SYS02V12AMC

Single Line TVS Diode for ESD Protection

Features

- Transient protection for single line
  IEC 61000-4-2 (ESD) ±30kV (Air)
  ±30kV (Contact)
  IEC 61000-4-5 (Surge) 42A (8/20μs)
- For 12V and below operating voltage
- Protects one data, control or power line
- Capacitance: 400pF (Typical)
- Low leakage current: 0.01μA @ V_{RWM} (Typical)
- Low clamping voltage
- Each I/O pin can withstand over 1000 ESD strikes for ±8kV contact discharge

Description

SYS02V12AMC is a single line Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for cell phones, notebook computers, PDA's. The SYS02V12AMC is designed to protect sensitive semiconductor components from damage or upset due to electrostatic discharge (ESD) and other over-current transient events. It complies with IEC 61000-4-2 (ESD)(±30kV air, ±30kV contact discharge), IEC 61000-4-5 (Surge) 42A (8/20μs), very fast charged device model (CDM) ESD and cable discharge event (CDE), etc.

SYS02V12AMC is in SOD-323 package with working voltage of 12 volts. SYS02V12AMC can protect unidirectional line. It offers system designers flexibility to protect single data line, and it can be used to meet the ESD immunity requirements of IEC 61000-4-2, Level 4 (±15kV air, ±8kV contact discharge). SYS02V12AMC has wide applications.

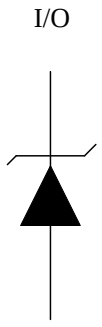
Applications

- Power supply protection
- Power management
- Desktops, Servers and Notebooks
- Cellular Phones
- Cell Phone Handsets and Accessories
- Microprocessor based equipment
- Personal Digital Assistants (PDA's)
- Portable Instrumentation
- Pagers Peripherals

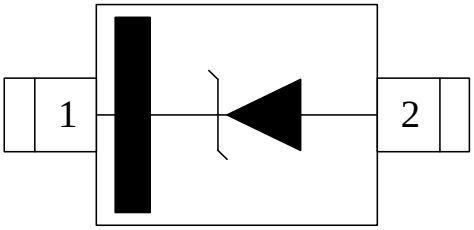
Mechanical Characteristics

- SOD-323 package
- Flammability Rating: UL 94V-0
- Marking: Device code, date code
- Packaging: Tape and Reel

Circuit Diagram



Pin Configuration



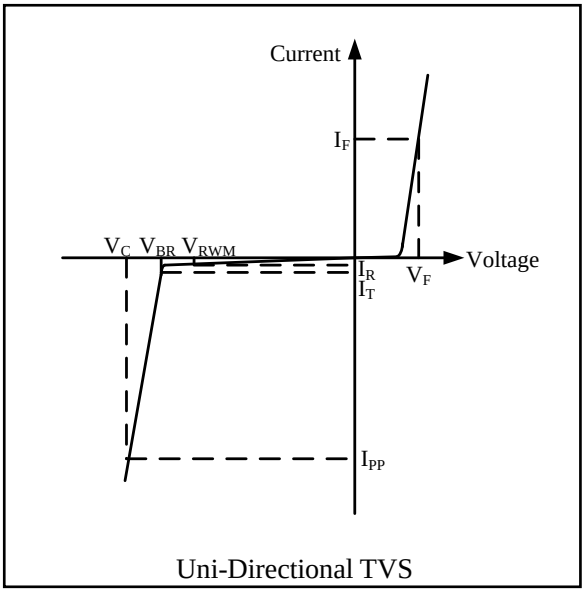
SOD-323
(Top View)

Absolute Maximum Rating

Symbol	Parameter	Value	Units
I_{PP}	Peak Pulse Current (t_p=8/20μs)	42	A
P_{PK}	Peak Pulse Power (t_p=8/20μs)	1000	Watts
V_{ESD}	ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	±30 ±30	kV
T_{OPT}	Operating Temperature	-45/+125	°C
T_{STG}	Storage Temperature	-55/+150	°C

Electrical Characteristics (T_A = 25°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}	Maximum Peak Pulse Current
C_{ESD}	Parasitic Capacitance
V_R	Reverse Voltage
f	Small Signal Frequency
I_F	Forward Current
V_F	Forward Voltage @ I_F

