SYS22V12SLC

Single Line TVS Diode for ESD Protection

Advanced Design Specification

Features

- Transient protection for single line
  IEC 61000-4-2 (ESD) ±30kV (Air)
  ±30kV (Contact)
  IEC 61000-4-5 (Surge) 100A (8/20μs)
- For 12V and below operating voltage
- Protects one data, control or power line
- Capacitance: 680pF (Typical)
- Low leakage current: 0.1μA @ V_{RWM} (Max)
- Low clamping voltage
- Each pin can withstand over 1000 ESD strikes for ±8kV contact discharge

Description

SYS22V12SLC is a single line Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for cell phones, notebook computers, PDA's. The SYS22V12SLC 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) 100A (8/20μs), etc.

SYS22V12SLC is in DFN1.6*1.0-2 package with working voltage of 12 volts. SYS22V12SLC can protect one unidirectional line. It offers system designers flexibility to protect single data line. SYS22V12SLC can be used in lots of applications.

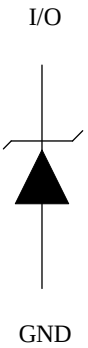
Applications

- Power supply protection
- Power management
- Battery protection
- Desktops, Servers and Notebooks
- Cellular Phones
- Portable Instrumentation
- Pagers Peripherals
- Digital cameras

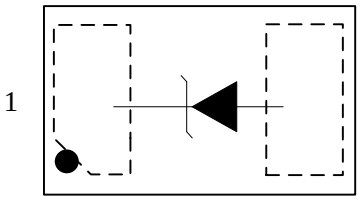
Mechanical Characteristics

- DFN1.6*1.0-2 package
- Flammability Rating: UL 94V-0
- Marking: Device code, date code
- Packaging: Tape and Reel

Circuit Diagram



Pin Configuration



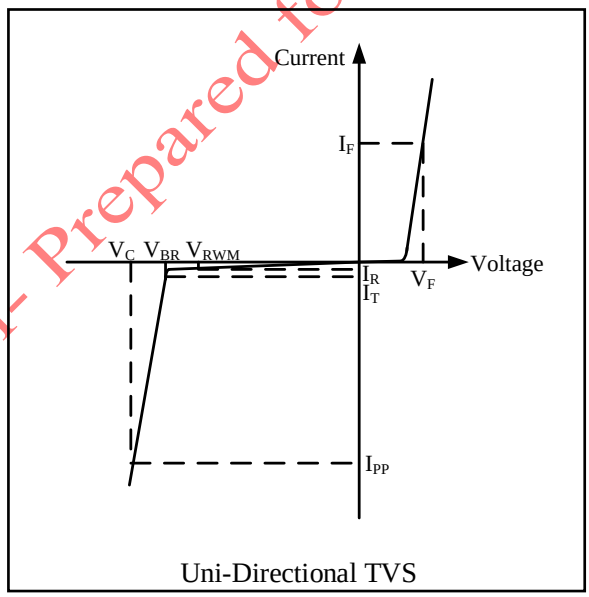
DFN1.6*1.0-2
(Top View)

Absolute Maximum Rating

Symbol	Parameter	Value	Units
P_{PK}	Peak Pulse Power (t_p=8/20μs)	2000	Watts
I_{PP}	Peak Pulse Current (t_p=8/20μs)	100	A
V_{ESD}	ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	±30 ±30	kV
T_{OPT}	Operating Temperature	-40/+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

