

### Features

- Transient protection for single line  
IEC 61000-4-2 (ESD)  $\pm 30\text{kV}$  (Air)  
 $\pm 30\text{kV}$  (Contact)  
IEC 61000-4-5 (Surge) 170A (8/20 $\mu\text{s}$ )
- Working Voltages: 24V
- Protects one data, control or power line
- Capacitance: 750pF (Typical)
- 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

SYS22X24ECO is a single line transient voltage suppressor (TVS) designed to provide surge protection for cell phones, notebook computers. The SYS22X24ECO 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 61000-4-5 (Surge) 170A (8/20 $\mu\text{s}$ ), etc.

SYS22X24ECO is in SOD-123FL package with working voltage of 24 volts.

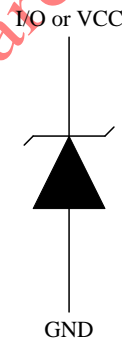
### Applications

- USB-C VBus
- Desktops, Servers and Notebooks
- Cellular Phones

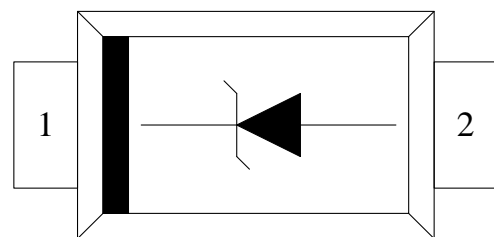
### Mechanical Characteristics

- SOD-123FL package
- Marking: Device code, date code
- Packaging: Tape and Reel

### Circuit Diagram



### Pin Configuration



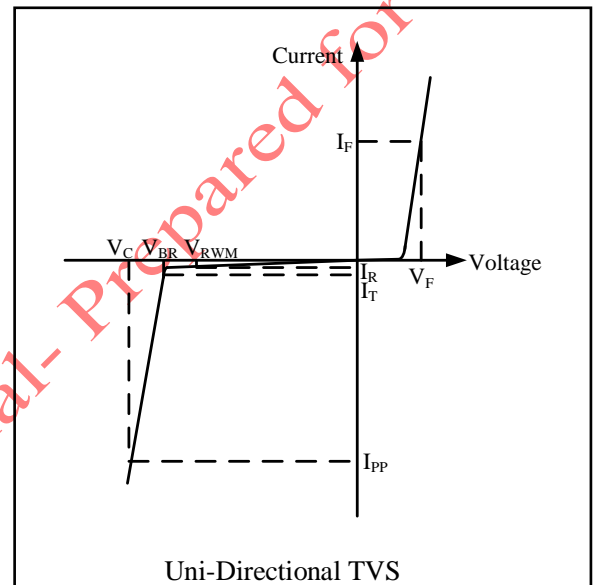
SOD-123FL  
(Top View)

### Absolute Maximum Rating

Symbol	Parameter	Value	Units
P <sub>PK</sub>	Peak Pulse Power (t <sub>p</sub> =8/20μs)	5100	Watts
I <sub>PP</sub>	Peak Pulse Current (t <sub>p</sub> =8/20μs)	170	A
T <sub>OPT</sub>	Operating Temperature	-40/+125	°C
T <sub>STG</sub>	Storage Temperature	-55/+150	°C

