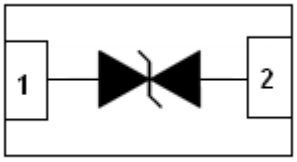
ASB12DF-Q1

Bi-directional TVS Diode for ESD Protection

FEATURES

- ✧ Protects one bi-directional I/O line
- ✧ Low clamping voltage
- ✧ Low operating voltage: 12V
- ✧ RoHS compliant
- ✧ Compliant to Halogen - free
- ✧ Suffix "-Q1" for AEC-Q101

DFN-2L(0402)



PIN Configuration

MAIN APPLICATIONS

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

PROTECTION SOLUTION TO MEET

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

MECHANICAL CHARACTERISTICS

- ✧ Package: DFN-2L(0402)
- ✧ Molding compound flammability rating : UL 94V-0
- ✧ Lead finish : lead free
- ✧ Marking code：AF or EF

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

Parameter	Symbol	Value	Unit
Peak pulse power dissipation on 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	℃

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ELECTRICAL CHARACTERISTICS (T_A=25℃)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse working voltage	V_{RWM}				12	V
Reverse breakdown voltage	V_{BR}	I_T = 1mA	13.3			V
Reverse leakage current	I_R	V_{RWM} = 12V			200	nA
Peak pulse current	I_{PP}	t_P =8/20μs			4	A
Clamping voltage	V_C	I_{PP} = 1A, t_P =8/20μs		16	20	V
		I_{PP} = 4A, t_P =8/20μs		22	26	V
Junction capacitance	C_J	V_{RWM} = 0V, f = 1MHz		35		pF

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

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

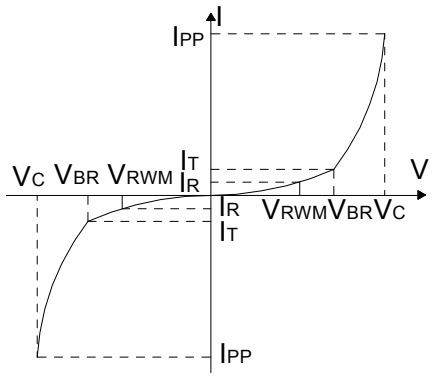


FIG.2: Pulse waveform (8/20μs)

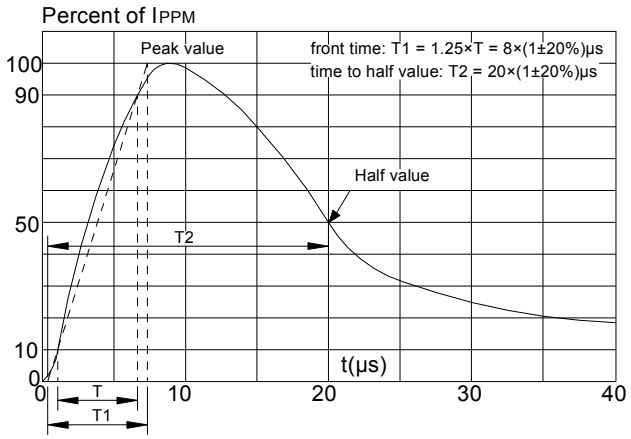


FIG.3: Pulse derating curve

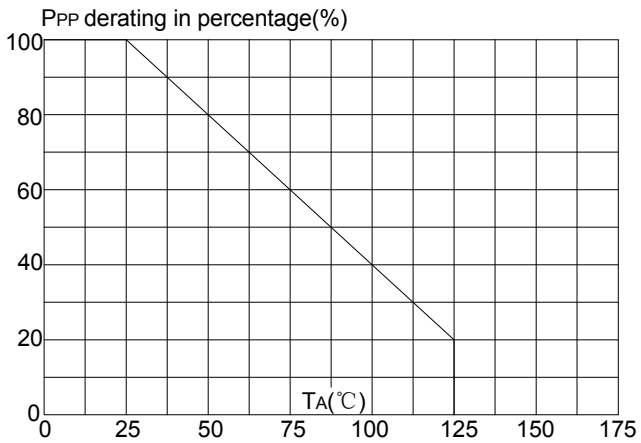
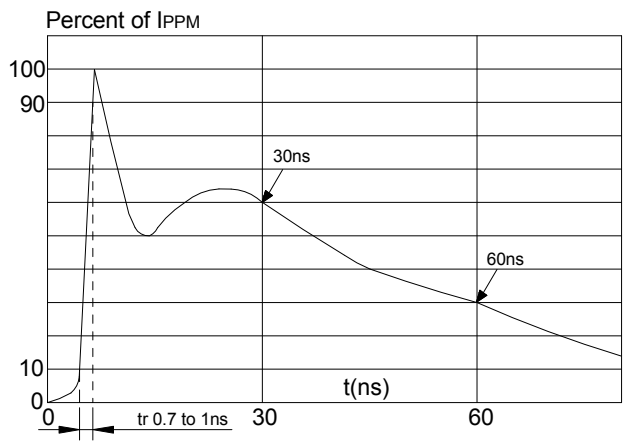
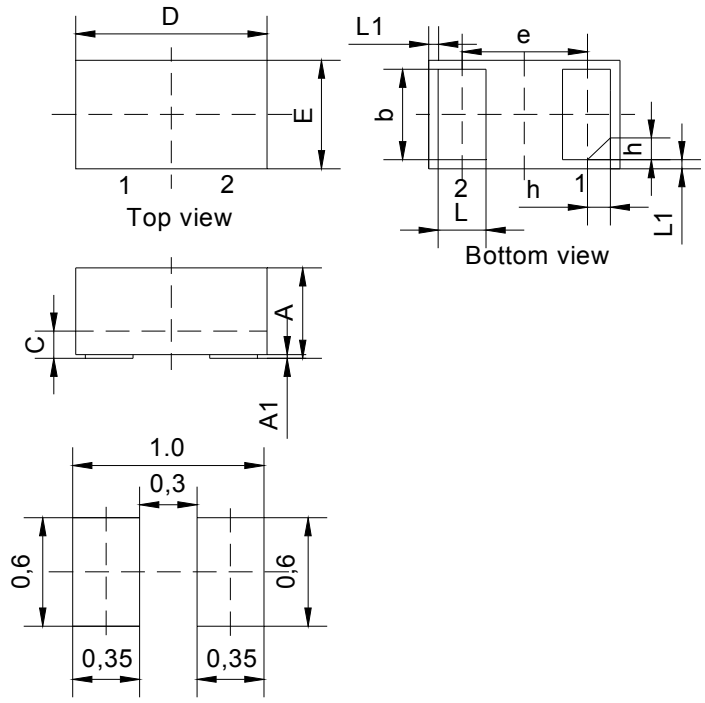


FIG.4: ESD clamping (30kV contact)



PACKAGE MECHANICAL DATA



Recommended Soldering Footprint

Symbol	Millimeter		
	Min.	Typ.	Max.
A	0.45	0.50	0.55
A1	0	0.02	0.05
b	0.45	0.50	0.55
C	0.12	0.15	0.18
D	0.95	1.00	1.05
e	0.65BSC		
E	0.55	0.60	0.65
L	0.20	0.25	0.30
L1	0.05REF		
h	0.07	0.12	0.17