

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 μs)
- Protects one automotive LIN-bus line
- Low capacitance: 12pF (Typical)
- Low leakage current: 0.01 μA @ V_{RWM} (Typical)
- Each I/O pin can withstand over 1000 ESD strikes for $\pm 8\text{kV}$ contact discharge
- AEC-Q101 Qualified

Description

SYT01N24AMA 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, SYT01N24AMA 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 μs), etc.

SYT01N24AMA uses small SOD-323 package. Each SYT01N24AMA 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

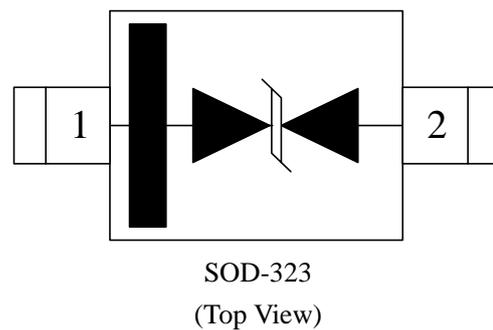
Mechanical Characteristics

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

Circuit Diagram



Pin Configuration

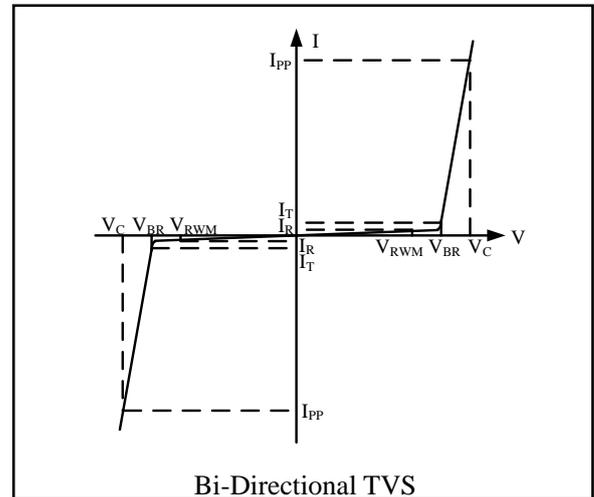


Absolute Maximum Rating

Symbol	Parameter	Value	Units
V_{ESD}	ESD per IEC 61000-4-2 (Air)	± 30	kV
	ESD per IEC 61000-4-2 (Contact)	± 30	
P_{PK}	Maximum Peak Pulse Power (8/20 μ s)	180	Watts
I_{PP}	Maximum Peak Pulse Current (8/20 μ 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

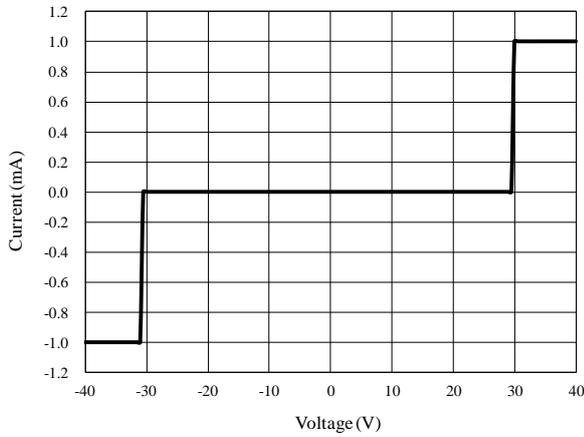


Symbol	Test Condition	Minimum	Typical	Maximum	Units
V_{RWM}				24	V
I_R	$V_{RWM} = 24V, T = 25^{\circ}C$ Between I/O and GND		0.01	0.1	μ A
V_{BR}	$I_T = 1mA$ Between I/O and GND	26.7		35	V
V_C^1	$I_{PP} = 4A, t_p = 8/20\mu s$ Between I/O and GND			45	V
C_{ESD}^1	$V_R = 0V, f = 1MHz$ Between I/O and GND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

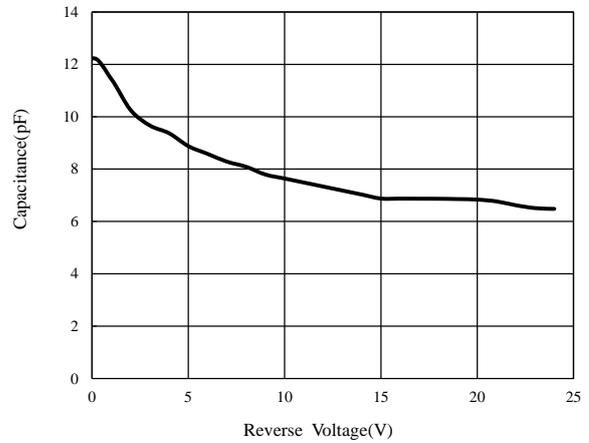
NOTES

¹Guaranteed by design and no subject to production test.

