

### Features

- Transient protection for single line
  - IEC 61000-4-2 (ESD)  $\pm 30\text{kV}$  (Air)
  - $\pm 30\text{kV}$  (Contact)
  - IEC 61000-4-4 (EFT) 40A (5/50 ns)
  - IEC 61000-4-5 (Lightning) 20A (8/20 $\mu\text{s}$ )
  - Cable Discharge Event (CDE)
- Protects one data, control or power line
- Capacitance: 150pF (Maximum)
- Low leakage current: 0.1 $\mu\text{A}$  @  $V_{\text{RWM}}$  (Typical)
- Low clamping voltage
- Each I/O pin can withstand over 1000 ESD strikes for  $\pm 8\text{kV}$  contact discharge

### Description

SYS02H12AMC is a single line Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for cell phones, notebook computers, PDA's. The SYS02H12AMC 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) ( $\pm 30\text{kV}$  air,  $\pm 30\text{kV}$  contact discharge), IEC 61000-4-4 (electrical fast transient - EFT) (40A, 5/50 ns), IEC 61000-4-5 (Lightning) 20A (8/20 $\mu\text{s}$ ), very fast charged device model (CDM) ESD and cable discharge event (CDE), etc.

SYS02H12AMC is in SOD-323 package with working voltage of 12 volts. SYS02H12AMC 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 ( $\pm 15\text{kV}$  air,  $\pm 8\text{kV}$  contact discharge). SYS02H12AMC has wide applications.

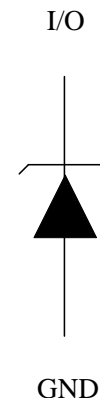
### Applications

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

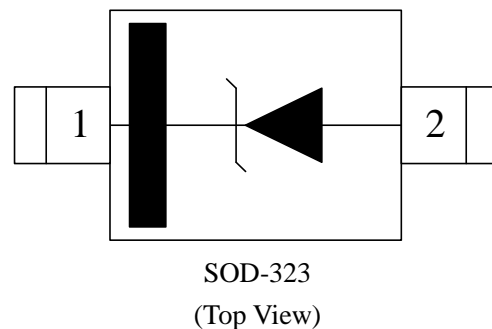
### Mechanical Characteristics

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

### Circuit Diagram



### Pin Configuration

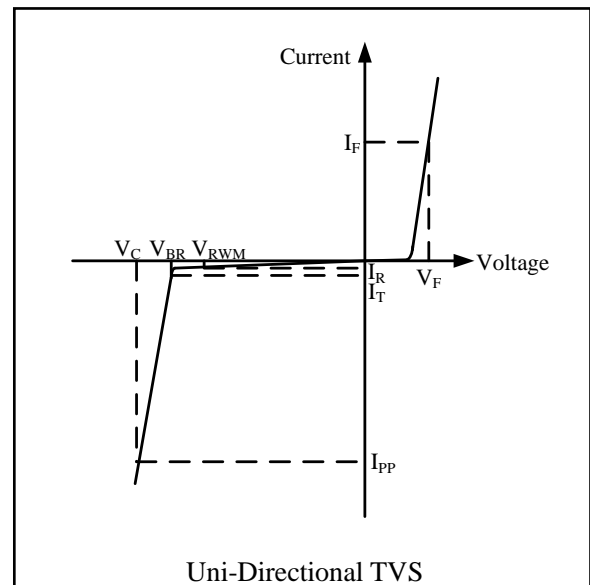


## Absolute Maximum Rating

Symbol	Parameter	Value	Units
P <sub>PK</sub>	Peak Pulse Power (t <sub>p</sub> =8/20μs)	500	Watts
V <sub>ESD</sub>	ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	±30 ±30	kV
T <sub>OPT</sub>	Operating Temperature	-55/+125	°C
T <sub>STG</sub>	Storage Temperature	-55/+150	°C

