

### 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) 8A (8/20 $\mu\text{s}$ )  
Cable Discharge Event (CDE)
- Protects one data, control or power line
- Capacitance: 120pF (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

SYS03N24AOC is a double lines Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for cell phones, notebook computers, PDA's. The SYS03N24AOC 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) 8A (8/20 $\mu\text{s}$ ), very fast charged device model (CDM) ESD and cable discharge event (CDE), etc.

SYS03N24AOC is in SOT23 package with working voltage of 24V. SYS03N24AOC can protect two unidirectional lines. It offers system designers flexibility to protect two data lines, and it can be used to meet the ESD immunity requirements of IEC 61000-4-2, Level 4 ( $\pm 30\text{kV}$  air,  $\pm 30\text{kV}$  contact discharge). SYS03N24AOC can be used in lots of applications.

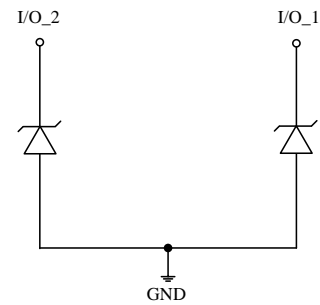
### Applications

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

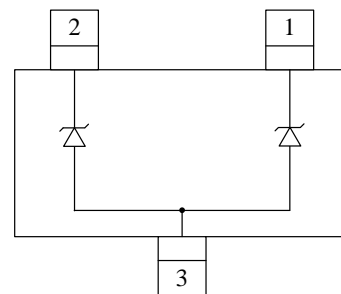
### Mechanical Characteristics

- SOT23 package
- Marking: Part number, date code
- Packaging: Tape and Reel

### Circuit Diagram



### Pin Configuration



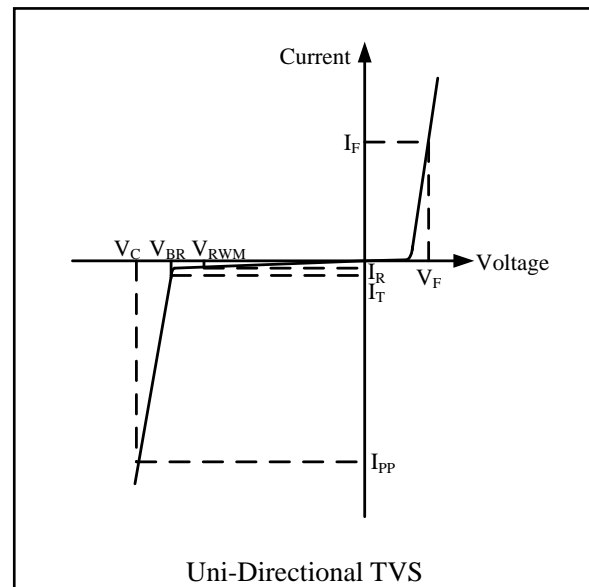
SOT23  
(Top View)

## Absolute Maximum Rating

Symbol	Parameter	Value	Units
P <sub>PK</sub>	Peak Pulse Power (t <sub>p</sub> =8/20μs)	300	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

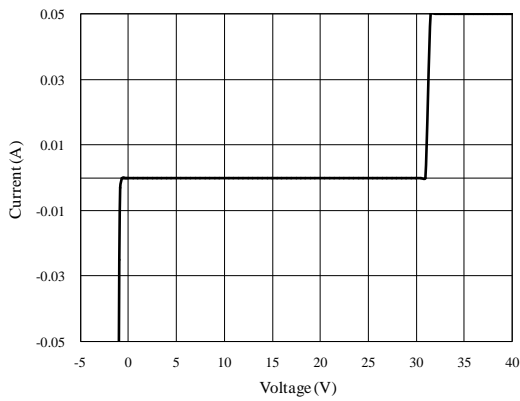
## Electrical Characteristics (T = 25°C)

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>

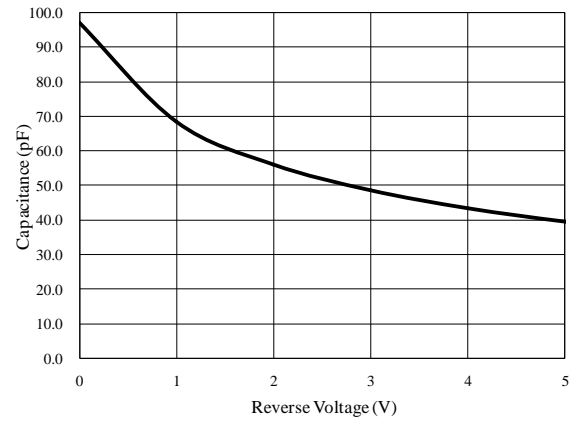


Symbol	Test Condition	Minimum	Typical	Maximum	Units
V <sub>RWM</sub>				24	V
I <sub>R</sub>	V <sub>RWM</sub> = 24V, T = 25°C Between I/O and GND			1	μA
V <sub>BR</sub>	I <sub>T</sub> = 1mA Between I/O and GND	26.7			V
V <sub>C</sub>	I <sub>PP</sub> = 1A, t <sub>p</sub> = 8/20μs Between I/O and GND			40	V
I <sub>PP</sub>	Peak Pulse Current (t <sub>p</sub> =8/20μs)			8	A
C <sub>ESD</sub>	V <sub>R</sub> = 0V, f = 1MHz Between I/O and GND			120	pF

