

JEB03D3 thru JEB24D3 Bidirectional TVS Diode for ESD Protection

Features and benefits

- ✧ 400 Watts Peak Pulse Power per Line (tp=8/20 μs)
- ✧ Protects one bi-directional I/O line or power line
- ✧ Low clamping voltage
- ✧ Working voltages : 3.3V, 5V, 12V, 15V, 24V
- ✧ Low leakage current
- ✧ ROHS compliant

Application information

- ✧ Consumer electronics DC power supply
- ✧ Low frequency signal transmission line (RS232, RS485, etc.)

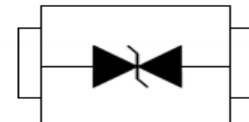
Protection solution to meet

- ✧ IEC61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
- ✧ IEC61000-4-4 (EFT) 40A (5/50ns)
- ✧ IEC61000-4-5 (Lightning) 30A (8/20 μs)

Pin Information and Graphic symbol



SOD-323



symbol

Mechanical Characteristics

- ✧ SOD-323 Package
- ✧ Molding Compound Flammability Rating : UL 94V-O
- ✧ Weight 5 Milligrams (Approximate)
- ✧ Quantity Per Reel : 3,000pcs
- ✧ Lead Finish : Lead Free
- ✧ Marking Code: See next table

Absolute Maximum Ratings (T_A=25 °C, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Storage temperature range	T _{stg}	-55 to +150	°C
Operating junction temperature range	T _j	-55 to +125	°C
Lead Soldering Temperature	T _L	260 (10 sec.)	°C
Peak pulse power dissipation on 8/20 μs waveform	P _{PP}	400	W
ESD per IEC 61000-4-2 (Air)	V _{ESD}	+/- 15	kV
ESD per IEC 61000-4-2 (Contact)		+/- 8	

Electrical Characteristics (TA=25°C)

Part Number	Marking	V_R	$I_R@V_R$	$V_{BR}@I_T=1mA$	$V_C@1A$	$V_C@IPP$	$IPP①$	C_j
		V	μA	min(V)	max(V)	max(V)	A	pF
JEB03D3	03B	3.3	1	3.6	7.5	15	30	42
JEB05D3	05B	5	1	6	9.0	18	22	33
JEB12D3	12B	12	1	13.3	19	33	12	30
JEB15D3	15B	15	1	16.7	20	45	10	35
JEB24D3	24B	24	1	26.7	40	50	8	30

① Surge waveform: 10/1000 μs

V_R : Stand-off Voltage -- Maximum voltage that can be applied

V_{BR} : Breakdown Voltage

V_C : Clamping Voltage -- Peak voltage measured across the suppressor at a specified I_{pp}

I_R : Reverse Leakage Current

RATINGS AND V-I CHARACTERISTICS CURVES (TA=25 °C, unless otherwise noted)

