

FEATURES

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

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

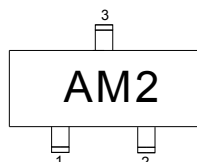
PROTECTION SOLUTION TO MEET

- ✧ IEC61000-4-2 (ESD) $\pm 30kV$ (air), $\pm 30kV$ (contact)
- ✧ IEC61000-4-4 (EFT) 40A (5/50ns)
- ✧ IEC61000-4-5 (lightning) 15A (8/20 μs)

MECHANICAL CHARACTERISTICS

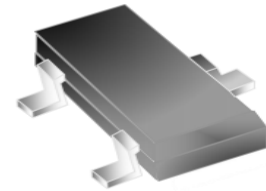
- ✧ SOT-23 package
- ✧ Molding compound flammability rating: UL 94V-0
- ✧ Weight 8 milligrams (approximate)
- ✧ Quantity per reel: 3,000pcs
- ✧ Reel size: 7 inch
- ✧ Lead finish: lead free

MARKING CODE

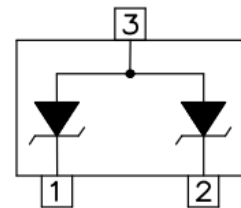


ORDERING INFORMATION

PART No.	PACKAGE TYPE	QUANTITY(PCS) REEL	DESCRIPTION
TESDU12T2B	SOT-23	3,000	7 inch reel pack



SOT-23



Pin Configuration

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}	350	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.)	$^{\circ}\text{C}$
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}				12	V
Reverse breakdown voltage	V_{BR}	$I_T=1\text{mA}$	13.3	13.5	16	V
Reverse leakage current	I_R	$V_{RWM}=12\text{V}$			1	μA
Clamping voltage	V_C	$I_{PP}^{①}=1\text{A}$, $t_P=8/20\mu\text{s}$		15	18	V
		$I_{PP}^{①}=15\text{A}$, $t_P=8/20\mu\text{s}$		21	24	V
Junction capacitance	$C_J^{②}$	$V_{RWM}=0\text{V}$, $f=1\text{MHz}$		90	100	pF

① Surge waveform: 8/20 μs

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

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

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

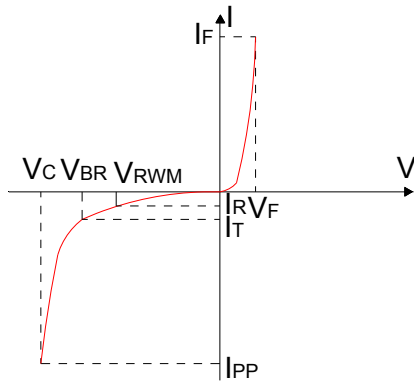


FIG.2: Pulse waveform (8/20 μs)