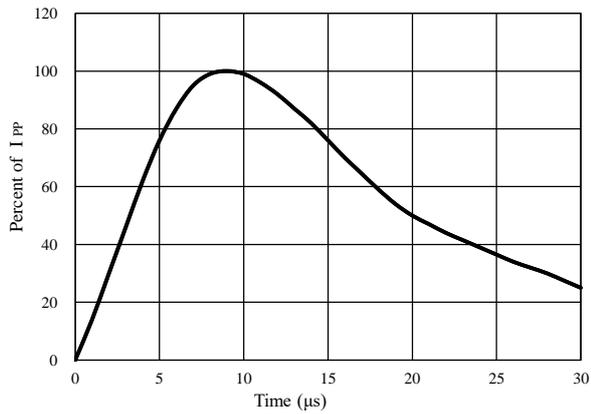
Voltage Sweeping of I/O to GND



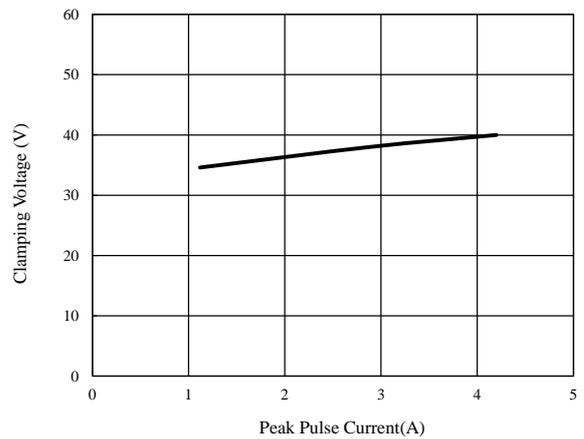
Capacitance vs. Voltage



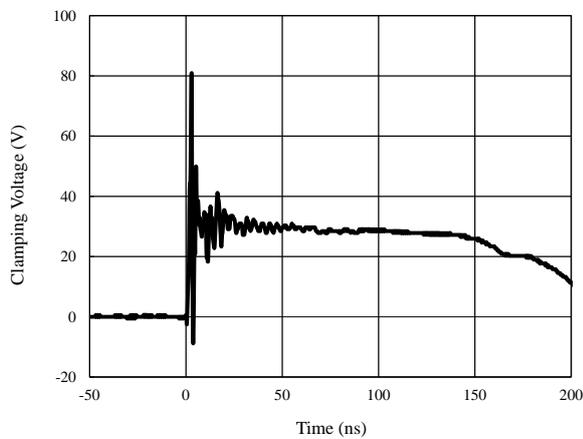
Pulse Waveform



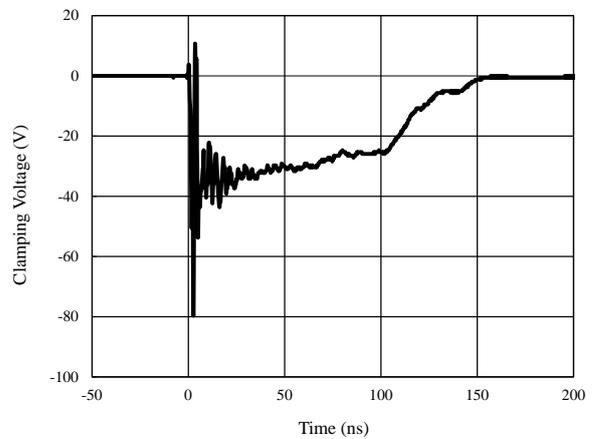
Clamping Voltage vs. Peak Pulse Current



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

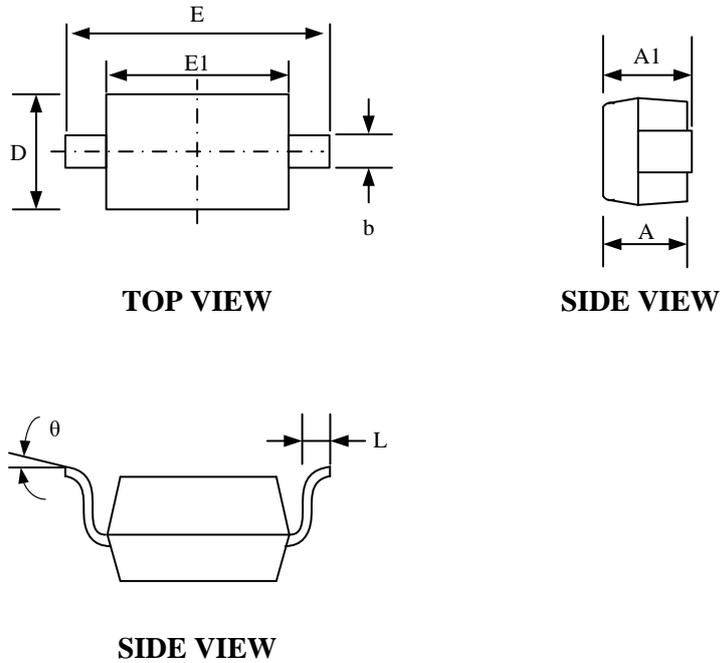


ESD Clamping of I/O to GND (-8kV Contact per IEC 61000-4-2)