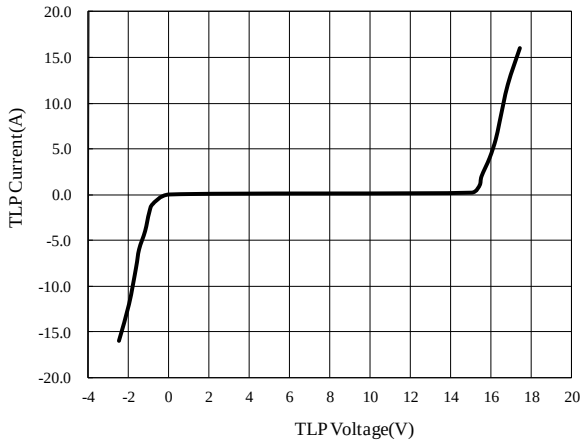


Uni-Directional TVS

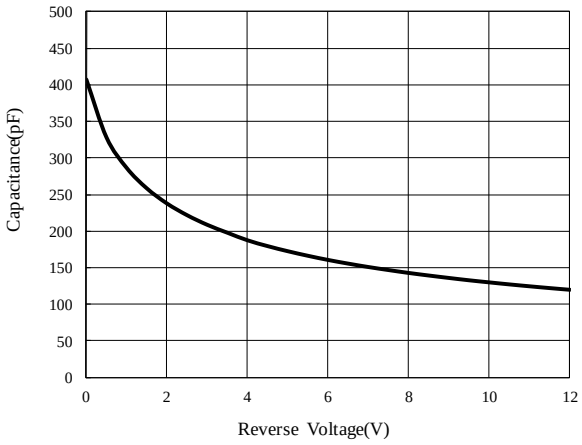
Symbol	Test Condition	Minimum	Typical	Maximum	Units
V_{RWM}				12.5	V
I_R	V_{RWM} = 12V, T_A = 25°C Pin1 to Pin2		0.01	0.1	μA
V_{BR}	I_T = 1mA Pin1 to Pin2	13.3		17	V
V_F	I_F = 1mA Pin2 to Pin1	0.4		1.2	V
V_C[1]	I_{PP} =42A, t_p = 8/20μs		25	31	V
C_{ESD}[1]	V_R = 0V, f = 1MHz		400	450	pF

NOTES
[1]Guaranteed by design and not subject to production test.

