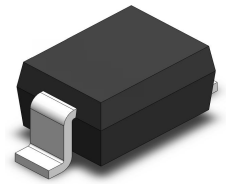
FESD05BD3

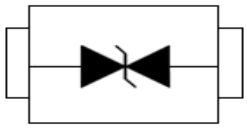
Bidirectional TVS Diode for ESD Protection

FEATURES:

- Protects one bi-directional I/O line
- Low clamping voltage
- Low operating voltage: 5V
- ROHS compliant



SOD-323



PIN Configuration

MAIN APPLICATIONS

- Cell Phone Handsets and Accessories
- Personal Digital Assistants (PDA's)
- Notebooks, Desktops, and Servers
- Portable Instrumentation
- Pagers
- Microprocessor based equipment

PROTECTION SOLUTION TO MEET

- IEC61000-4-2 (ESD) ±25kV (air), ±25kV (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)

MECHANICAL CHARACTERISTICS

- Package SOD-323
- Molding Compound Flammability Rating : UL 94V-O
- Quantity Per Reel : 3,000pcs
- Lead Finish : Lead Free
- Marking code：05B

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}	350	W
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	+/- 25 +/- 25	kV

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ELECTRICAL CHARACTERISTICS (T_A=25℃)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Reverse Working Voltage	V_R				5	V
Reverse Breakdown Voltage	V_{BR}	IT = 1mA	6.2			V
Reverse Leakage Current	I_R	V_R = 5V			10	μA
Peak Pulse Current	Ipp	t p =8/20μs			17	A
Clamping Voltage	V_C	I_{PP} = 1A, tp =8/20μs		9.8		V
		I_{PP} = 17A, tp =8/20μs			21	V
Junction Capacitance	C_J	V_R = 0V, f = 1MHz		200		pF

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

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

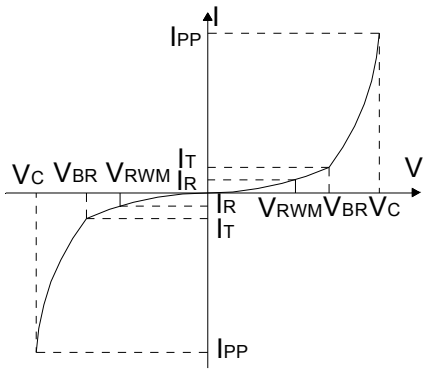


FIG.2: Pulse waveform (8/20μs)