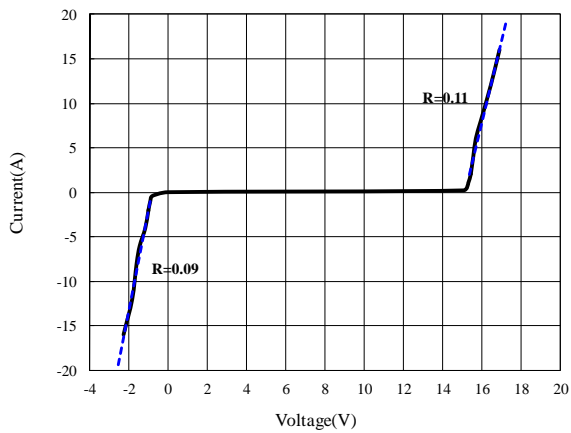
## Electrical Characteristics (T = 25°C)

Symbol	Parameter
V <sub>RWM</sub>	Nominal Reverse Working Voltage
I <sub>R</sub>	Reverse Leakage Current @ V <sub>RWM</sub>
V <sub>BR</sub>	Reverse Breakdown Voltage @ I <sub>T</sub>
I <sub>T</sub>	Test Current for Reverse Breakdown
V <sub>C</sub>	Clamping Voltage @ I <sub>PP</sub>
I <sub>PP</sub>	Maximum Peak Pulse Current
C <sub>ESD</sub>	Parasitic Capacitance
V <sub>R</sub>	Reverse Voltage
f	Small Signal Frequency
I <sub>F</sub>	Forward Current
V <sub>F</sub>	Forward Voltage @ I <sub>F</sub>

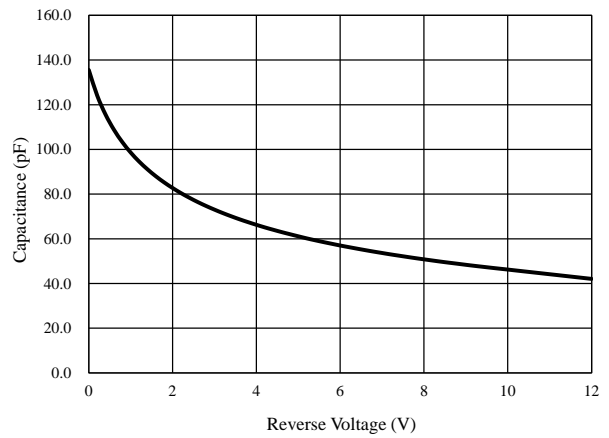


Symbol	Test Condition	Minimum	Typical	Maximum	Units
V <sub>RWM</sub>				12.0	V
I <sub>R</sub>	V <sub>RWM</sub> = 12V, T = 25°C Between I/O and GND		0.1	1.0	μA
V <sub>BR</sub>	I <sub>T</sub> = 1mA Between I/O and GND	13.3			V
V <sub>C</sub>	I <sub>PP</sub> = 5A, t <sub>p</sub> = 8/20μs Between I/O and GND			19	V
I <sub>PP</sub>	Peak Pulse Current			20	A
C <sub>ESD</sub>	V <sub>R</sub> = 0V, f = 1MHz Between I/O and GND			150	pF

