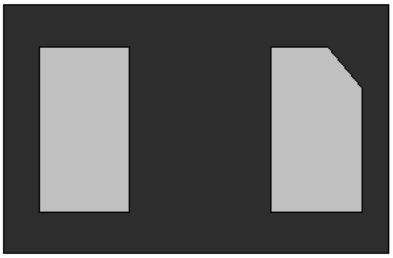
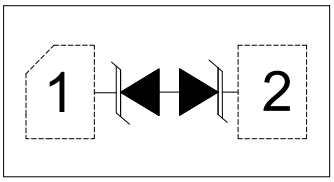
JEB2V5DF Bi-directional TVS Diode for ESD Protection Rev.1.2

FEATURES

- ✧ Transient protection for high-speed data lines
- ✧ Package optimized for high-speed lines
- ✧ Provides protection for one line pair
- ✧ Low capacitance: 4.5pF@2.5V (typical)
- ✧ Low leakage current: 10nA@V_{RWM} (typical)
- ✧ Low operating and clamping voltage
- ✧ RoHS compliant



DFN1006-2L (Bottom view)



Pin Configuration (Top view)

MAIN APPLICATIONS

- ✧ Portable instruments
- ✧ Desktops, servers and notebooks
- ✧ Cellular phones
- ✧ MP3 players
- ✧ Keypads, side keys

PROTECTION SOLUTION TO MEET

- ✧ IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact)
- ✧ IEC61000-4-4 (EFT) 40A (5/50ns)
- ✧ IEC61000-4-5 (Lightning) 10A (8/20μs)

MECHANICAL CHARACTERISTICS

- ✧ DFN1006-2L package
- ✧ Molding compound flammability rating: UL 94V-0
- ✧ Marking code: part number, date
- ✧ Quantity per reel: 10,000pcs
- ✧ Lead finish: lead free

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

Parameter	Symbol	Value	Unit
Peak pulse power dissipation at 8/20μs waveform	P_{PP}	100	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.)	℃
Operating junction temperature range	T_J	-55 to +125	℃
Storage temperature range	T_{STG}	-55 to +150	℃

ELECTRICAL CHARACTERISTICS(T_A=25℃)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse working voltage	V_{RWM}				2.5	V
Reverse leakage current	I_R	V_R=2.5V		0.01	0.05	μA
Peak pulse current	I_{PP}	t_P=8/20μs			10	A
Trigger voltage	V_{t1}	I_{t1}=1μA	3.0			V
Holding voltage	V_h	I_h=1mA	3.0		4.0	V
Clamping voltage	V_C	I_{PP}=2A, t_P=8/20μs			5.5	V
		I_{PP}=10A, t_P=8/20μs			9.0	V
Parasitic capacitance	C_{ESD}	V_R=2.5V, f=1MHz		4.5	6.0	pF
Variation in C_{ESD} with reverse bias	C_Δ	V_R=0V~2.5V, f=1MHz		1.3		pF

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

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

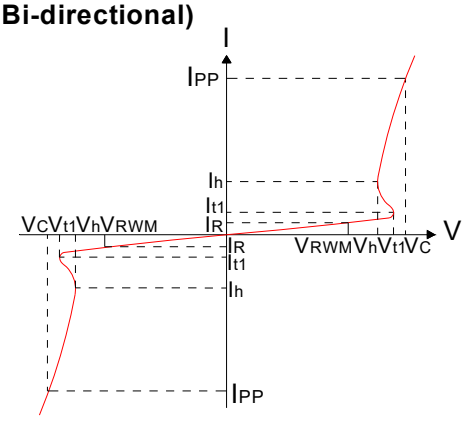


FIG.2: Pulse waveform (8/20μs)

