



### FEATURES:

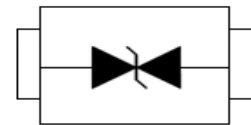
- ◇ 2000 Watts peak pulse power per line ( $t_p=8/20\mu s$ )
- ◇ Protects one bi-directional I/O line
- ◇ Low clamping voltage
- ◇ Working voltage:4.5V
- ◇ Low leakage current
- ◇ RoHS compliant



SOD-323

### MAIN APPLICATIONS

- ◇ Cell phone handsets and accessories
- ◇ Microprocessor based equipment
- ◇ Personal digital assistants (PDA's)
- ◇ Notebooks, desktops, and servers
- ◇ Portable instrumentation



Pin Configuration

### PROTECTION SOLUTION TO MEET

- ◇ IEC61000-4-2 (ESD)  $\pm 30kV$  (air),  $\pm 30kV$  (contact)
- ◇ IEC61000-4-4 (EFT) 40A (5/50ns)
- ◇ IEC61000-4-5 (Lightning) 140A (8/20 $\mu s$ )

### MECHANICAL CHARACTERISTICS

- ◇ SOD-323 package
- ◇ Molding compound flammability rating : UL 94V-0
- ◇ Weight 5 milligrams (approximate)
- ◇ Quantity per reel : 3,000pcs
- ◇ Lead finish : lead free
- ◇ Marking code: D4

**ABSOLUTE MAXIMUM RATINGS** ( $T_A=25^{\circ}\text{C}$ , RH=45%-75%, unless otherwise noted)

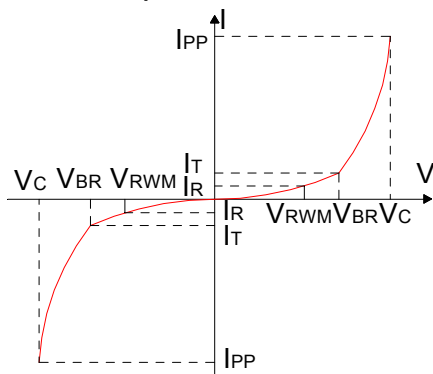
Parameter	Symbol	Value	Unit
Peak pulse power dissipation on 8/20 $\mu\text{s}$ waveform	$P_{PP}$	2000	W
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	$V_{ESD}$	+/- 30 +/- 30	kV
Lead soldering temperature	$T_L$	260 (10 sec.)	$^{\circ}\text{C}$
Operating junction temperature range	$T_J$	-55 to +125	$^{\circ}\text{C}$
Storage temperature range	$T_{STG}$	-55 to +150	$^{\circ}\text{C}$

**ELECTRICAL CHARACTERISTICS** ( $T_A=25^{\circ}\text{C}$ )

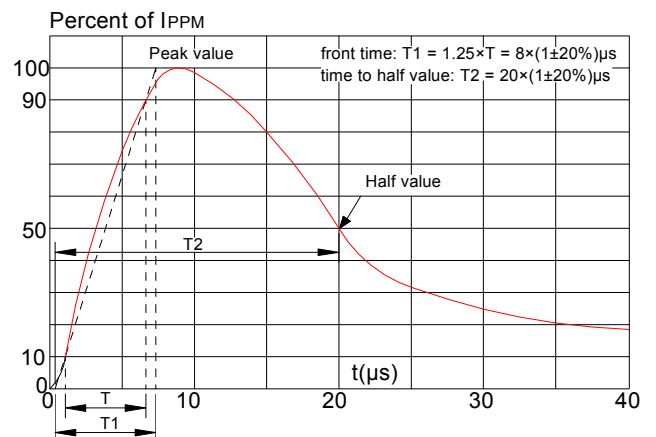
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse working voltage	$V_{RWM}$				4.5	V
Reverse breakdown voltage	$V_{BR}$	$I_T=1\text{mA}$	4.7		6.5	V
Reverse leakage current	$I_R$	$V_{RWM} = \pm 4.5\text{V}$			$\pm 1$	$\mu\text{A}$
Clamping voltage	$V_C$	$I_{PP}=100\text{A}$ , $t_P=8/20\mu\text{s}$		12	14	V
		$I_{PP}=140\text{A}$ , $t_P=8/20\mu\text{s}$		16	18	V
Junction capacitance	$C_J$	$V_{RWM}=0\text{V}$ , $f=1\text{MHz}$		450	600	pF