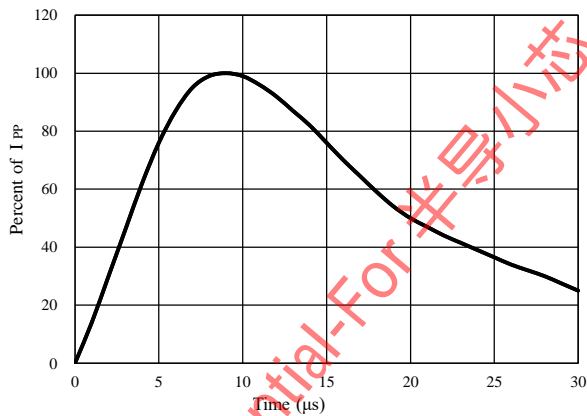
## TLP Testing of I/O to GND



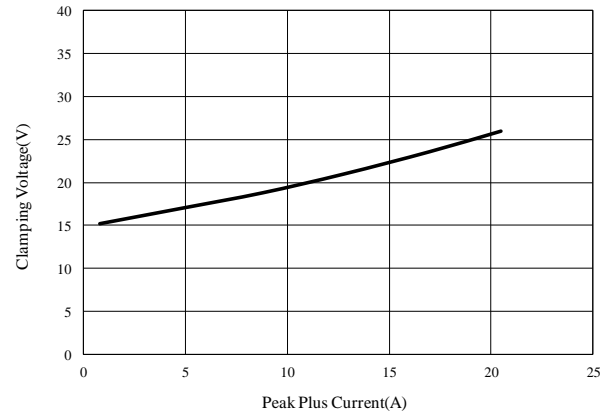
## Capacitance vs. Reverse Voltage



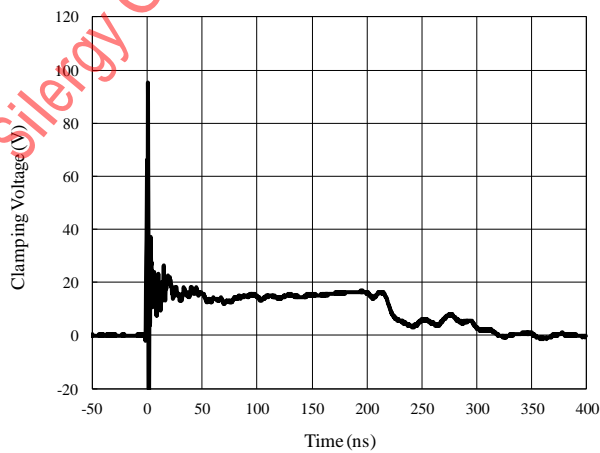
## 8/20µs Pulse Waveform



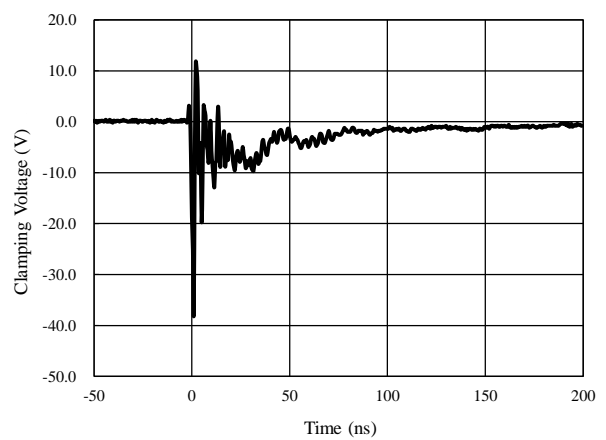
## Clamping Voltage vs. Peak Pulse Current