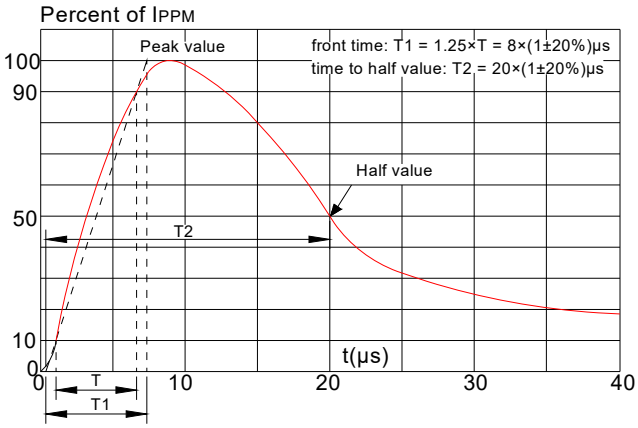


FIG.3: Pulse derating curve

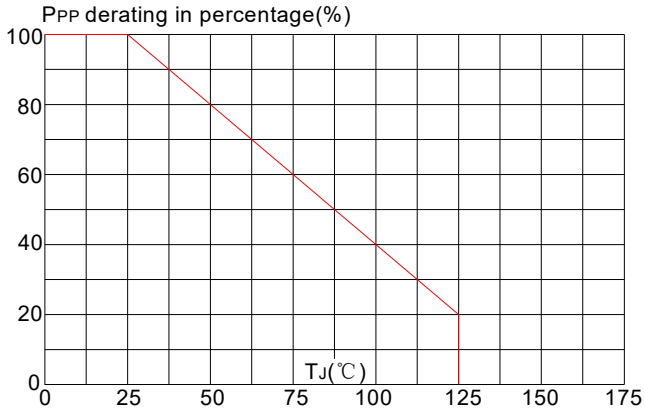
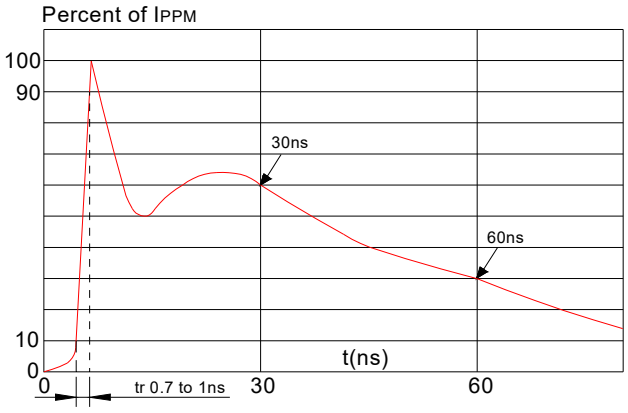
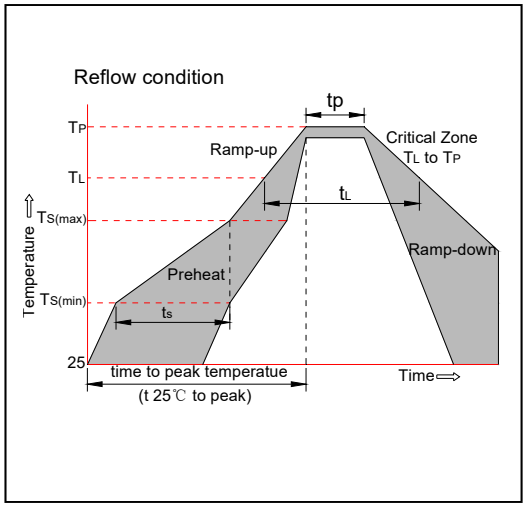


FIG.4: ESD clamping (30kV contact)

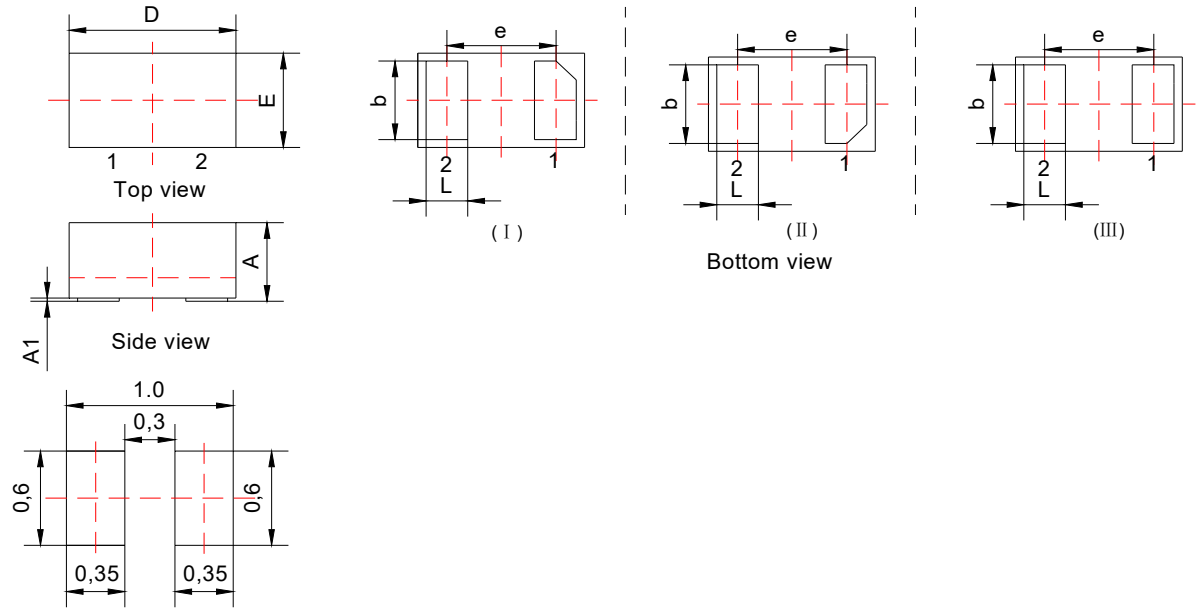


SOLDERING PARAMETERS

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



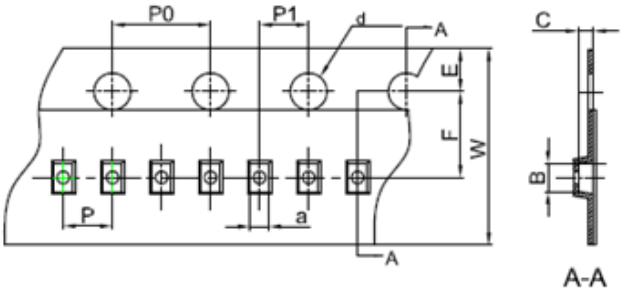
PACKAGE MECHANICAL DATA

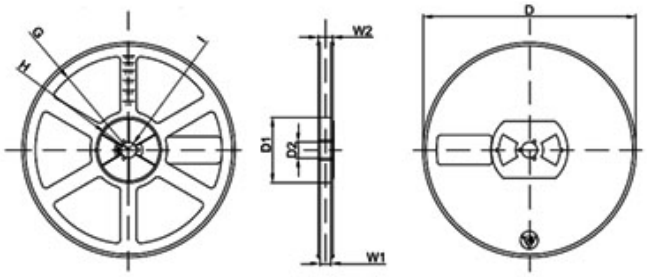


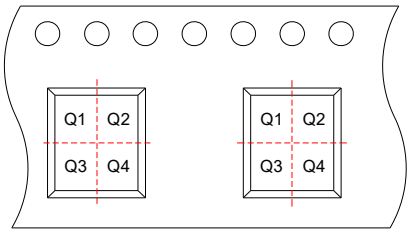
Recommended soldering footprint(mm)

Symbol	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	0.40	0.50	0.55	0.016	0.020	0.022
A1	0.00	0.02	0.05	0.000	0.001	0.002
b	0.45	0.50	0.55	0.018	0.020	0.022
D	0.95	1.00	1.05	0.037	0.039	0.041
e	0.65BSC			0.026BSC		
E	0.55	0.60	0.65	0.022	0.024	0.026
L	0.20	0.25	0.30	0.008	0.010	0.012

TAPE AND REEL INFORMATION-DFN1006-2L







User direction of feed

Pin 1 quadrant:Q1&Q2

Packaging Description:

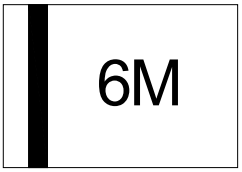
DFN1006-2L parts are shipped in tape. The carrier tape is made from a dissipative(carbon filled) polycarbonate resin. The cover tape is a multilayer film(heat activated adhesive in nature)primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 10,000units per 7" or 17.8cm diameter reel. The reels are clear in color and made of polystyrene plastic(anti-static coated).

Symbol	Millimeters	Inches
	Typ.	Typ.
a	0.66	0.026
B	1.15	0.045
C	0.66	0.026
d	Φ1.50	Φ0.059
E	1.75	0.069
F	3.50	0.138
P0	4.00	0.157
P	2.00	0.079
P1	2.00	0.079
W	8.00	0.315
D	Φ178	Φ7.008
D1	54.40	2.142
D2	13.00	0.512
G	R78.00	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	DESCIPTION
JEB2V5DF	DFN1006-2L	10,000	7 inch reel pack

MARKING CODE

Part Number	Marking Code
JEB2V5DF	Pin 1  Note: (1) “6” is part number, fixed (2) “M” is date code, which is the assembly month in a year, changing as (1~9, A, B, C)

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