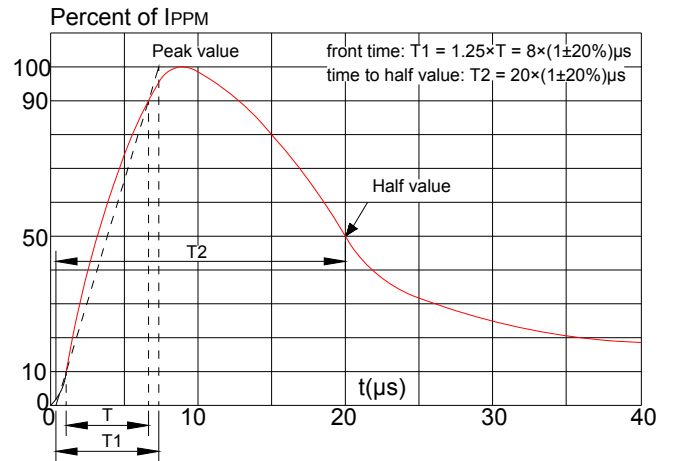


FIG.3: Pulse derating curve

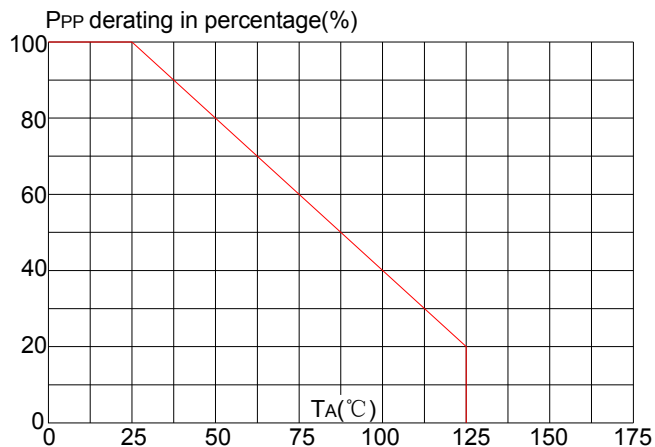
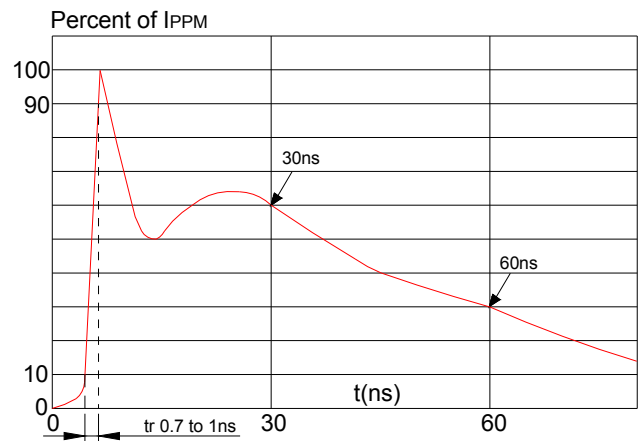
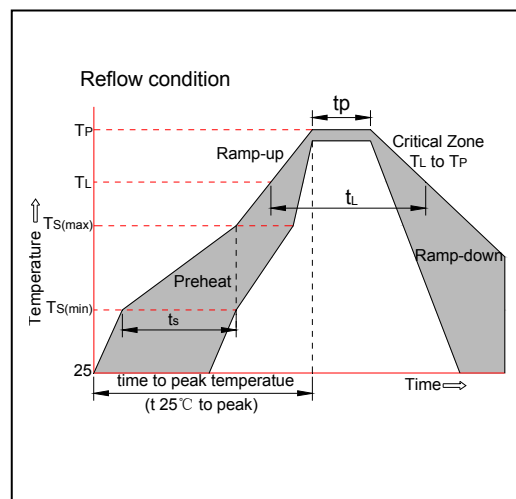


FIG.4: ESD clamping (30kV contact)

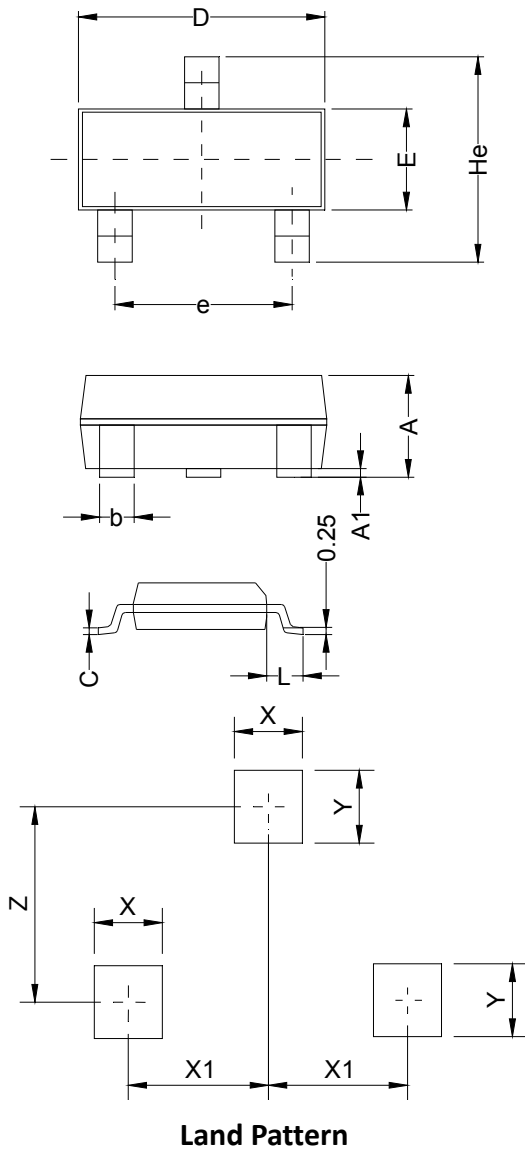


SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see figure at right)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (t_s)	60-180 secs.
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L)(Liquidus)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_p)		20-40secs.
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C



PACKAGE MECHANICAL DATA



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		