Bi-directional TVS Diode for ESD Protection

Rev.1.2

Protects one bi-directional I/O line
Low clamping voltage
Low operating voltage: 36V
RoHS compliant

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

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

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

(T_A=25ºC, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak pulse power dissipation at 8/20µs waveform	P_{PP}	400	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.)	Ņ
Operating junction temperature range	T_J	-55 to +125	Ņ
Storage temperature range	T_{STG}	-55 to +150	Ņ

(T_A=25)

Parameter	**Symbol**	**Conditions**	**Min**	**Typ**	**Max**	**Unit**
Reverse working voltage	V_{RWM}				36	V
Reverse breakdown voltage	V_{BR}	I_T=1mA	40			V
Reverse leakage current	I_R	V_{RWM}=36V			1	μA
Peak pulse current	I_{PP}	t_P=8/20μs			4	A
Clamping voltage	V_C	I_{PP}=1A, t_P=8/20μs		50	55	V
		I_{PP}=4A, t_P=8/20μs		64	70	
Junction capacitance	C_J	V_{RWM}=0V, f=1MHz		11		pF

(T_A=25 , unless otherwise noted)

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

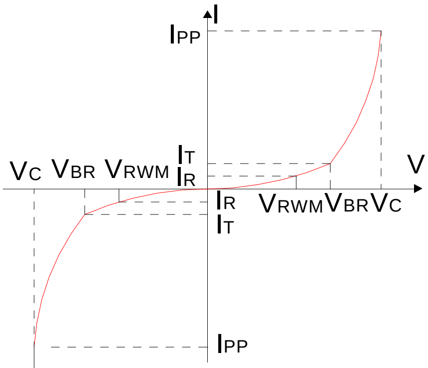


FIG.2: Pulse waveform (8/20μs)

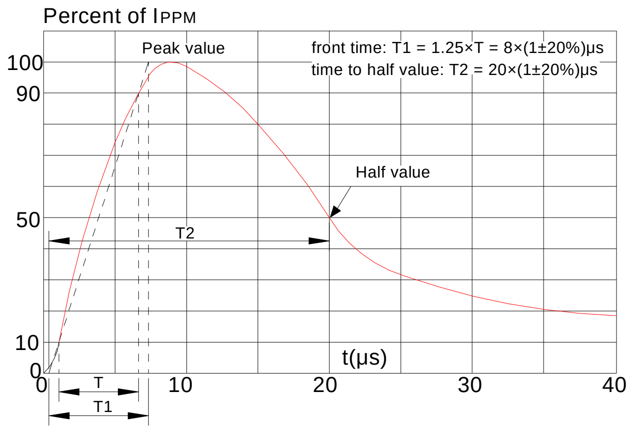


FIG.3: Pulse derating curve

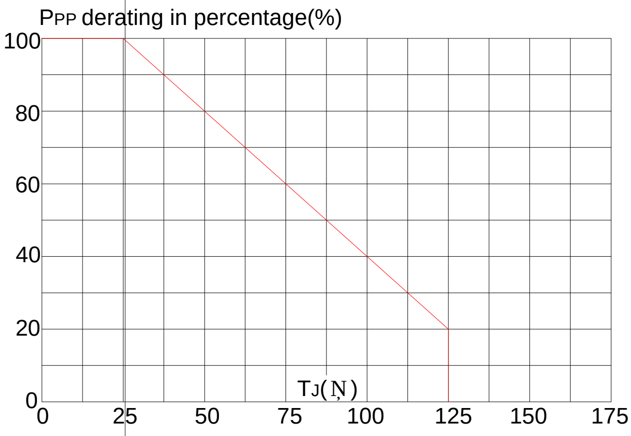
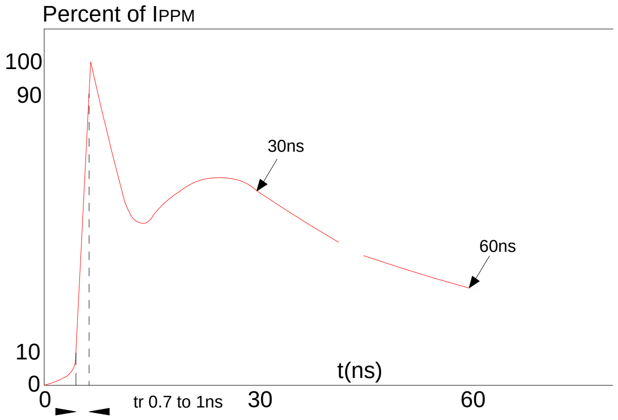
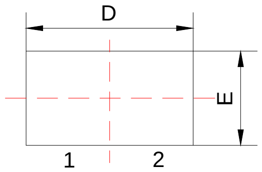


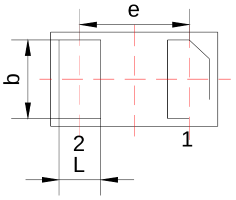
FIG.4: ESD clamping (30kV contact)



Reflow Condition		Pb-Free assembly (see figure at right)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150 Ņ
	-Temperature Max($T_{s(max)}$)	+200 Ņ
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquidus Temp (T_L)to peak)		3 Ņ/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3 Ņ/sec. Max
Reflow	-Temperature(T_L	



Top view



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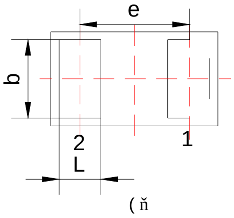

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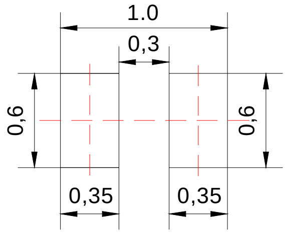
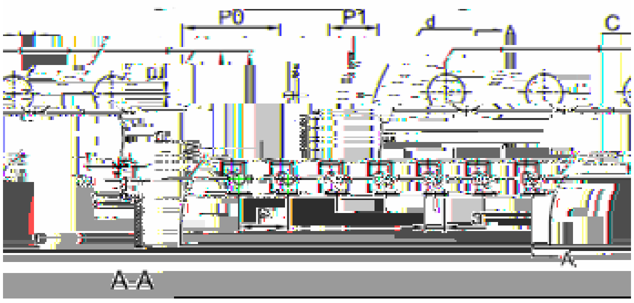
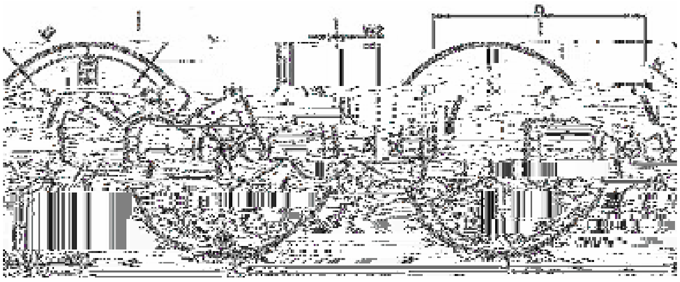
Bottom view

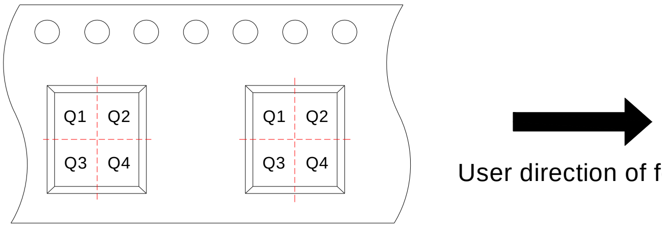
Side view



Recommended soldering footprint(mm)







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

PART No.	PACKAGE TYPE	QUANTITY(PCS) REEL	DESCIPTION
JEB36DFP	DFN1006-2L	10,000	7 inch reel pack