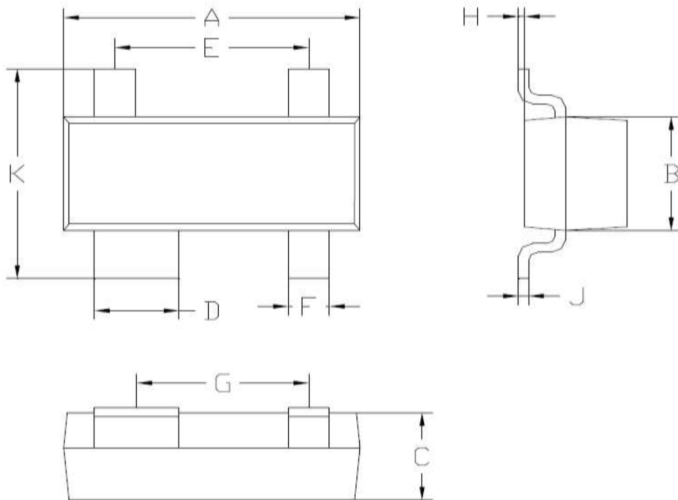


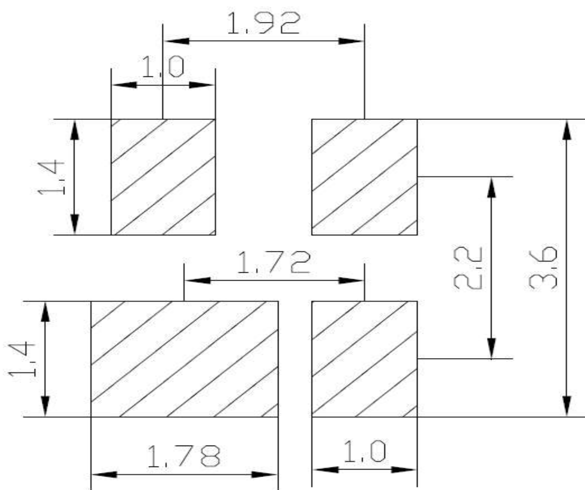
FIG.4: ESD clamping (8KV contact)



PACKAGE MECHANICAL DATA



SOT-143		
Dim	Min	Max
A	2.70	3.10
B	1.10	1.50
C	0.9	1.1
D	0.78	0.88
E	1.80	2.00
F	0.37	0.43
G	1.59	1.79
H	0.02	0.1
J	0.05	0.15
K	2.20	2.60
ALL Dimensions in mm		

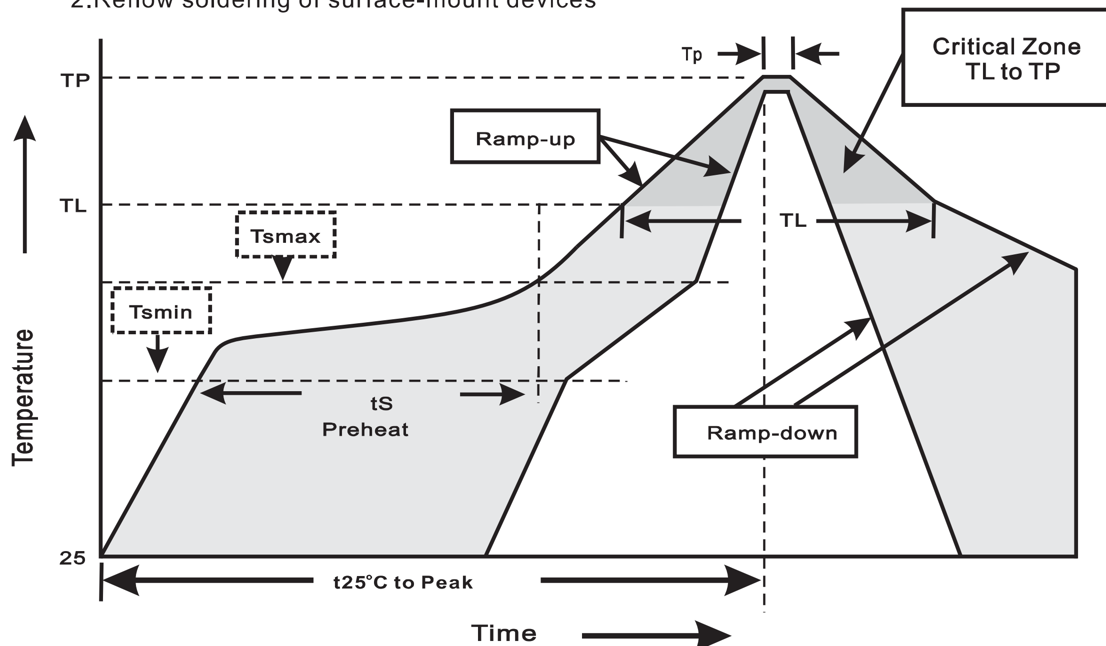


Unit ： mm

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(T_L to T_P)	<3°C/sec
Preheat -Temperature Min(Tsmin) -Temperature Max(Tsmax) -Time(min to max)(t_s)	150°C 200°C 60~120sec
Tsmax to T_L -Ramp-upRate	<3°C/sec
Time maintained above: -Temperature(T_L) -Time(t_L)	217°C 60~260sec
Peak Temperature(T_P)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t_P)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes