

Bi-directional TVS Diode for ESD Protection

FEATURES

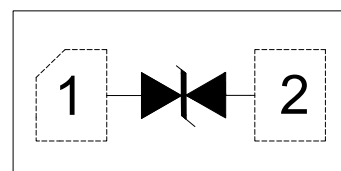
- ✧ Protects one bi-directional I/O line
- ✧ Low clamping voltage
- ✧ Low operating voltage: 3.3V
- ✧ Low leakage current
- ✧ Ultra low capacitance: 0.15pF(typ.)
- ✧ RoHS compliant



DFN1006-2L(Bottom view)

MAIN APPLICATIONS

- ✧ USB ports
- ✧ Display port
- ✧ Wireless communications
- ✧ Digital visual interface (DVI)
- ✧ Cellular handsets & accessories



Pin Configuration(Top view)

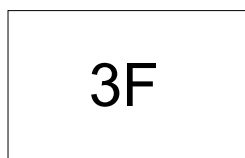
PROTECTION SOLUTION TO MEET

- ✧ IEC61000-4-2 (ESD) $\pm 15\text{kV}$ (air), $\pm 15\text{kV}$ (contact)
- ✧ IEC61000-4-4 (EFT) 40A (5/50ns)
- ✧ IEC61000-4-5 (Lightning) 4A (8/20 μs)

MECHANICAL CHARACTERISTICS

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

MARKING CODE



ORDERING INFORMATION

PART No.	PACKAGE TYPE	QUANTITY(PCS) REEL	DESCRIPTION
ESDB03LCDF	DFN1006-2L	10,000	7 inch reel pack

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 μs waveform	P_{PP}	80	W
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	+/- 15 +/- 15	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}				3.3	V
Reverse breakdown voltage	V_{BR}	$I_T=5\text{mA}$	3.8			V
Reverse leakage current	I_R	$V_{RWM}=3.3\text{V}$		0.1	1.0	μA
Peak pulse current	I_{PP}	$t_P=8/20\mu\text{s}$			4	A
Clamping voltage	V_C	$I_{PP}=4\text{A}$, $t_P=8/20\mu\text{s}$		16		V
Junction capacitance	C_J	$V_{RWM}=0\text{V}$, $f=1\text{MHz}$		0.15	0.20	pF

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

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

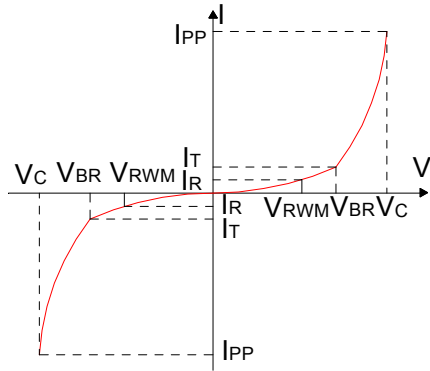


FIG.2: Pulse waveform (8/20 μs)

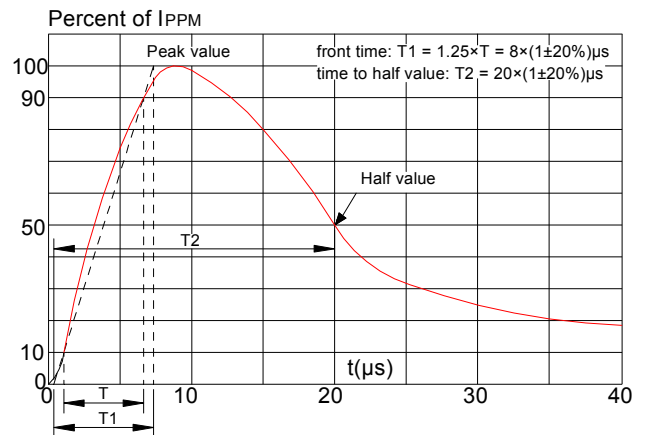


FIG.3: Pulse derating curve

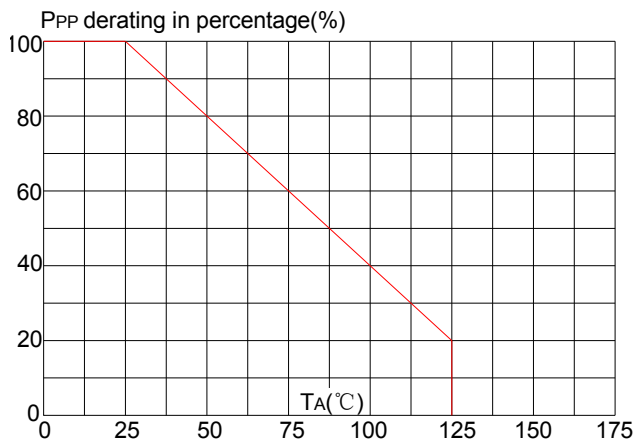
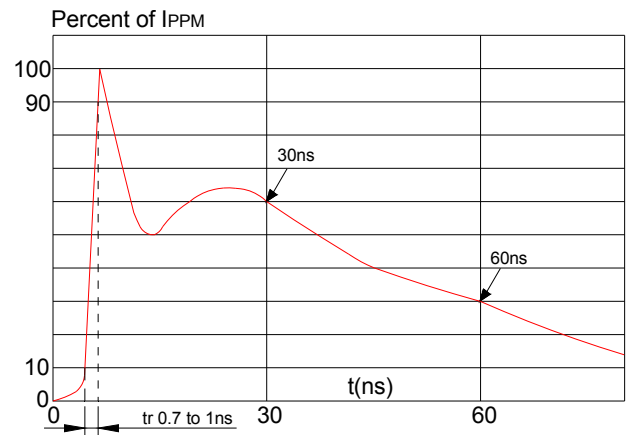
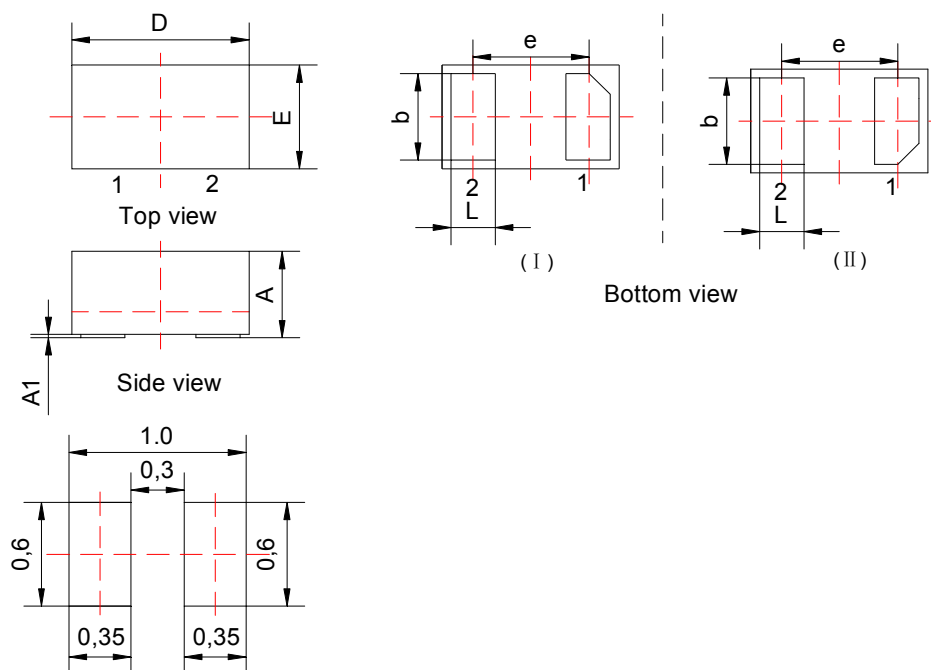


FIG.4: ESD clamping (15kV contact)



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