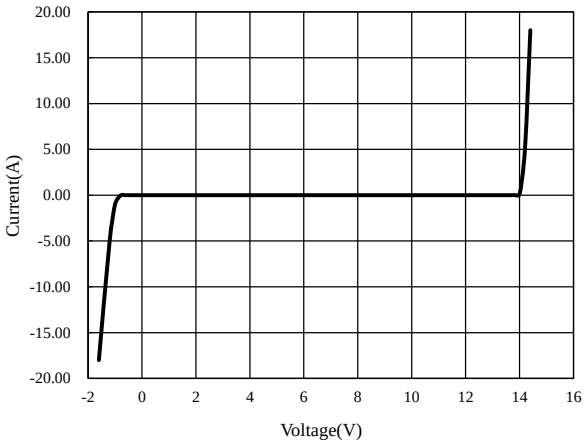


Uni-Directional TVS

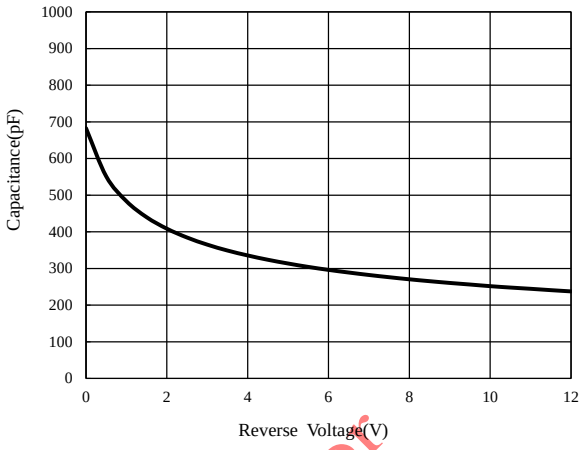
Symbol	Test Condition	Minimum	Typical	Maximum	Units
V_{RWM}				12.5	V
I_R	V_{RWM} = 12V, T = 25°C Pin1 to Pin2		0.01	0.1	μA
V_{BR}	I_T = 1mA Pin1 to Pin2	13.3	14	16.5	V
V_F	I_F = 1mA Pin2 to Pin1	0.4		1.2	V
V_C[1]	I_{PP} =10A, t_p = 8/20μs Pin1 to Pin2		16		V
V_C[1]	I_{PP} =100A, t_p = 8/20μs Pin1 to Pin2		20		V
C_{ESD}[1]	V_R = 0V, f = 1MHz Pin1 to Pin2		680		pF

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

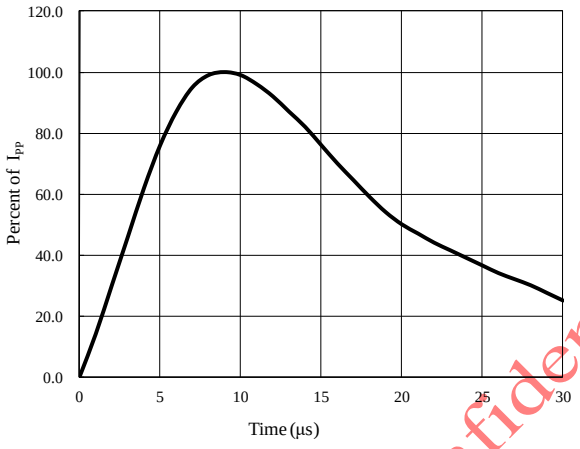
Voltage Sweeping



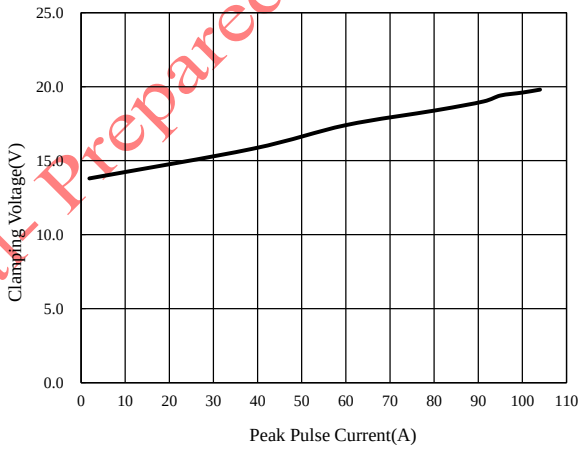
Capacitance vs. Voltage (f = 1MHz)



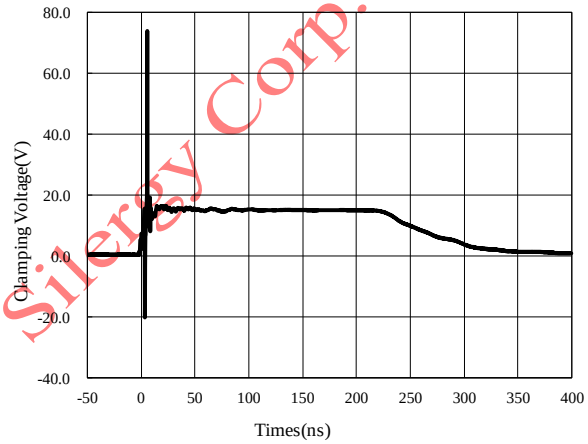
8/20μs Pulse Waveform



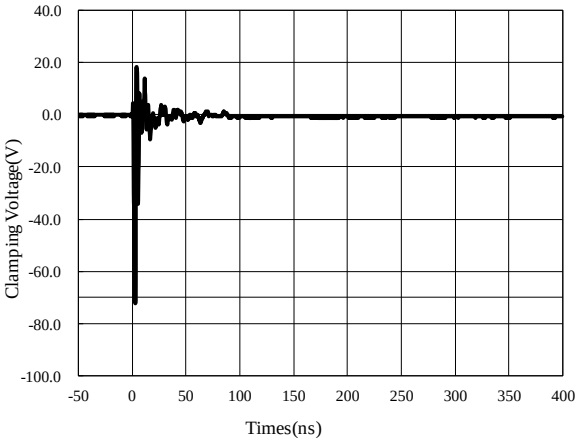
Clamping Voltage vs. Peak Pulse Current



ESD Clamping (+8kV Contact per IEC 61000-4-2)