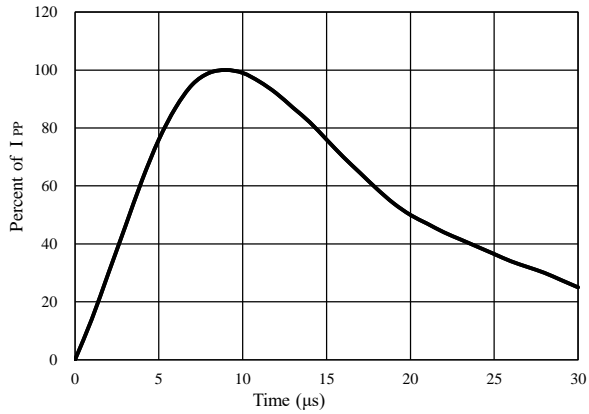
## Voltage Sweeping of I/O to GND



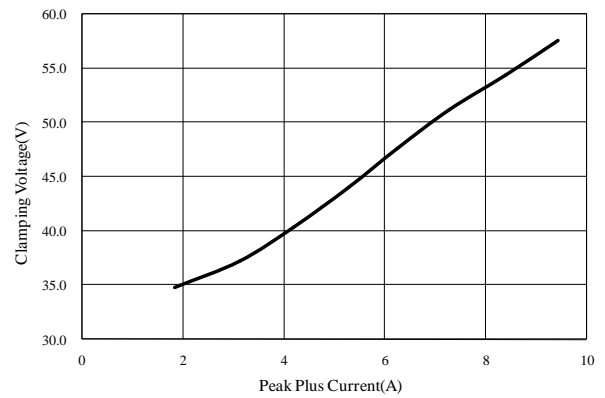
## Capacitance vs. Reverse Voltage



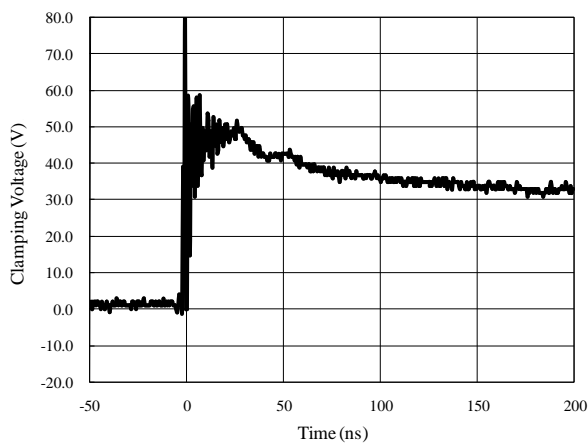
## 8/20µs Pulse Waveform



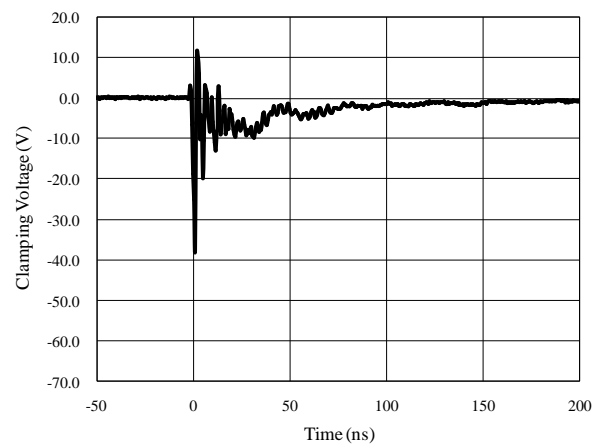
## Clamping Voltage vs. Peak Pulse Current