**RATINGS AND V-I CHARACTERISTICS CURVES** ( $T_A=25^{\circ}\text{C}$ , unless otherwise noted)

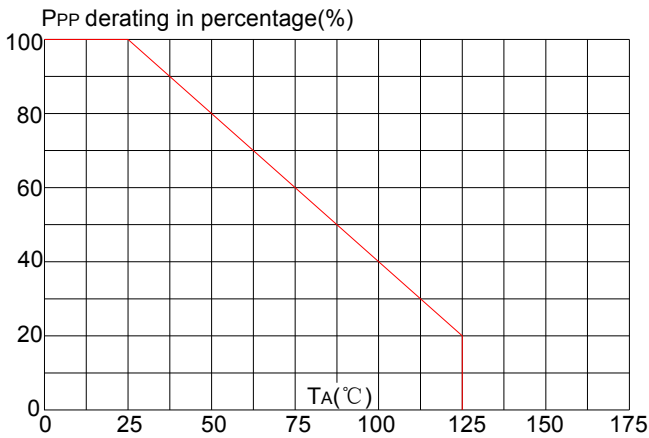
**FIG.1:V- I curve characteristics (Bi-directional)**



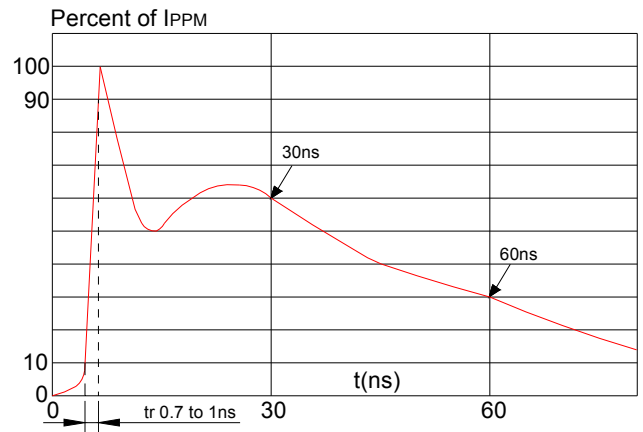
**FIG.2: Pulse waveform (8/20 $\mu\text{s}$ )**



**FIG.3: Pulse derating curve**

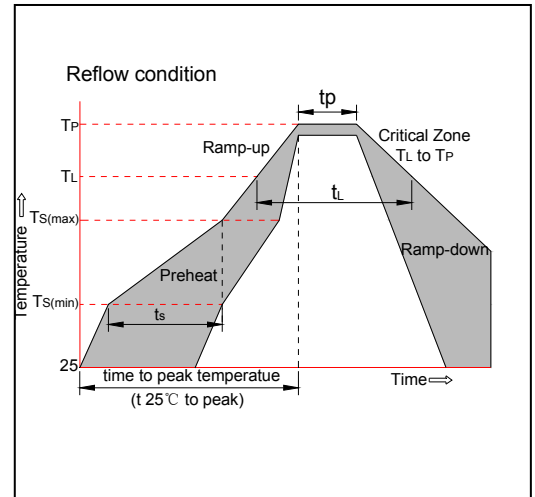


**FIG.4: ESD clamping (30kV contact)**

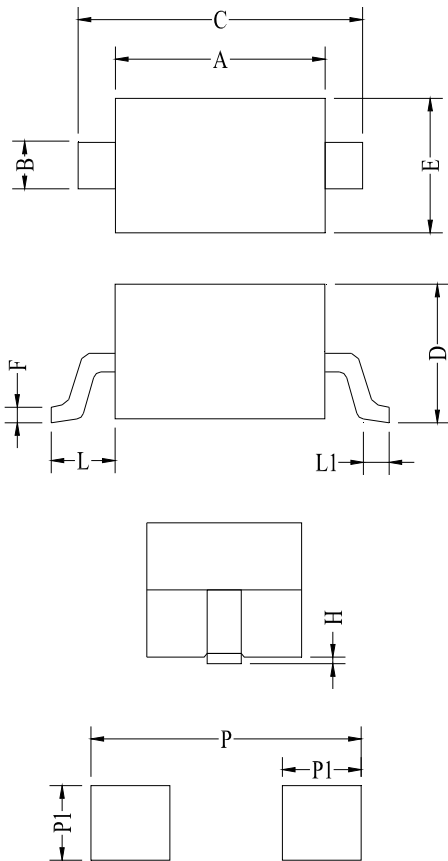


**SOLDERING PARAMETERS**

Reflow Condition		Pb-Free assembly (see figure at right)
Pre Heat	-Temperature Min ( $T_{s(min)}$ )	+150°C
	-Temperature Max ( $T_{s(max)}$ )	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquidus Temp ( $T_L$ ) to peak)		3°C/sec. Max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature ( $T_L$ ) (Liquidus)	+217°C
	-Temperature ( $t_L$ )	60-150 secs.
Peak Temp ( $T_p$ )		+260(+0/-5)°C
Time within 5°C of actual Peak Temp ( $t_p$ )		20-40secs.
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp ( $T_p$ )		8 min. Max
Do not exceed		+260°C



