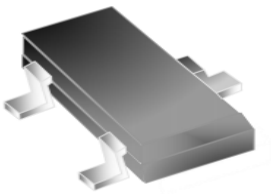
TESD12T2BL

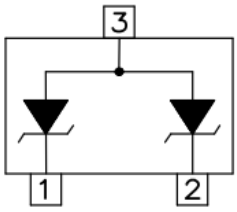
TVS Diode Array

FEATURES

- ✧ 500 watts peak pulse power per line (t_P=8/20μs)
- ✧ Protects two I/O lines with uni-directional
- ✧ Low clamping voltage
- ✧ Working voltages:12V
- ✧ Low leakage current
- ✧ RoHS compliant



SOT-23



Pin Configuration

MAIN APPLICATIONS

- ✧ RS-232, RS-422 & RS-485
- ✧ Servers, notebook, and desktop
- ✧ Cellular handsets and accessories
- ✧ Control &monitoring systems
- ✧ Portable electronics
- ✧ Wireless bus protection
- ✧ Set-top box

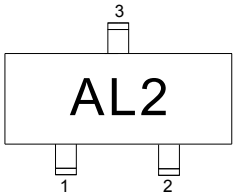
PROTECTION SOLUTION TO MEET

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

MECHANICAL CHARACTERISTICS

- ✧ SOT-23 package
- ✧ Molding compound flammability rating: UL 94V-0
- ✧ Weight8milligrams (approximate)
- ✧ Quantity per reel: 3,000pcs
- ✧ Reel size: 7 inch
- ✧ Lead finish: lead free

MARKING CODE



ORDERING INFORMATION

PART No.	PACKAGE TYPE	QUANTITY(PCS) REEL	DESCIPTION
TESD12T2BL	SOT-23	3,000	7 inch reel pack

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

Parameter	Symbol	Value	Unit
Peak pulse power dissipation on 8/20μs waveform	P_{PP}	500	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}				12	V
Reverse breakdown voltage	V_{BR}	I_T=1mA	13			V
Reverse leakage current	I_R	V_{RWM}=12V			0.15	μA
Clamping voltage	V_C	I_{PP}①=1A, t_P=8/20μs		14	18	V
		I_{PP}①=20A, t_P=8/20μs		23	26	V
Junction capacitance	C_J②	V_{RWM}=0V, f=1MHz Any I/O pin to GND		90		pF
Junction capacitance	C_J③	V_{RWM}=0V, f=1MHz Between I/O pins		45		pF

①Surge waveform: 8/20μs

②C_J measured @V_{RWM}=0V,1MHz (pin1 to pin3, pin2 to pin3)

③C_J measured @V_{RWM}=0V,1MHz (pin1 to pin2, pin2 to pin1)

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

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

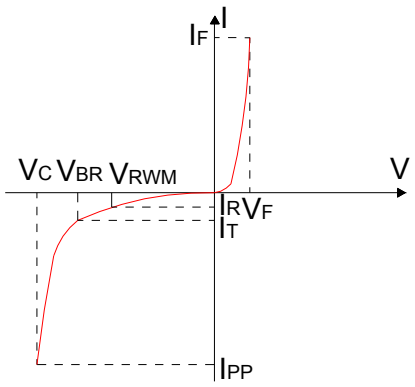


FIG.2: Pulse waveform (8/20μs)

