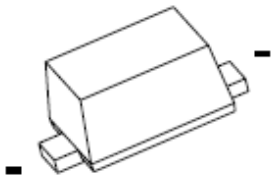
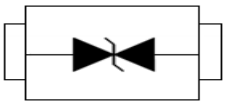
Bi-directional TVS Diode for ESD Protection

FEATURES

- ✧ Solid-state silicon technology
- ✧ Low clamping voltage and low leakage current
- ✧ Working voltage: 7V
- ✧ Ultra-low capacitance
- ✧ RoHS compliant

SOD-523





Pin Configuration

MAIN APPLICATIONS

- ✧ Cellular handsets
- ✧ USB V_{BUS} and CC line protection
- ✧ Microphone line protection
- ✧ GPIO protection

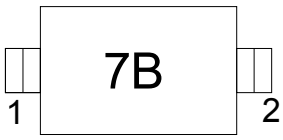
PROTECTION SOLUTION TO MEET

- ✧ IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact)
- ✧ IEC61000-4-4 (EFT) 40A (5/50ns)
- ✧ IEC61000-4-5 (Lightning) 9A (8/20μs)

MECHANICAL CHARACTERISTICS

- ✧ SOD-523 package
- ✧ Molding compound flammability rating: UL 94V-0
- ✧ Quantity per reel:3,000pcs
- ✧ Lead finish: lead free

MARKING CODE



ORDERING INFORMATION

PART No.	PACKAGE TYPE	QUANTITY(PCS) REEL	DESCIPTION
TESDB07D5	SOD-523	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}	150	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}				7	V
Reverse breakdown voltage	V_{BR}	I_T=1mA	7.6		9	V
Reverse leakage current	I_R	V_{RWM}=7V			0.1	μA
Clamping voltage	V_C③	I_{PP}=1A,t_P=8/20μs		9	12	V
		I_{PP}=9A,t_P=8/20μs		16	17	V
Junction capacitance	C_J	V_{RWM}=0V, f=1MHz		8	10	pF

① TLP parameter:Z_0=50Ω,t_P=100ns, tr=2ns, averaging window from 60ns to 80ns. R_{DYN} is calculated from 4A to 16A.

② Contact discharge mode, according to IEC61000-4-2.

③ Non-repetitive current pulse, according to IEC61000-4-5.

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

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

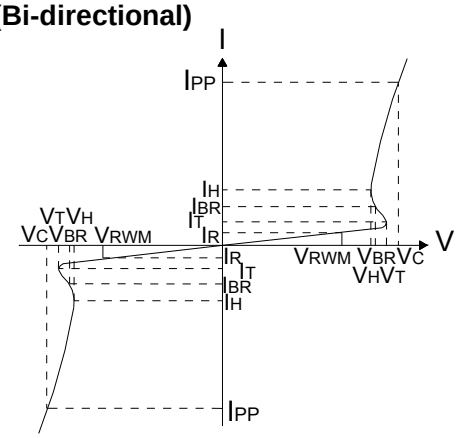


FIG.2: Pulse waveform (8/20μs)

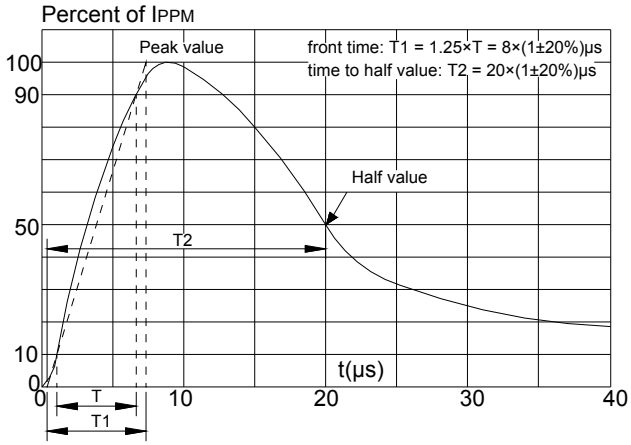


FIG.3: Pulse derating curve

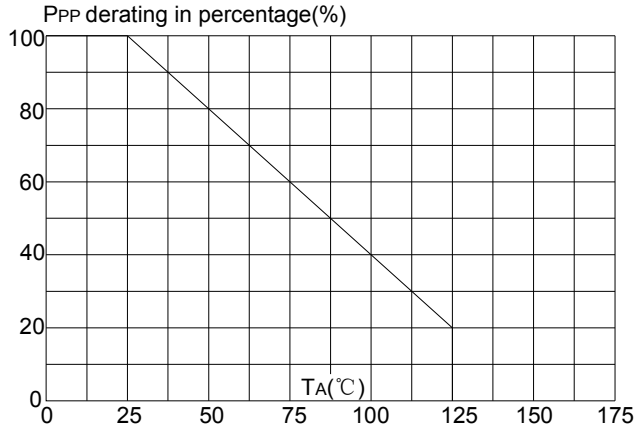


FIG.4: ESD clamping (30kV contact)

