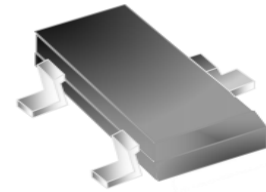




### FEATURES

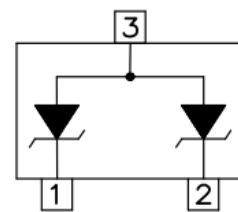
- ◇ 500 watts peak pulse power per line ( $t_P=8/20\mu s$ )
- ◇ Protects two I/O lines with uni-directional
- ◇ Low clamping voltage
- ◇ Working voltages:12V
- ◇ Low leakage current
- ◇ RoHS compliant



SOT-23

### 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



Pin Configuration

### 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) 20A(8/20 $\mu s$ )

### MECHANICAL CHARACTERISTICS

- ◇ SOT-23 package
- ◇ Molding compound flammability rating: UL 94V-0
- ◇ Weight 8 milligrams (approximate)
- ◇ Quantity per reel: 3,000 pcs
- ◇ Reel size: 7 inch
- ◇ Lead finish: lead free
- ◇ Marking code: AL2

**ABSOLUTE MAXIMUM RATINGS**( $T_A=25^{\circ}C$ , RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak pulse power dissipation on 8/20 $\mu$ s 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.)	$^{\circ}C$
Operating junction temperature range	$T_J$	-55 to +125	$^{\circ}C$
Storage temperature range	$T_{STG}$	-55 to +150	$^{\circ}C$

**ELECTRICAL CHARACTERISTICS**( $T_A=25^{\circ}C$ )

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	$\mu A$
Clamping voltage	$V_C$	$I_{PP}^{①}=1A, t_P=8/20\mu s$		14	18	V
		$I_{PP}^{①}=20A, t_P=8/20\mu s$		23	26	V
Junction capacitance	$C_J^{②}$	$V_{RWM}=0V, f=1MHz$ Any I/O pin to GND		90		pF
Junction capacitance	$C_J^{③}$	$V_{RWM}=0V, f=1MHz$ Between I/O pins		45		pF

① Surge waveform: 8/20 $\mu$ s

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

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

RATINGS AND V-I CHARACTERISTICS CURVES (TA=25°C, unless otherwise noted)

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

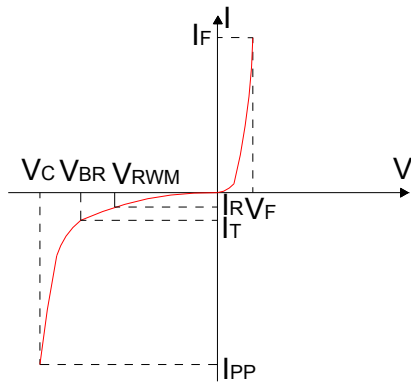


FIG.2: Pulse waveform (8/20µs)