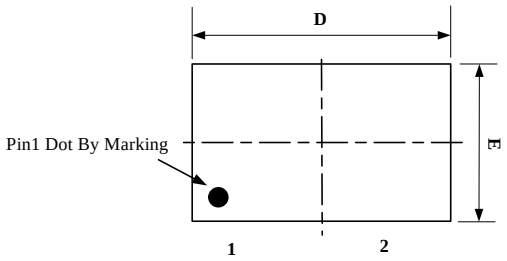


ESD Clamping (-8kV Contact per IEC 61000-4-2)

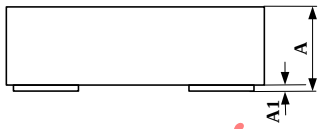


Package Outline

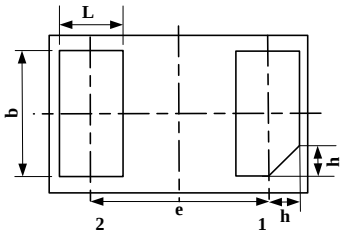
- DFN1.6*1.0-2L package



TOP VIEW



SIDE VIEW



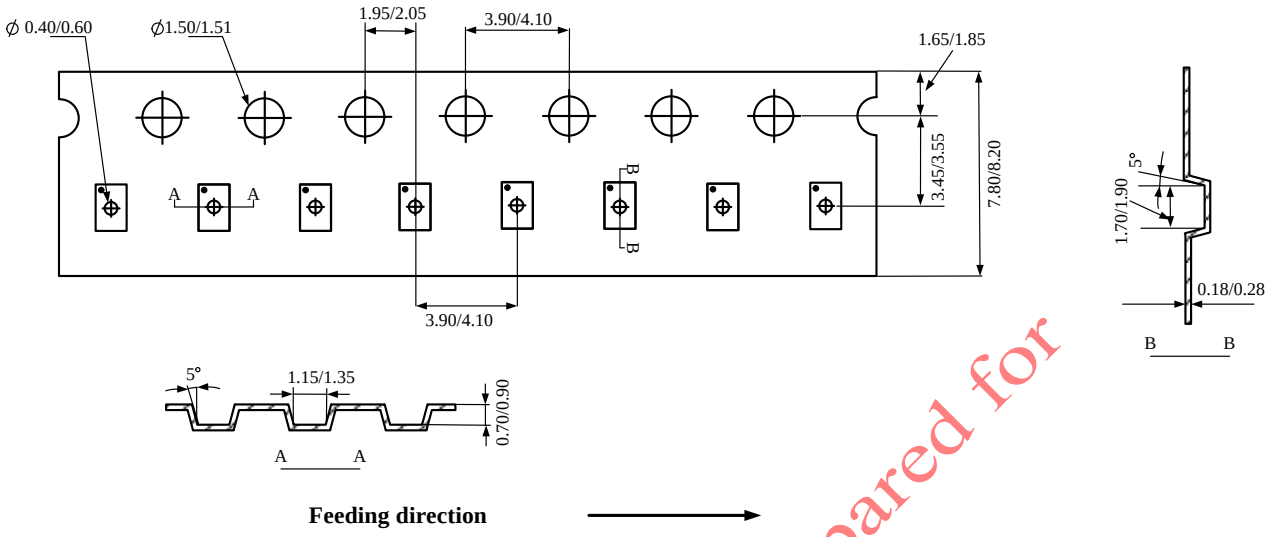
BOTTOM VIEW

Package Dimensions

Symbol	Dimensions (mm)		
	MIN	NOM	MAX
A	0.450	0.500	0.550
A1	------	------	0.055
b	0.750	0.800	0.850
D	1.550	1.600	1.650
e	1.100BSC		
E	0.950	1.000	1.050
L	0.350	0.400	0.450
h	0.175BSC		

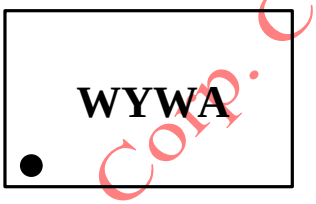
Notes: All dimension in mm and exclude mold flash & metal burr.

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)
DFN1.6*1.0-2	**8**	**4**	**7"**	**400**	**400**	**3000**

Marking Codes



Ordering Information

Part Number	Working Voltage	Quantity Per Reel	Reel Size
SYS22V12SLC	12V	3,000	7 Inch

Note:

(1) "W" is the device marking for SYS22V12SLC.

(2) "YWA" is date code.