

### Features

- Transient protection for high-speed data lines  
IEC 61000-4-2 (ESD)  $\pm 30\text{kV}$  (Air)  
 $\pm 30\text{kV}$  (Contact)  
IEC 61000-4-5 (Surge) 4A (8/20 $\mu\text{s}$ )
- Protects one automotive LIN-bus line
- Low capacitance: 12pF (Typical)
- Low leakage current: 0.01 $\mu\text{A}$  @  $V_{\text{RWM}}$  (Typical)
- Each I/O pin can withstand over 1000 ESD strikes for  $\pm 8\text{kV}$  contact discharge
- AEC-Q101 Qualified

### Description

SAT01N24AMA is a low-capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for data, control or power lines. With typical capacitance of 12pF only, SAT01N24AMA is designed to protect parasitic-sensitive systems against over-voltage and over-current transient events. It complies with IEC 61000-4-2 (ESD), ( $\pm 30\text{kV}$  air,  $\pm 30\text{kV}$  contact discharge), IEC 61000-4-5 (Surge) (4A, 8/20 $\mu\text{s}$ ), etc.

SAT01N24AMA uses small SOD-323 package. Each SAT01N24AMA device can protect one automotive Local Interconnect Network (LIN) bus line. It offers system designers flexibility to protect two data lines.

### Applications

- LIN-bus protection
- Automotive applications

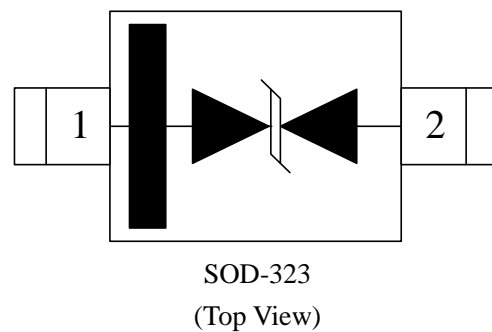
### Mechanical Characteristics

- SOD-323 package
- Marking: Device code, date code
- Packaging: Tape and Reel

### Circuit Diagram



### Pin Configuration

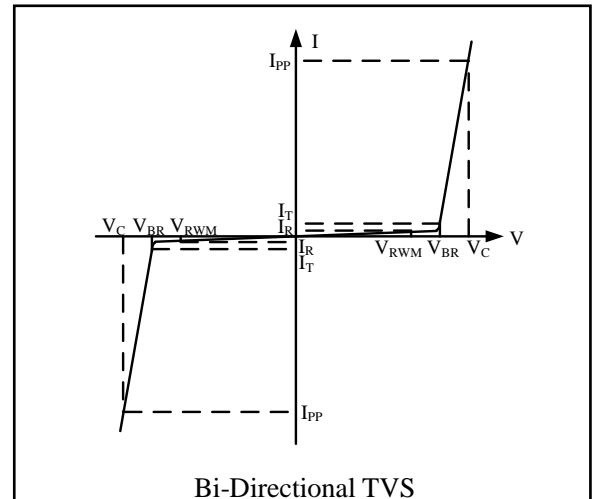


## Absolute Maximum Rating

Symbol	Parameter	Value	Units
$V_{ESD}$	ESD per IEC 61000-4-2 (Air)	$\pm 30$	kV
	ESD per IEC 61000-4-2 (Contact)	$\pm 30$	
$P_{PK}$	Maximum Peak Pulse Power (8/20 $\mu$ s)	180	Watts
$I_{PP}$	Maximum Peak Pulse Current (8/20 $\mu$ s)	4	A
$T_{OPT}$	Operating Temperature	-40/+125	$^{\circ}$ C
$T_{STG}$	Storage Temperature	-55/+150	$^{\circ}$ C

## Electrical Characteristics (T = 25 $^{\circ}$ C)

Symbol	Parameter
$V_{RWM}$	Nominal Reverse Working Voltage
$I_R$	Reverse Leakage Current @ $V_{RWM}$
$V_{BR}$	Reverse Breakdown Voltage @ $I_T$
$I_T$	Test Current for Reverse Breakdown
$V_C$	Clamping Voltage @ $I_{PP}$
$I_{PP}$	Peak Pulse Current
$C_{ESD}$	Parasitic Capacitance
$V_R$	Reverse Voltage
f	Small Signal Frequency

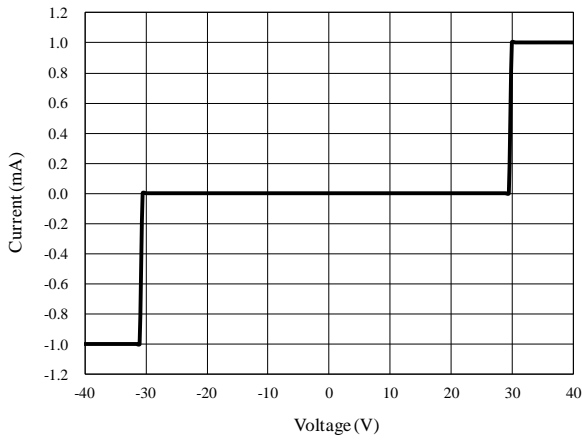


Symbol	Test Condition	Minimum	Typical	Maximum	Units
$V_{RWM}$				24	V
$I_R$	$V_{RWM} = 24V, T = 25^{\circ}C$ Between I/O and GND		0.01	0.1	$\mu$ A
$V_{BR}$	$I_T = 1mA$ Between I/O and GND	26.7		35	V
$V_C^1$	$I_{PP} = 4A, t_p = 8/20\mu s$ Between I/O and GND			45	V
$C_{ESD}^1$	$V_R = 0V, f = 1MHz$ Between I/O and GND		12	17	pF

### NOTES

<sup>1</sup>Guaranteed by design and no subject to production test.

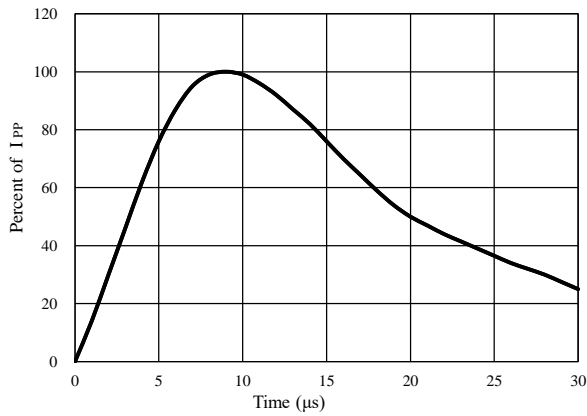
### Voltage Sweeping of I/O to GND



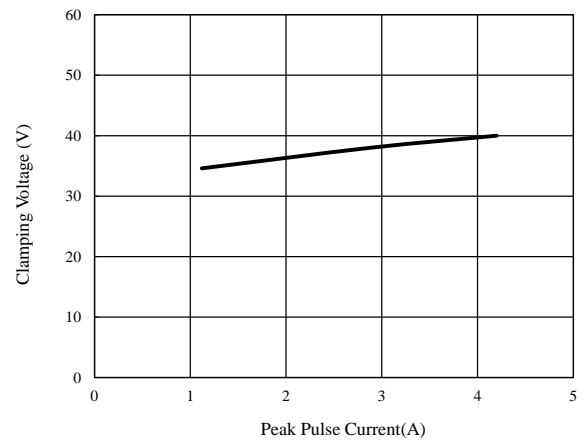
### Capacitance vs. Voltage



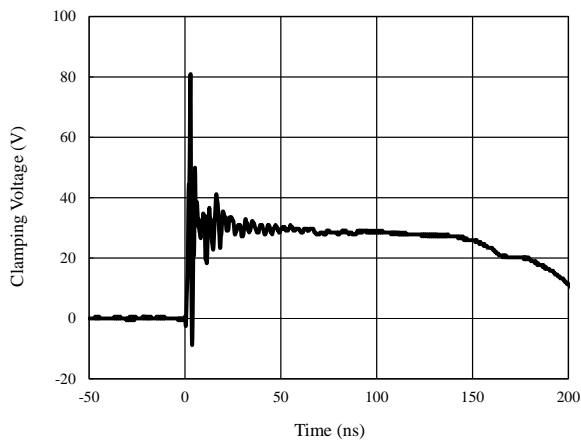
### Pulse Waveform



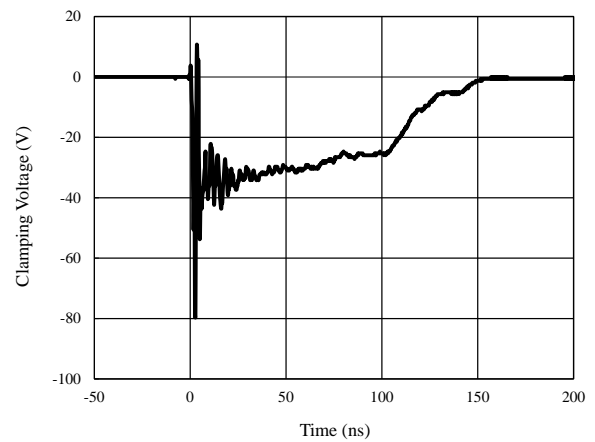
### Clamping Voltage vs. Peak Pulse Current