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

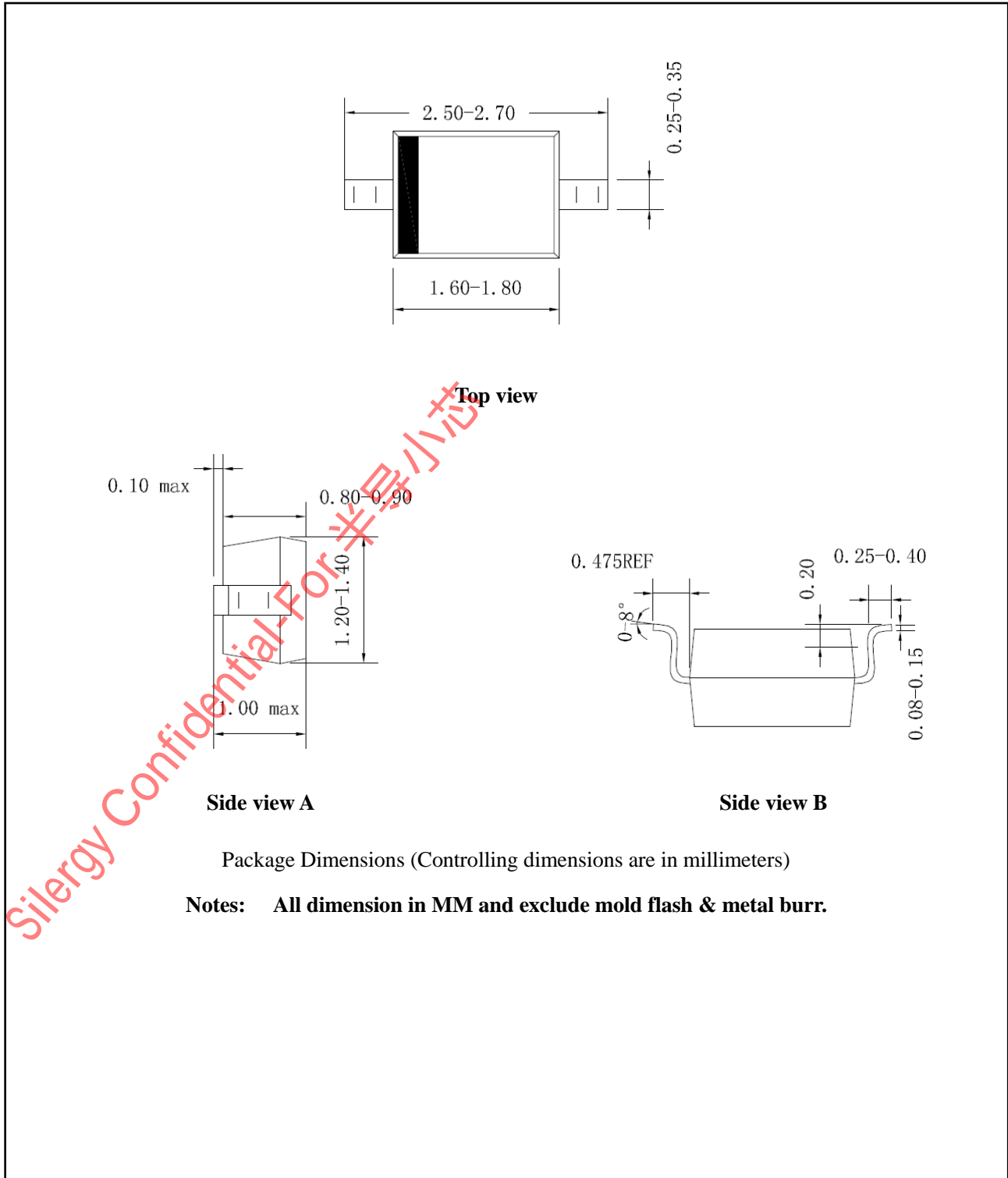


## ESD Clamping of I/O to GND (-8kV Contact per IEC 61000-4-2)

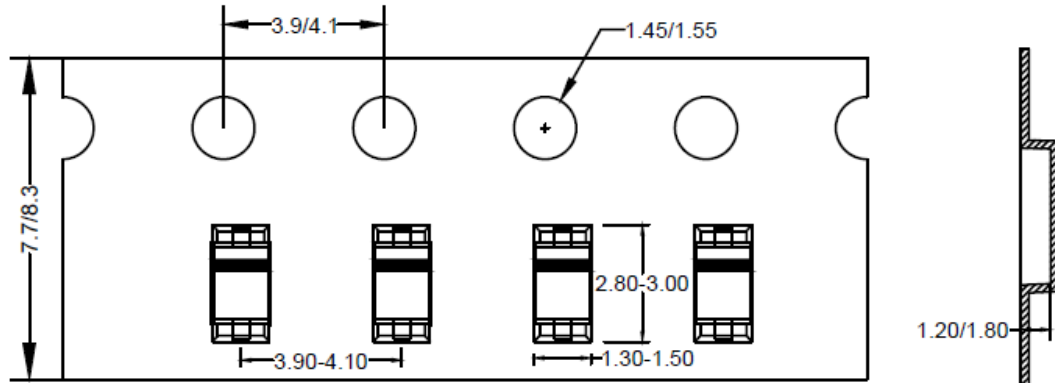


## Package Outline

- SOD-323 package

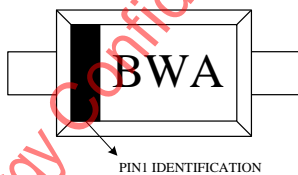


## Tape and Reel Specification



Package types	Tape width (mm)	Pocket pitch(mm)	Reel size (Inch)	Trailer * length(mm)	Leader * length (mm)	Qty per reel (pcs)
SOD323	8	4	7"	400	200	3000

## Marking Codes



**Note:**

- (1) "B" is the device marking.
- (2) "W" is date code. "W" is the assembly week in a year, from 1 to 0, A to Z.
- (3) "A" is the production lot number, from A to Z.

## Ordering Information

Part Number	Working Voltage	Quantity Per Reel	Reel Size
SYS02H12AMC	12V	3,000	7 Inch

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