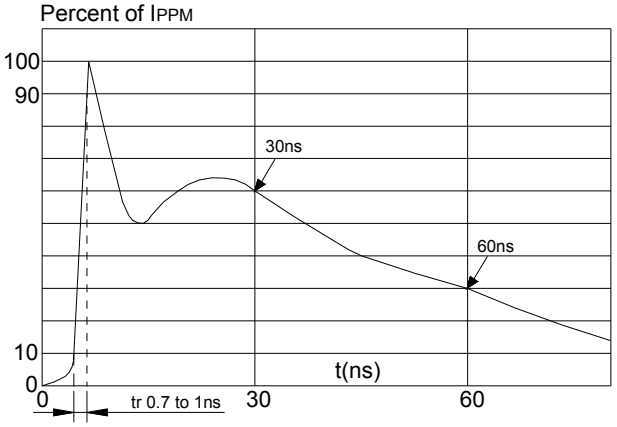


FIG.5: Clamping voltage vs.peak pulse current

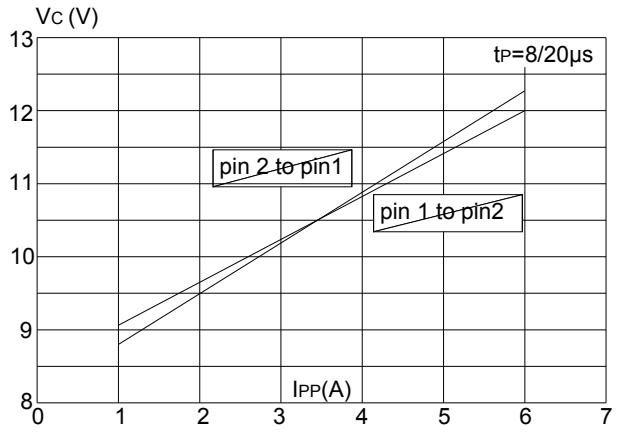
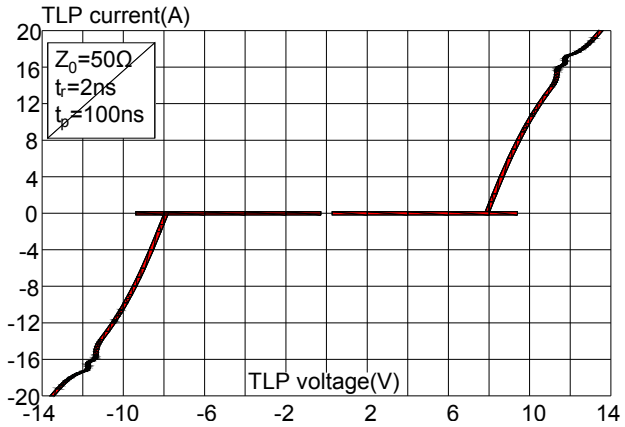
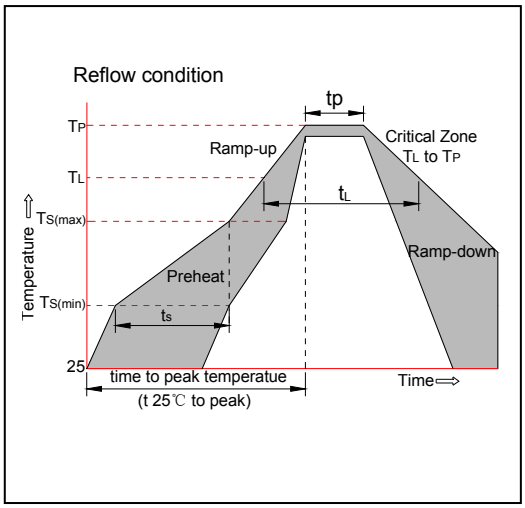


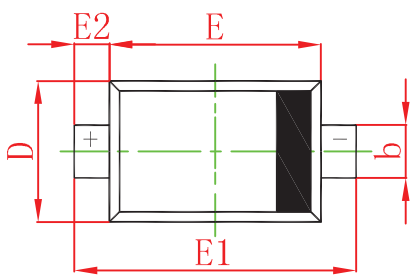
FIG.6: TLP Measurement

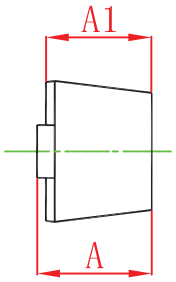


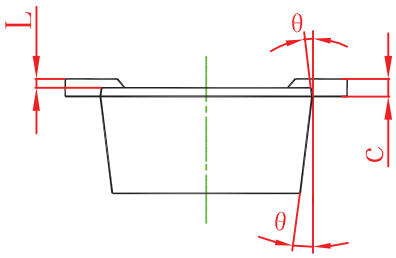
SOLDERING PARAMETERS

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℃



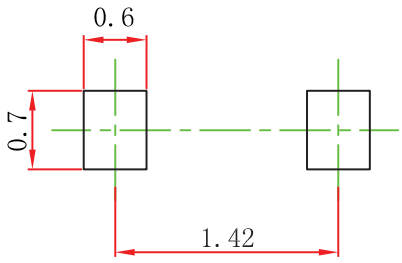






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.510	0.770	0.020	0.031
A1	0.400	0.700	0.015	0.028
b	0.250	0.350	0.010	0.014
c	0.080	0.150	0.003	0.006
D	0.750	0.850	0.030	0.033
E	1.100	1.300	0.043	0.051
E1	1.500	1.700	0.059	0.067
E2	0.200 REF		0.008 REF	
L	0.010	0.070	0.001	0.003
θ	7° REF		7° REF	

SOD-523 Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.