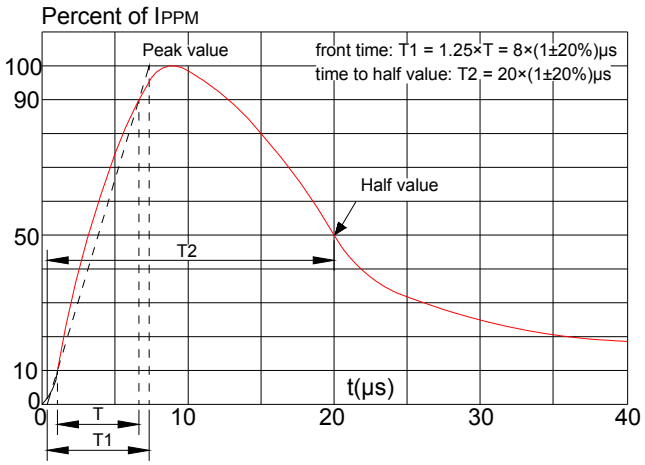


FIG.3: Pulse derating curve

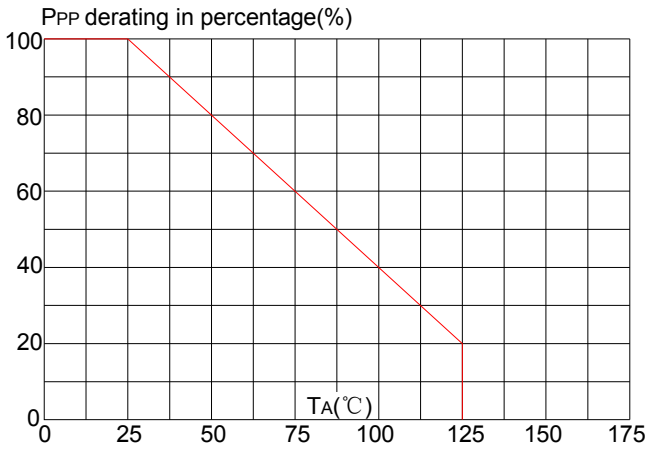
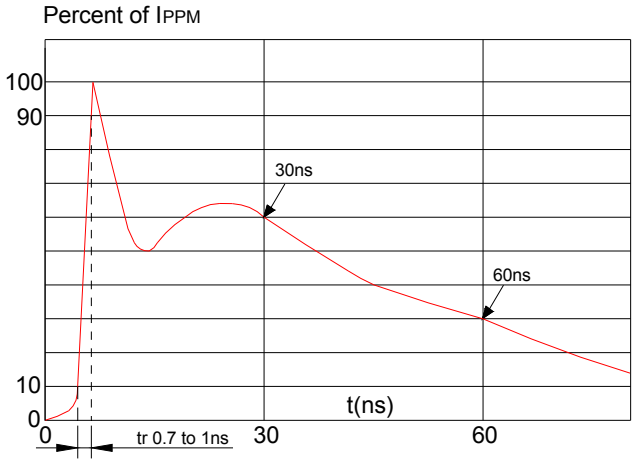
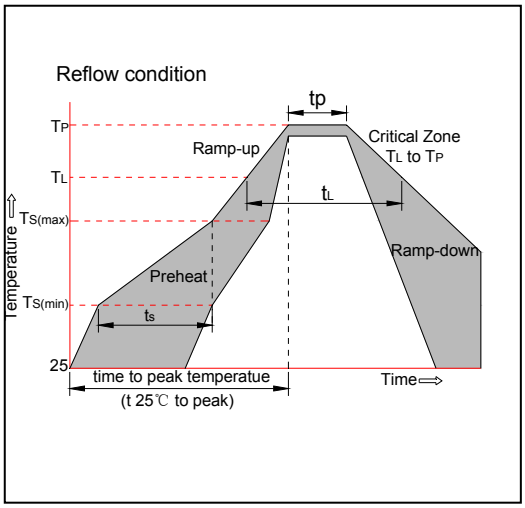


FIG.4: ESD clamping (30kV contact)

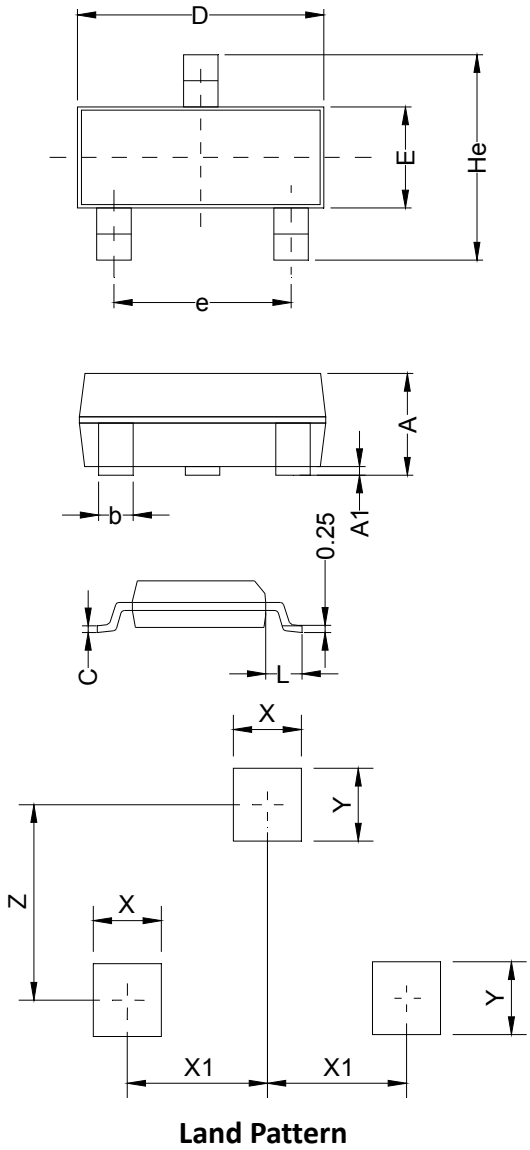


SOLDERING PARAMETERS

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



Land Pattern

Symbol	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	0.90	1.063	1.15	0.035	0.042	0.045
A1	0.00	0.075	0.14	0.000	0.003	0.006
b	0.30	0.40	0.50	0.012	0.016	0.020
C	0.07	0.10	0.15	0.003	0.004	0.006
D	2.80	2.90	3.00	0.110	0.114	0.118
e	1.80	1.90	2.00	0.071	0.075	0.079
E	1.20	1.30	1.40	0.047	0.051	0.055
L	0.55REF			0.022REF		
He	2.25	2.40	2.55	0.089	0.094	0.100
X	0.80			0.031		
X1	0.95			0.037		
Y	0.80			0.031		
Z	2.02			0.080		