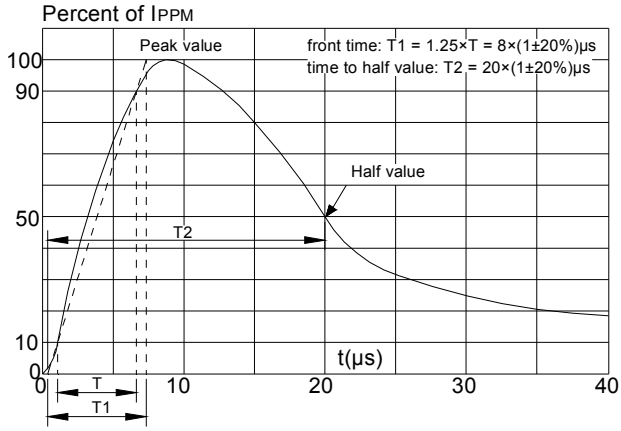


FIG.3: Pulse derating curve

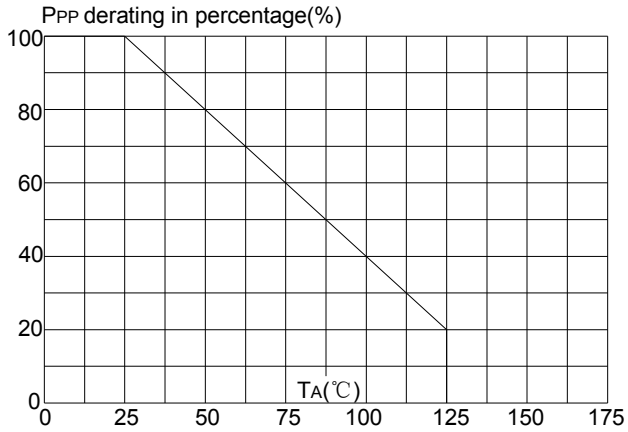
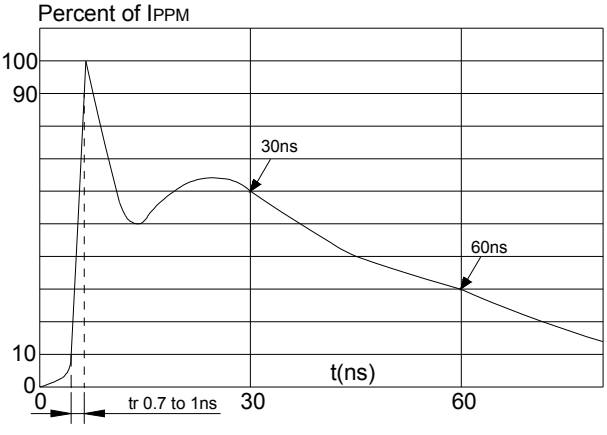
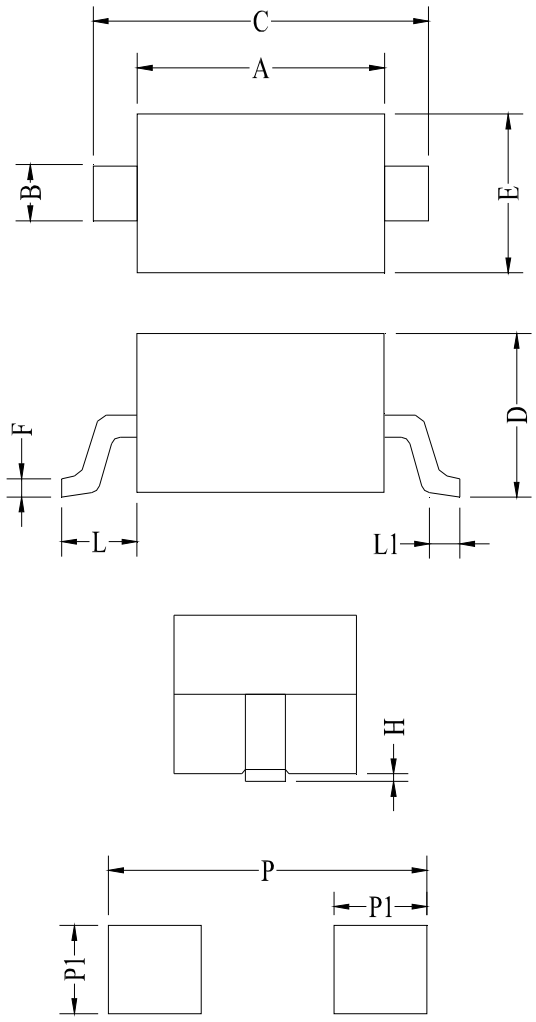


FIG.4: ESD clamping



PACKAGE MECHANICAL DATA

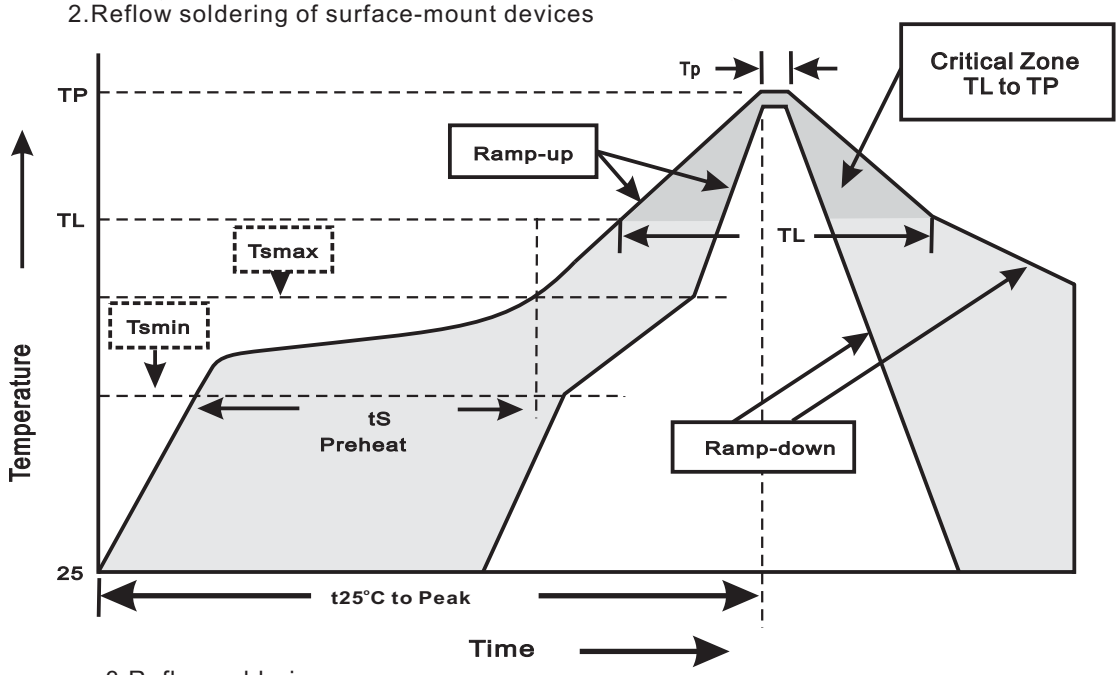


Land Pattern

Symbol	Millimeter		Inches	
	Min	Max	Min	Max
A	1.60	1.80	0.063	0.071
B	0.25	0.35	0.010	0.014
C	2.50	2.70	0.098	0.106
D	0.00	1.00	0.000	0.039
E	1.20	1.40	0.047	0.055
F	0.08	0.15	0.003	0.006
L	0.475REF		0.019REF	
L1	0.25	0.40	0.010	0.016
H	0.00	0.10	0.000	0.004
P	3.00		0.118	
P1	0.80		0.031	

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