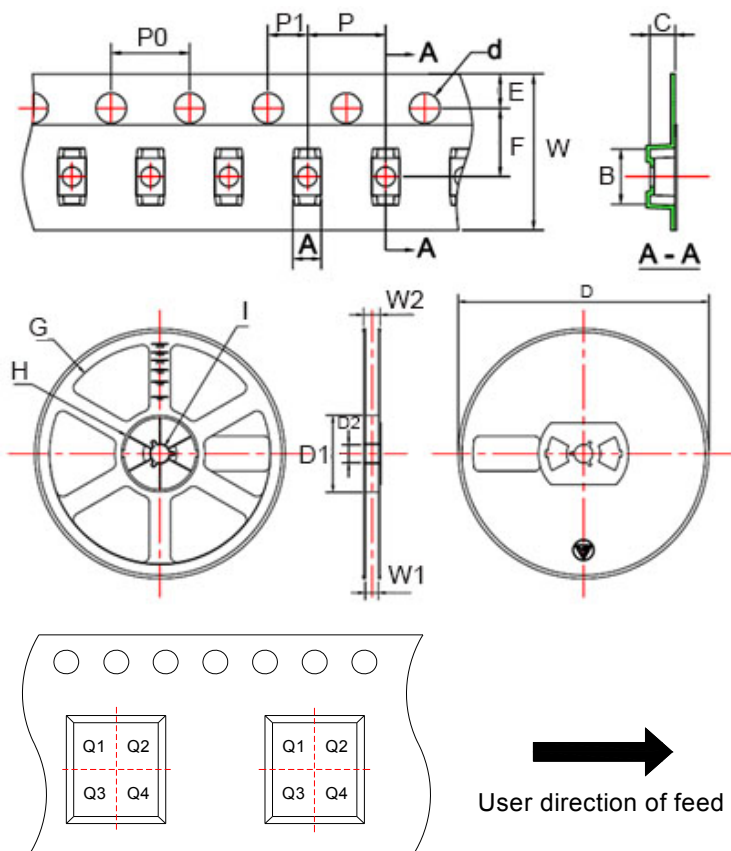
**PACKAGE MECHANICAL DATA**



**Land Pattern**

Symbol	Millimeters			Inches		
	Min	Typ	Max	Min	Typ	Max
A	1.60	1.70	1.80	0.063	0.067	0.071
B	0.25	0.32	0.40	0.010	0.013	0.016
C	2.30	2.60	2.80	0.091	0.102	0.110
D	0.80	0.95	1.10	0.031	0.037	0.043
E	1.20	1.30	1.40	0.047	0.051	0.055
F	0.08	0.13	0.18	0.003	0.005	0.007
L	0.475REF			0.019REF		
L1	0.25	0.33	0.40	0.010	0.013	0.016
H	0.00	0.06	0.14	0.000	0.002	0.006
P	3.00			0.118		
P1	0.80			0.031		

**TAPE AND REEL INFORMATION-SOD-323**



Pin 1 quadrant:Q1&Q2

**Packaging description:**


SOD-323 parts are shipped in tape. The carrier tape is made from a dissipative(carbon filled) polycarbonate resin. The cover tape is a multilayer film(heat activated adhesive in nature)primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. The reels are blue in color and made of recyclable plastic.

Symbol	Millimeters	Inches
	Typ	Typ
A	1.46	0.057
B	2.90	0.114
C	1.25	0.049
d	ø1.50	ø0.059
E	1.75	0.069
F	3.50	0.138
P0	4.00	0.157
P	4.00	0.157
P1	2.00	0.079
W	8.00	0.315
D	ø178.0	ø7.008
D1	54.40	2.142
D2	13.00	0.512
G	R78.0	R3.071
H	R25.60	R1.008
I	R6.50	R0.256
W1	9.50	0.374
W2	12.30	0.484

**ORDERING INFORMATION**

PART No.	PACKAGE TYPE	QUANTITY(PCS) REEL	DESCRIPTION
JEB4V5D3U	SOD-323	3,000	7 inch reel pack

**MARKING CODE**

Part Number	Marking Code
JEB4V5D3U	

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