

JEB03T2B thru JEB36T2B Bidirectional TVS Diode for ESD Protection

Features and benefits

- ✧ 350 Watts Peak Pulse Power per Line (tp=8/20 μs)
- ✧ Protects two I/O line or power line
- ✧ Low clamping voltage
- ✧ Working voltages : 3.3V, 5V, 12V, 15V, 24V, 36V
- ✧ Low leakage current
- ✧ ROHS compliant
- ✧ AEC-Q101 Qualified

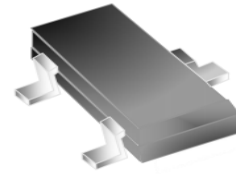
Application information

- ✧ Consumer electronics DC power supply
- ✧ Low frequency signal transmission line (RS232, RS485, etc.)
- ✧ Wireless bus protection.
- ✧ CAN-BUS

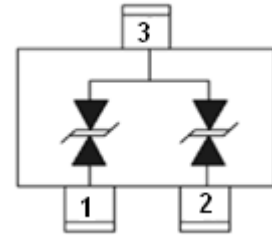
Protection solution to meet

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

Pin Information and Graphic symbol



SOT-23



Pin Configuration

Mechanical Characteristics

- ✧ SOT-23 Package
- ✧ Molding Compound Flammability Rating : UL 94V-O
- ✧ Weight 8 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}	350	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	$I_R @ V_R$	$V_{BR} @ I_T=1mA$	$V_C @ 1A$	$V_C @ I_{PP}$	$I_{PP}^{①}$	$C_j^{②}$
		V	μA	min(V)	max(V)	max(V)	A	typ (pF)
JEB03T2B	3B2	3.3	1	4	8	26	20	100
JEB05T2B	5B2	5	1	6	9.8	16.7	18	75
JEB12T2B	AB2	12	1	13.3	19	25	12	30
JEB15T2B	BB2	15	1	16.7	24	30	10	25
JEB24T2B	CB2	24	1	26.7	43	60	6	15
JEB36T2B	DB2	36	1	40	60	75	6	15

① Surge waveform: 8/20 μs

② C_j measured @ $V_R=0V$, 1MHz (pin 1 to pin3, pin 2 to pin3)

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)