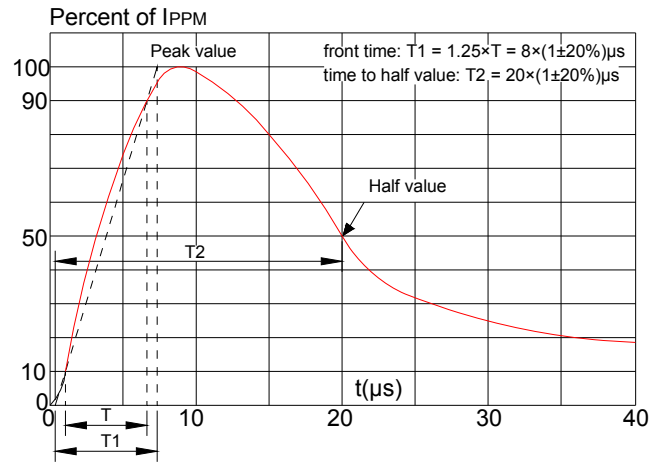


FIG.3: Pulse derating curve

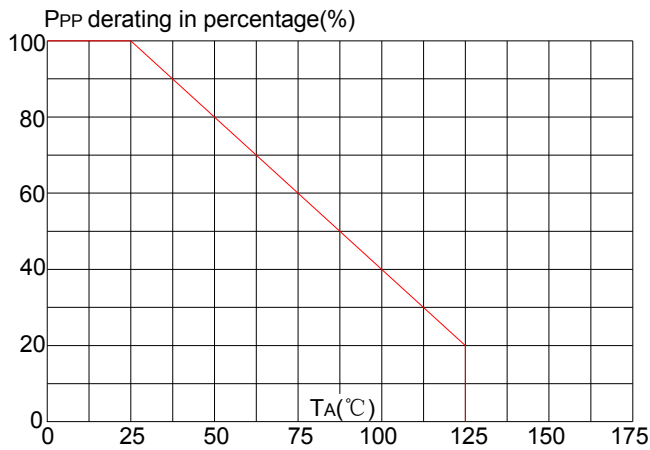
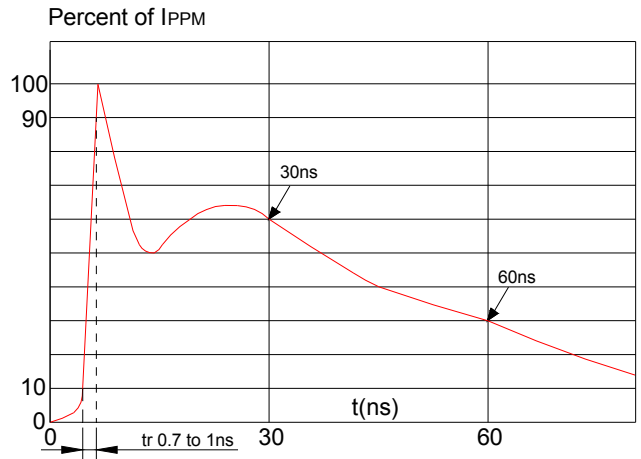
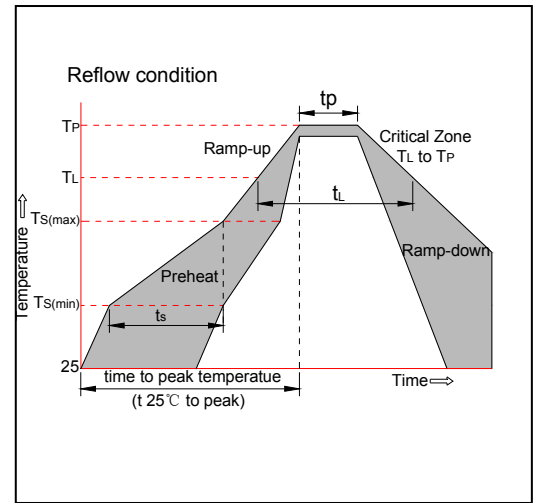


FIG.4: ESD clamping (30kV contact)