### ESD Clamping of I/O to GND (+8kV Contact per IEC 61000-4-2)

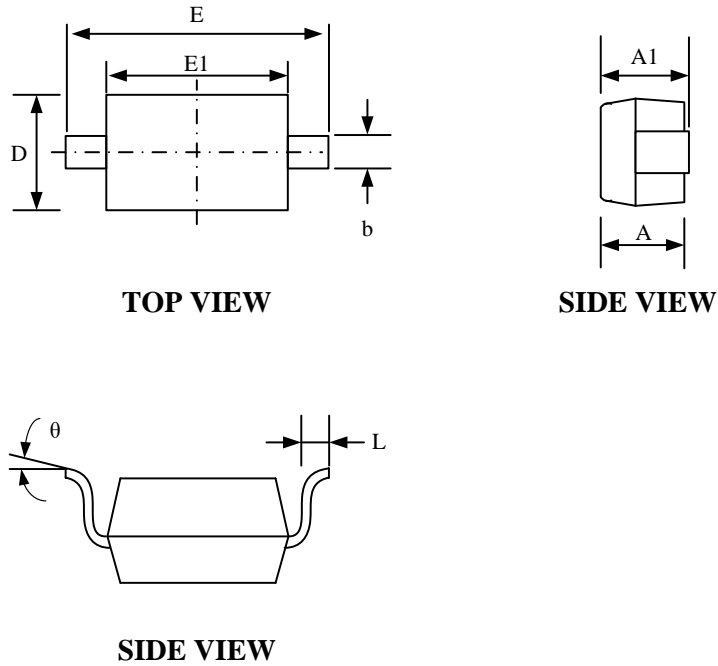


### ESD Clamping of I/O to GND (-8kV Contact per IEC 61000-4-2)



## Package Outline

- SOD-323 package

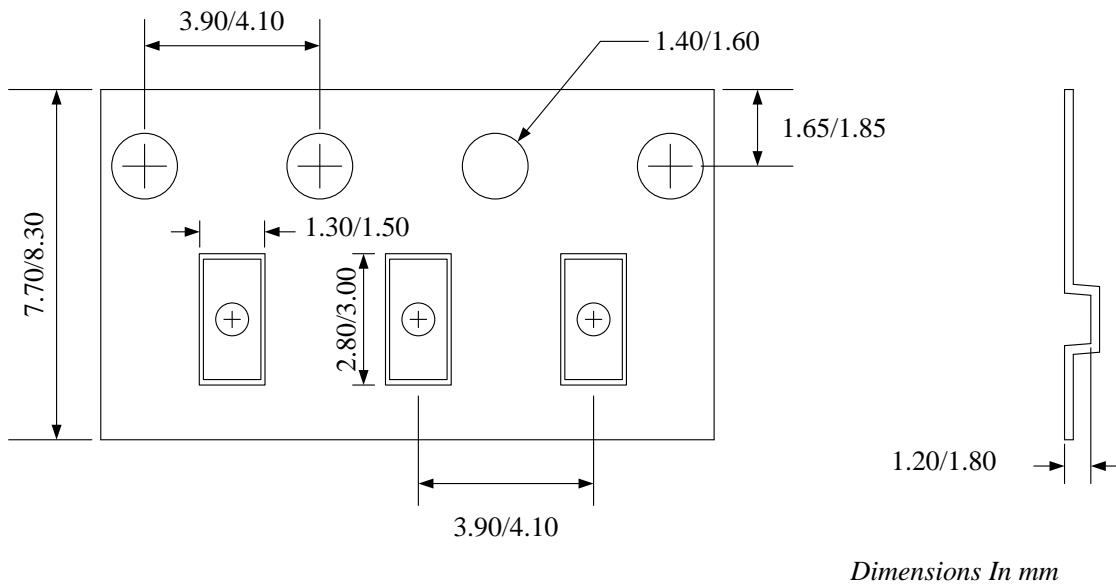


Package Dimensions

Symbol	Dimensions (mm)	
	Minimum	Maximum
A	0.80	0.90
A1	0.90	1.00
b	0.25	0.35
D	1.20	1.40
E	2.50	2.70
E1	1.60	1.80
L	0.25	0.40
$\theta$	0°	8°

**Notes:** All dimension in mm and exclude mold flash & metal burr.

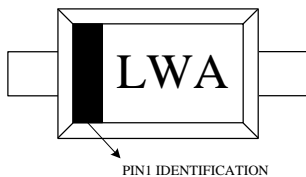
## Tape and Reel Specification



Feeding direction →

Package types	Tape width (mm)	Pocket pitch(mm)	Reel size (Inch)	Trailer * length(mm)	Leader * length (mm)	Qty per reel (pcs)
SOD-323	8	4	7"	400	200	3000

## Marking Codes



### Note:

- (1) "L" is the device code.
- (2) "WA" is the assembly date code.

## Ordering Information

Part Number	Pkg	Qty Per Reel	Reel Size
SAT01N24AMA	SOD-323	3,000	7 Inch



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