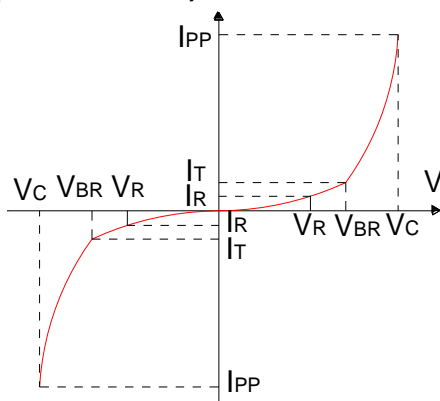


FIG.2: Pulse waveform

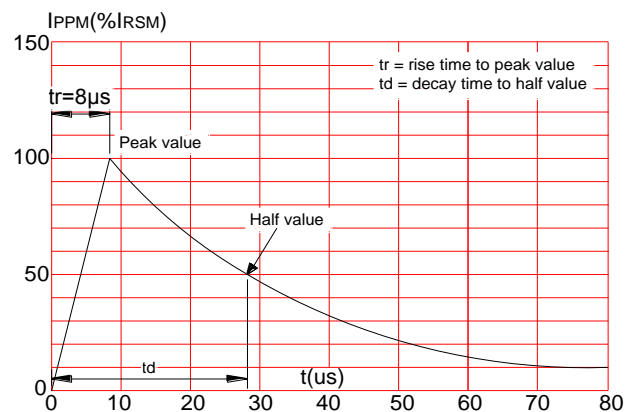


FIG.3: Pulse derating curve

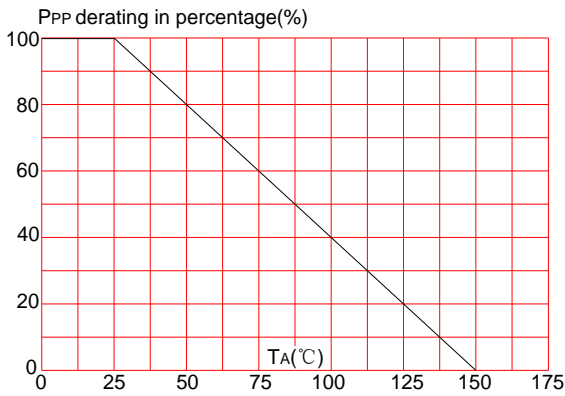
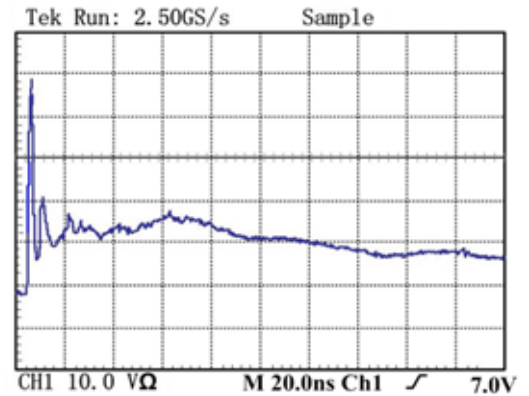
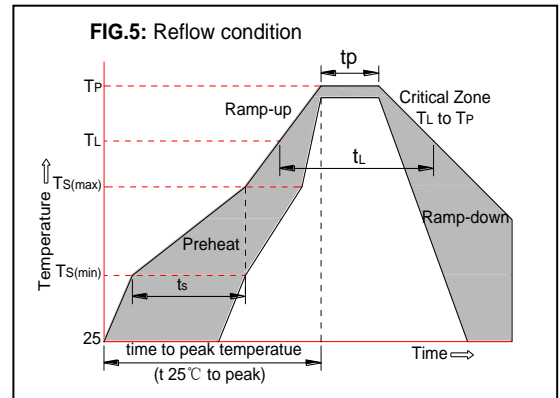


FIG.4:ESD Clamping(8KV Contact)

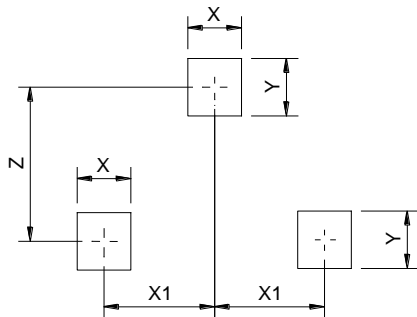
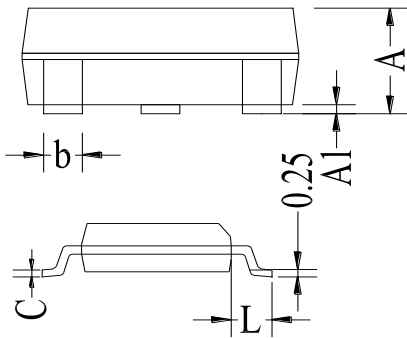
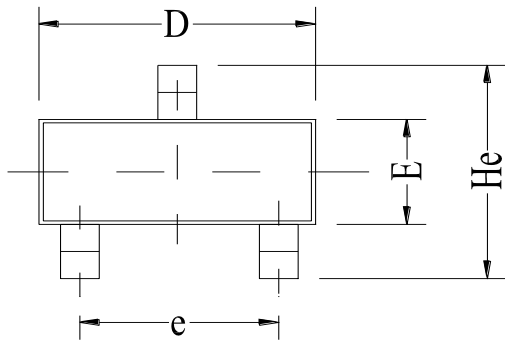


SOLDERING PARAMETERS

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



Land Pattern

Symbol	Millimeter		Inches	
	Min	Max	Min	Max
A	0.89	1.11	0.035	0.044
A1	0.01	0.10	0.001	0.004
b	0.37	0.50	0.15	0.20
C	0.09	0.18	0.003	0.007
D	2.80	3.04	0.11	0.12
e	1.78	2.04	0.07	0.081
E	1.20	1.40	0.047	0.055
L	0.35	0.69	0.014	0.029
He	2.10	2.64	0.083	0.104
X	0.80		0.031	
X1	0.95		0.037	
Y	0.90		0.035	
Z	2.00		0.079	