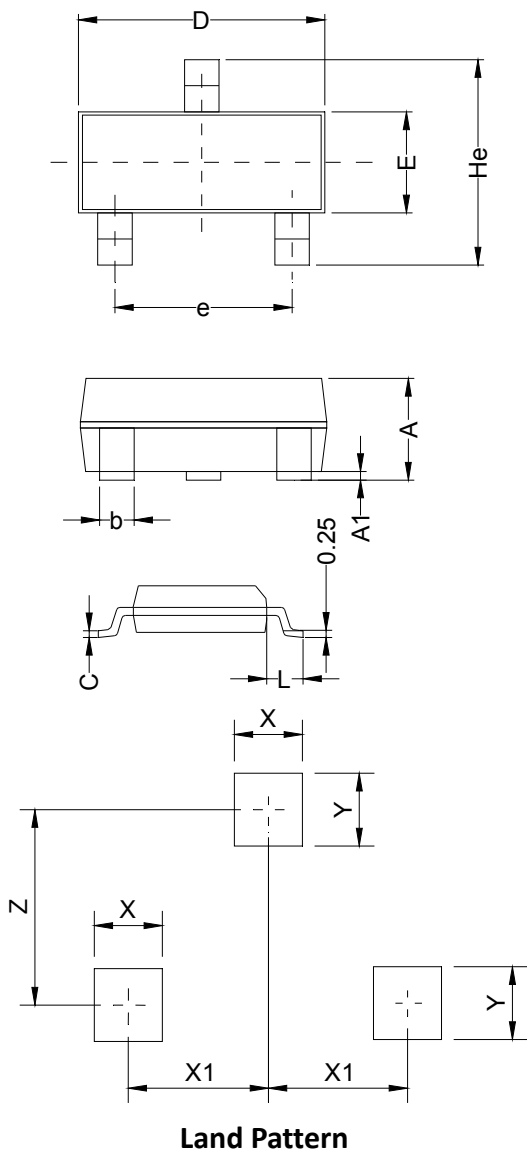


**SOLDERING PARAMETERS**

Reflow Condition		Pb-Free assembly (see figure at right)
Pre Heat	-Temperature Min ( $T_{s(min)}$ )	+150°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

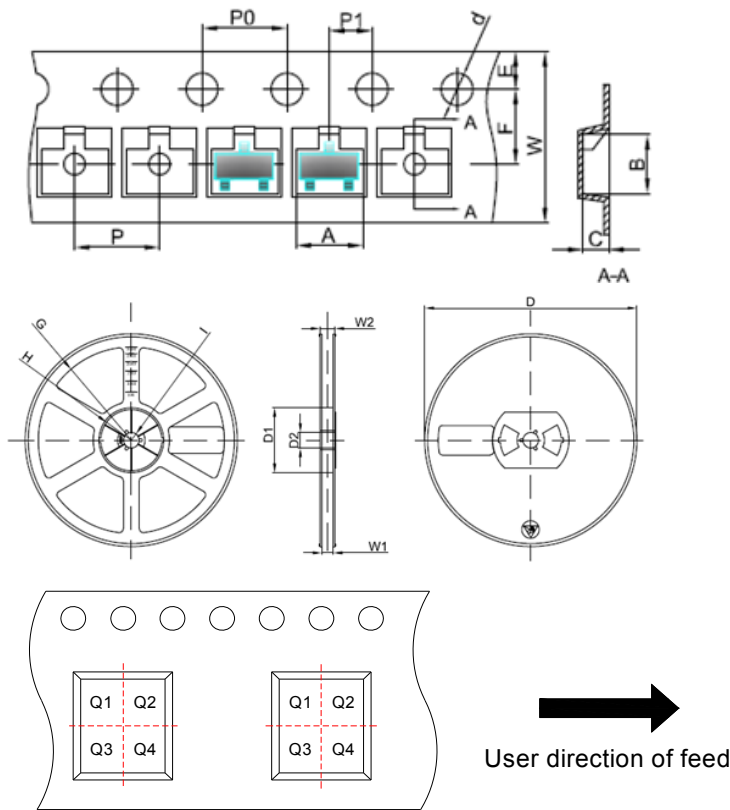


**PACKAGE MECHANICAL DATA**



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		

TAPE AND REEL SPECIFICATION-SOT-23



Pin 1 quadrant: Q3

Packaging Description:

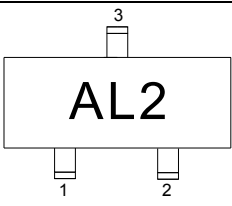
SOT-23 parts are shipped in tape. The carrier tape is made from a dissipative(carbon filled) polycarbonate resin. The cover tape is a multilayer film(heat activated adhesive in nature)primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000units per 7" or 17.8cm diameter reel. The reels are clear in color and made of polystyrene plastic(anti-static coated).

Symbol	Millimeters	Inches
	Typ.	Typ.
A	3.15	0.124
B	2.77	0.109
C	1.22	0.048
d	Φ1.50	Φ0.059
E	1.75	0.069
F	3.50	0.138
P0	4.00	0.157
P	4.00	0.157
P1	2.00	0.079
W	8.00	0.315
D	Φ178	Φ7.008
D1	54.40	2.142
D2	13.00	0.512
G	R78.00	R3.071
H	R25.60	R1.008
I	R6.50	R0.256
W1	9.50	0.374
W2	12.30	0.484

ORDERING INFORMATION

PART No.	PACKAGE TYPE	QUANTITY(PCS) REEL	DESCRIPTION
JEU12T2BL	SOT-23	3,000	7 inch reel pack

**MARKING CODE**

Part Number	Marking Code
JEU12T2BL	

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