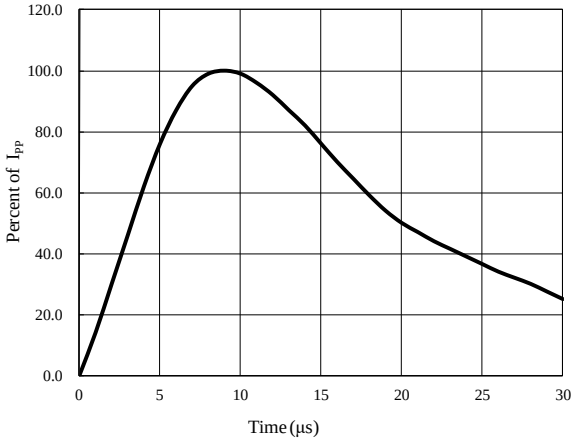
TLP Curve



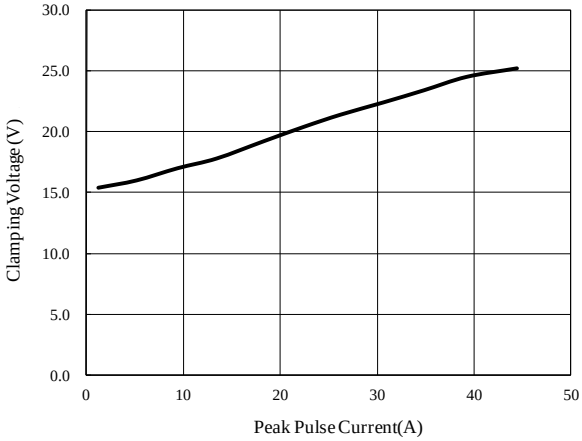
Capacitance vs. Reverse Voltage



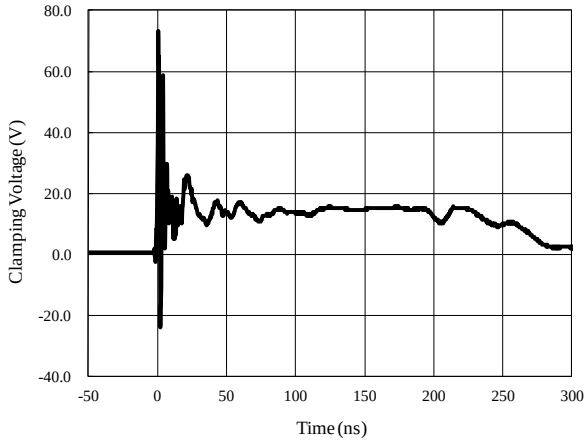
8/20μs Pulse Waveform



Clamping Voltage vs. Peak Pulse Current



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



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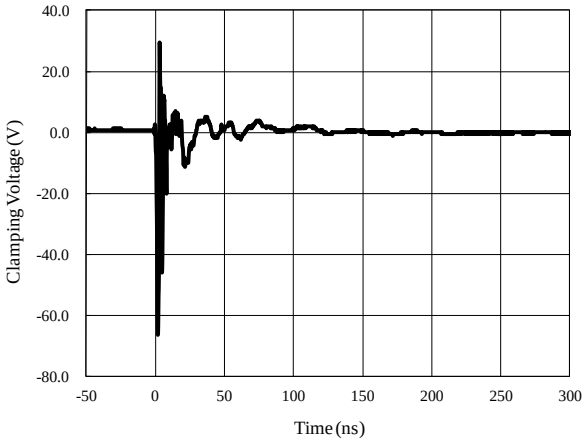
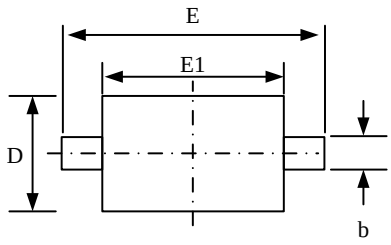
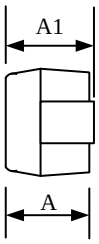


Package Outline

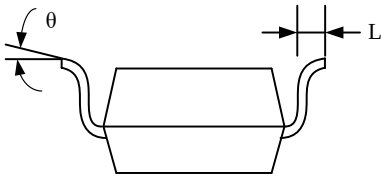
- SOD-323 package



TOP VIEW



SIDE VIEW



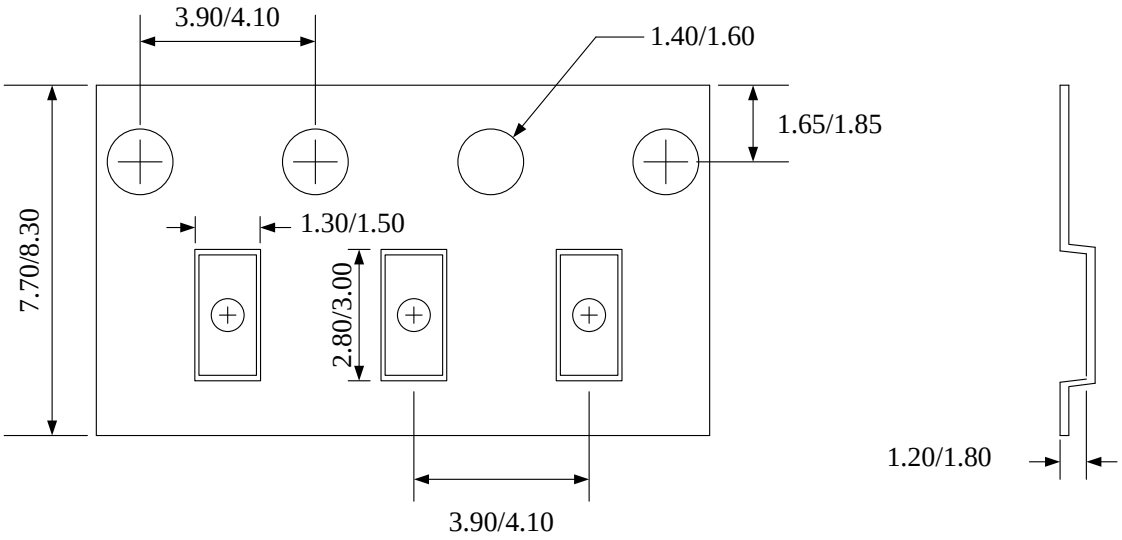
SIDE VIEW

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

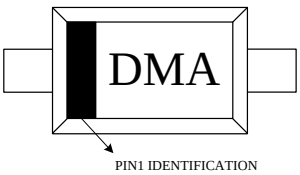


Dimensions In mm

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	160	3000

Marking Codes



Note:

(1) "D" is the device code.

(2) "M" is month code. "A" is lot number.

Ordering Information

Part Number	Working Voltage	Quantity Per Reel	Reel Size
SYS02V12AMC	12V	3,000	7 Inch

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