

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) 25A (8/20 μs)
- For 20V and Below Operating Voltage
- Protects One Data, Control or Power Line
- Capacitance: 210pF (Typical)
- Low Leakage Current: 0.1 μA @ V_{RWM} (Max)
- Low Clamping Voltage
- Each pin can Withstand Over 1000 ESD Strikes for $\pm 8\text{kV}$ Contact Discharge

Description

The SYS12V20SLC is a single line transient voltage suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for cell phones, notebook computers, PDA's. The SYS12V20SLC 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) 25A (8/20 μs), etc.

The SYS12V20SLC is in DFN1.6*1.0-2L package with working voltage of 20 volts. The SYS12V20SLC can protect one unidirectional line. It offers system designers flexibility to protect single data line. The SYS12V20SLC can be used in lots of applications.

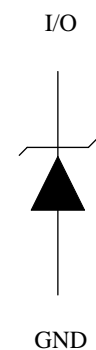
Applications

- USB VBUS Protection
- Power Supply Protection
- Desktops, Servers and Notebooks
- Cellular Phones
- Portable Instrumentation
- Pagers Peripherals
- Digital Cameras

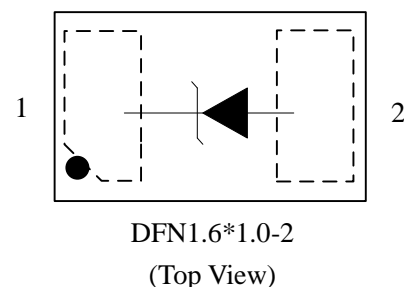
Mechanical Characteristics

- DFN1.6*1.0-2 Package
- Flammability Rating: UL 94V-0
- Marking: Part Number, Date Code
- Packaging: Tape and Reel

Circuit Diagram



Pin Configuration

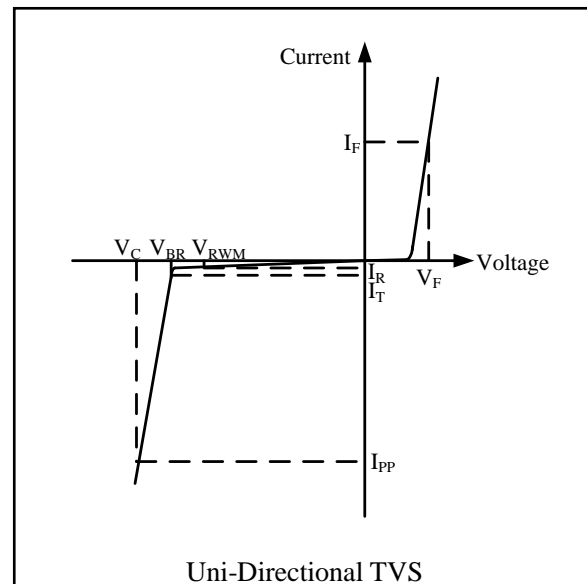


Absolute Maximum Rating

Symbol	Parameter	Value	Units
P_{PK}	Peak Pulse Power ($t_p=8/20\mu s$)	850	Watts
I_{PP}	Peak Pulse Current ($t_p=8/20\mu s$)	25	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	$^{\circ}C$
T_{STG}	Storage Temperature	-55/+150	$^{\circ}C$

Electrical Characteristics ($T_A = 25^{\circ}C$)