### Electrical Characteristics (T<sub>A</sub> = 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>

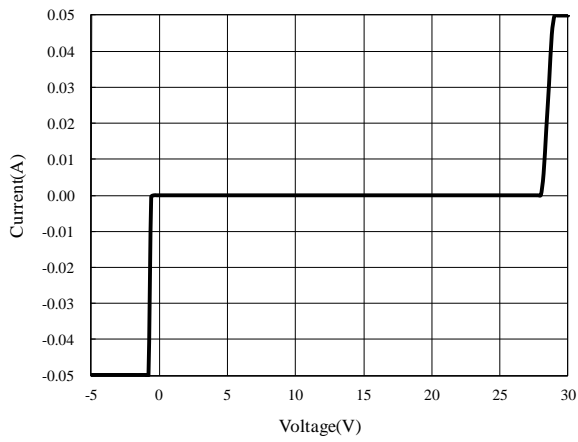


Symbol	Test Condition	Min.	Typ.	Max.	Units
V <sub>RWM</sub>				24	V
I <sub>R</sub>	V <sub>RWM</sub> = 24V, T <sub>A</sub> = 25°C, Pin1 to Pin2		0.1	1	μA
V <sub>BR</sub>	I <sub>T</sub> = 1mA, Pin1 to Pin2	26		30	V
V <sub>F</sub>	I <sub>F</sub> = 1mA, Pin2 to Pin1	0.4		1.2	V
V <sub>C</sub> <sup>1</sup>	I <sub>PP</sub> = 170A, t <sub>p</sub> = 8/20μs, Pin1 to Pin2		30		V
C <sub>ESD</sub> <sup>1</sup>	V <sub>R</sub> = 0V, f = 1MHz, Pin1 to Pin2		750		pF

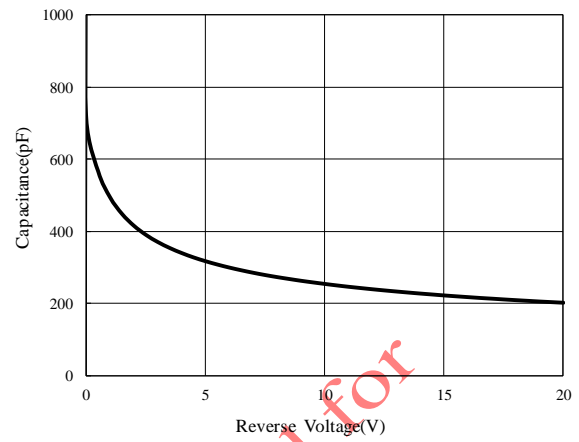
#### NOTES

<sup>1</sup>Guaranteed by design and not subject to production test.