Package Outline

- SOD-323 package

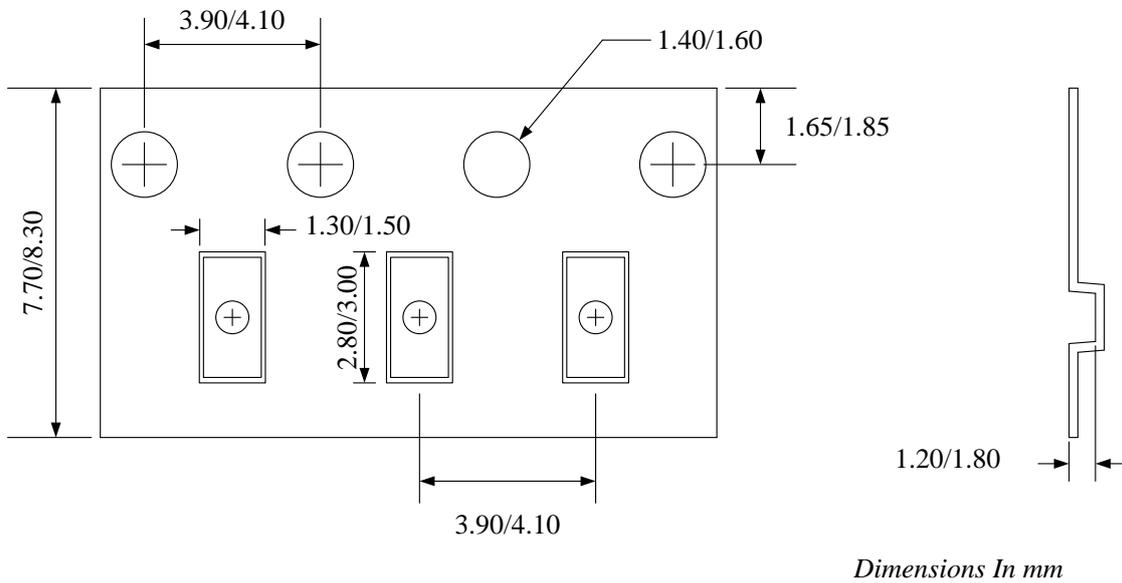


Package Dimensions

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
θ	0°	8°

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

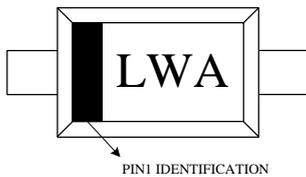
Tape and Reel Specification



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
SYT01N24AMA	SOD-323	3,000	7 Inch



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