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

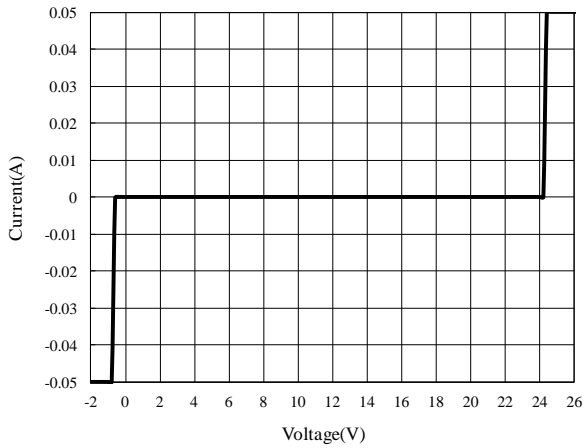


Symbol	Test Condition	Minimum	Typical	Maximum	Units
V_{RWM}				20.5	V
I_R	$V_{RWM} = 20V, T = 25^{\circ}C$ Pin1 to Pin2		0.01	0.1	μA
V_{BR}	$I_T = 1mA$ Pin1 to Pin2	22.2	24.5	27	V
V_F	$I_F = 1mA$ Pin2 to Pin1	0.4		1.2	V
V_C^1	$I_{PP} = 10A, t_p = 8/20\mu s$ Pin1 to Pin2		28		V
V_C^1	$I_{PP} = 25A, t_p = 8/20\mu s$ Pin1 to Pin2		32		V
C_{ESD}^1	$V_R = 0V, f = 1MHz$ Pin1 to Pin2		210		pF

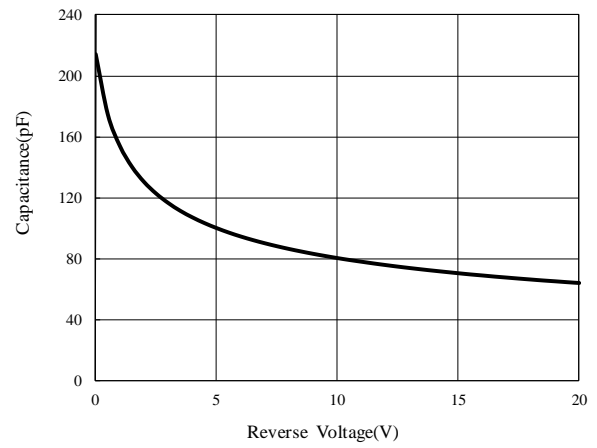
NOTES

¹Guaranteed by design and no subject to production test.

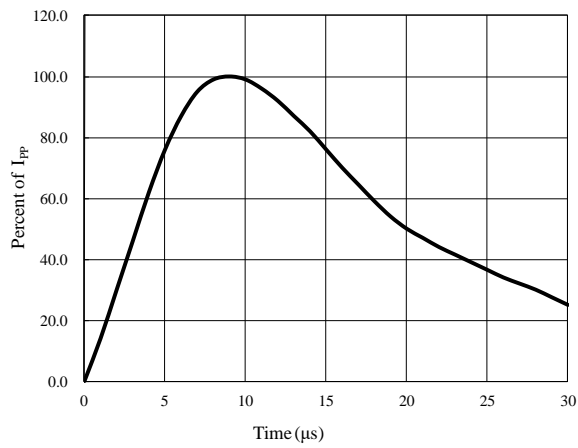
Voltage Sweeping



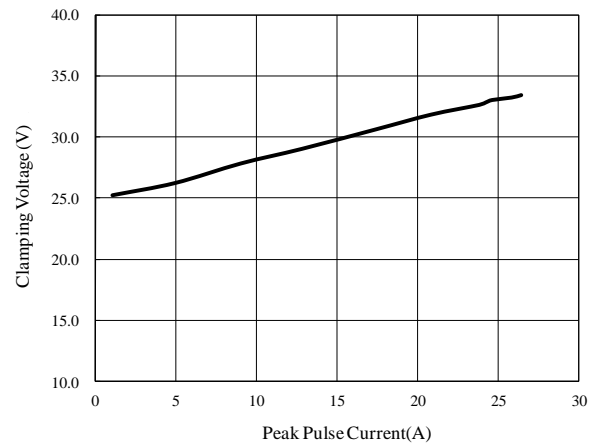
Capacitance vs. Voltage (f = 1MHz)