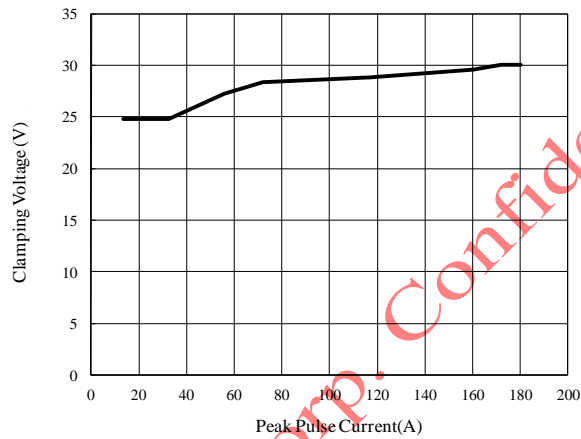
**Voltage Sweeping of Pin1 to Pin2**



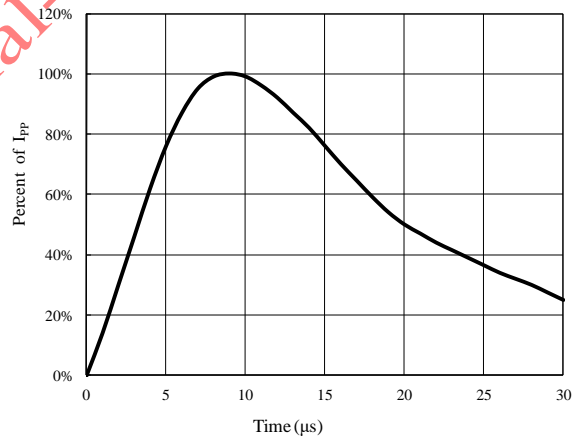
**Capacitance vs. Voltage (f = 1MHz)**



**8/20 $\mu$ s Clamping Voltage vs. Peak Pulse Current**



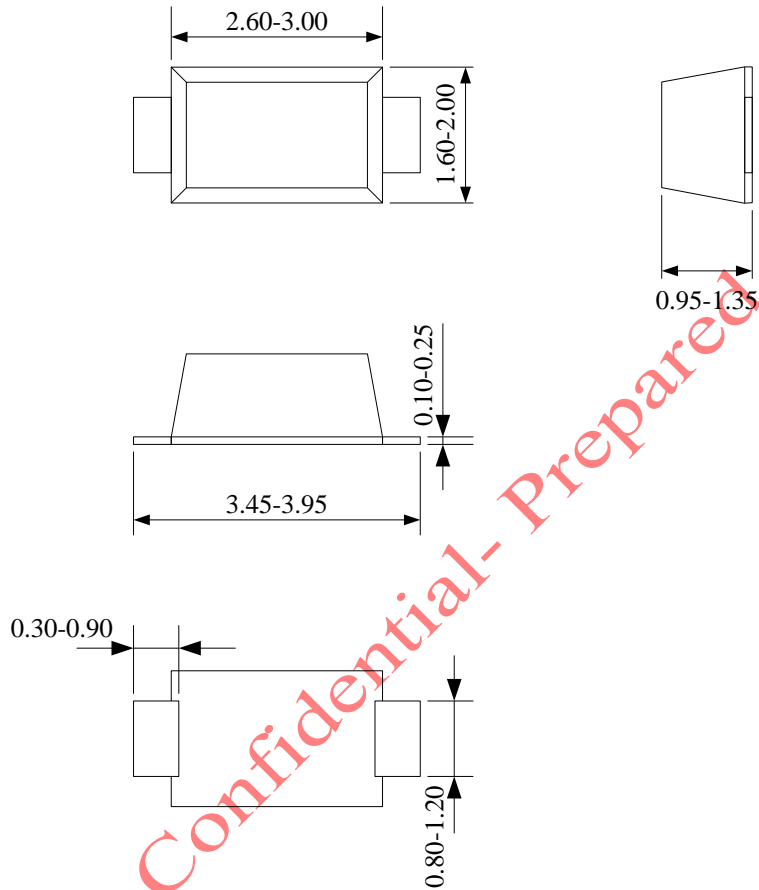
**8/20 $\mu$ s Surge Waveform**



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### Package Outline

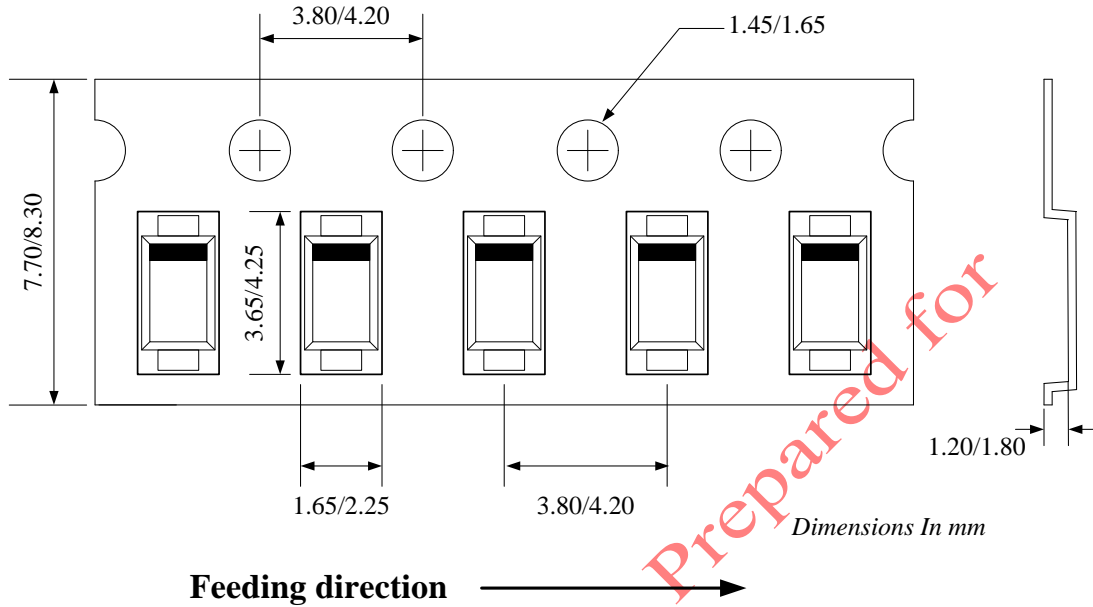
- SOD-123FL Package



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

## Tape and Reel Specification

- SOD-123FL



Package types	Tape width (mm)	Pocket pitch(mm)	Reel size (Inch)	Qty per reel (pcs)
SOD-123FL	8	4	7"	3000

## Marking Codes



Note:

- "r" is the device code.
- "YWA" is the date code & lot code.

## Ordering Information

Part Number	Working Voltage	Quantity Per Reel	Reel Size
SYS22X24ECO	24V	3,000	7 Inch