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

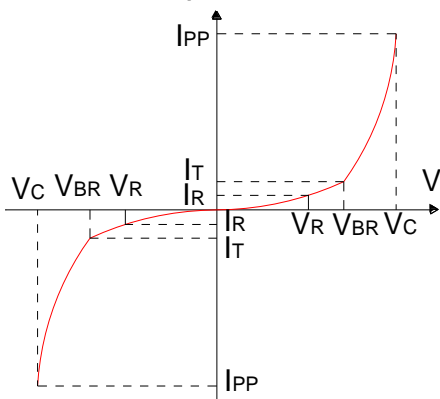


FIG.2: Pulse waveform

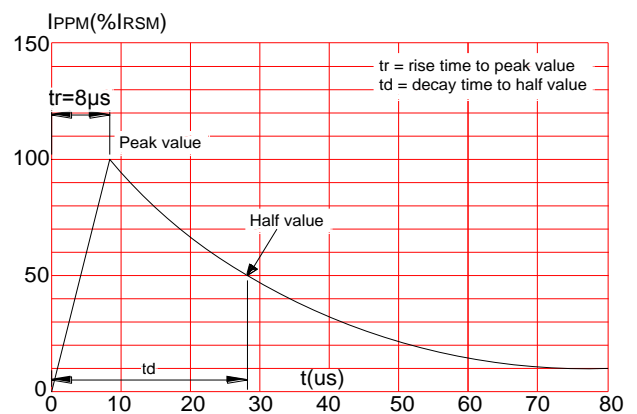


FIG.3: Pulse derating curve

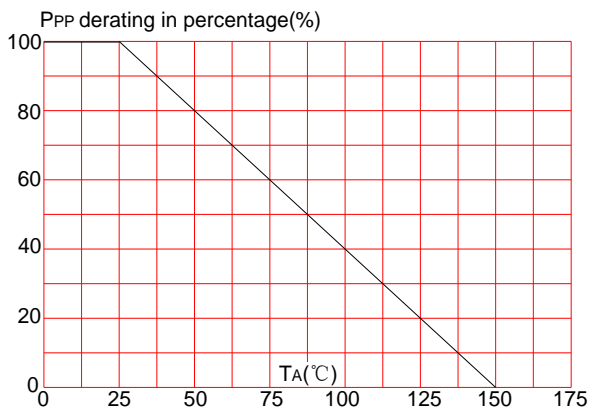
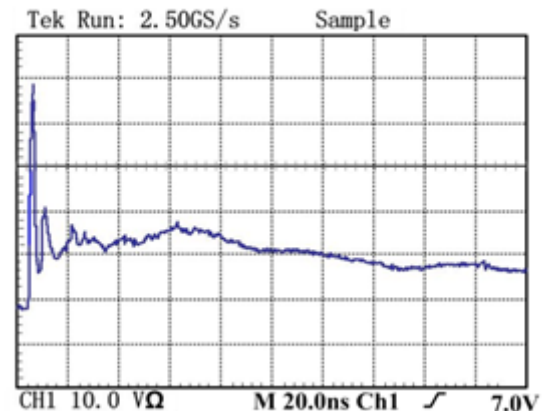
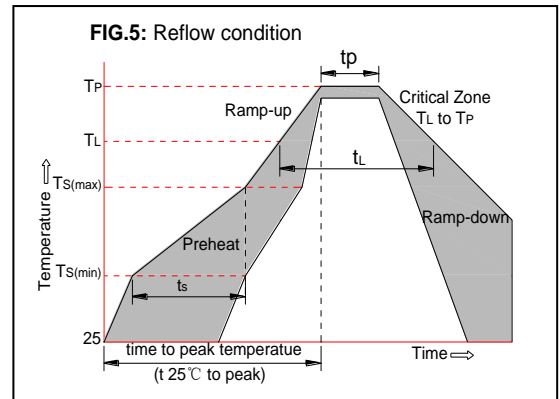


FIG.4:ESD Clamping(8KV Contact)

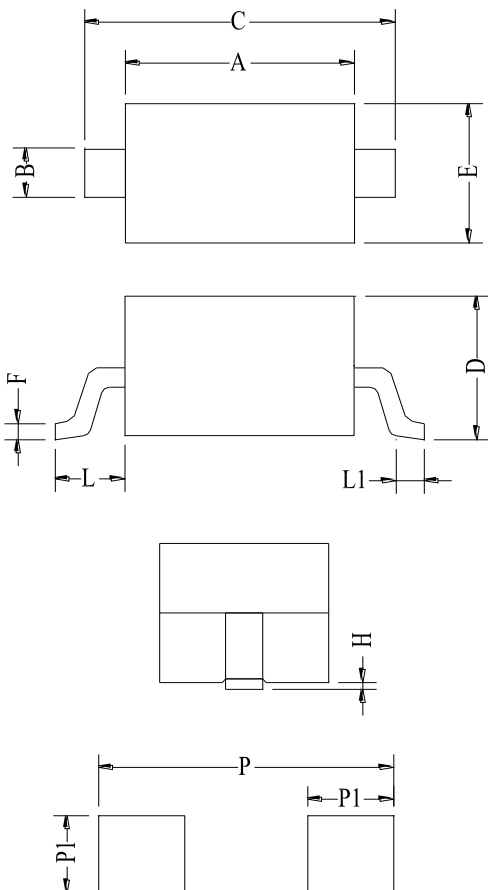


SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see FIG.5)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (t_s)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_p)		8 min. Max
Do not exceed		+260°C



PACKAGE MECHANICAL DATA



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
P1	0.8		0.031	
P	3.0		0.118	