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

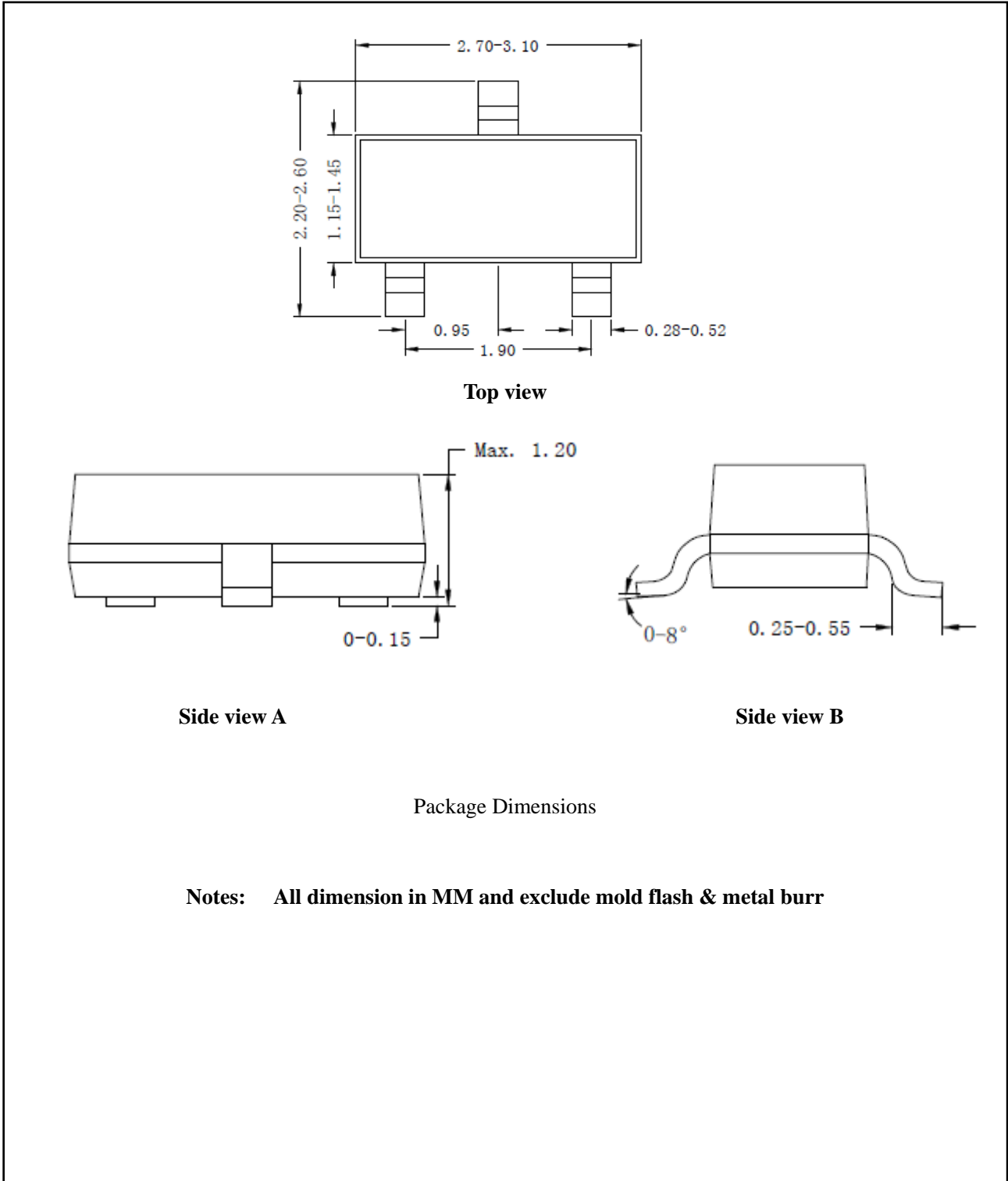


## ESD Clamping of I/O to GND (-8kV Contact per IEC 61000-4-2)

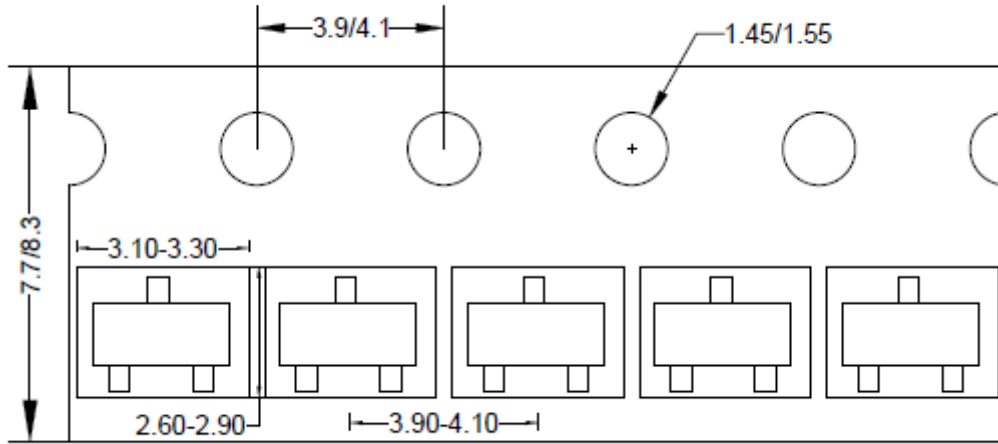


**Package Outline**

- SOT23 package



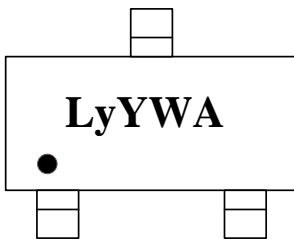
## Tape and Reel Specification



Feeding direction →

Package types	Tape width (mm)	Pocket pitch(mm)	Reel size (Inch)	Trailer * length(mm)	Leader * length (mm)	Qty per reel (pcs)
SOT23	8	4	7"	400	200	3000

## Marking Codes



### Note:

- (1) "Ly" is the device marking.
- (2) "YWA" is date code & lot code."A" is the production lot number, from A to Z.

## Ordering Information

Part Number	Working Voltage	Quantity Per Reel	Reel Size
SYS03N24AOC	24V	3,000	7 Inch



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