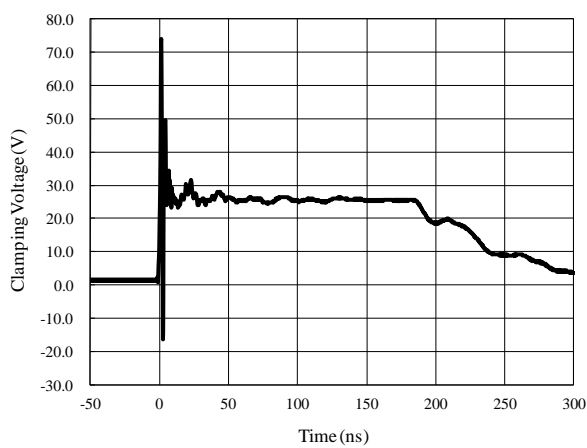
8/20µs Pulse Waveform



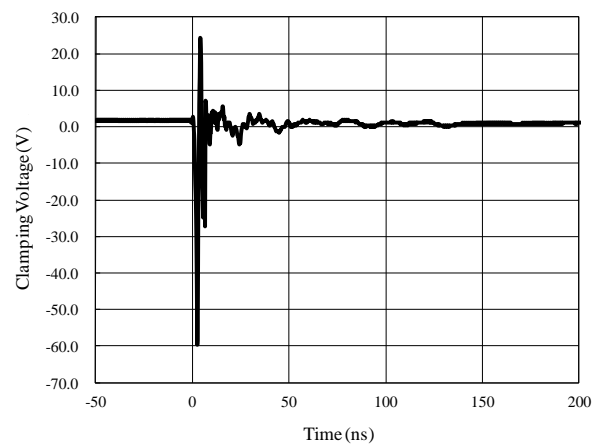
Clamping Voltage vs. Peak Pulse Current



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

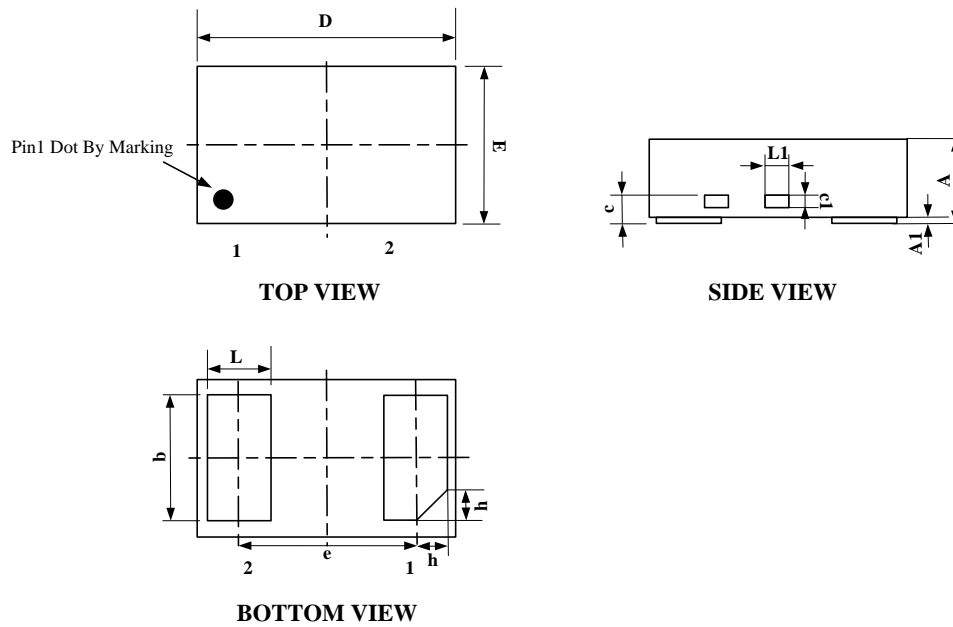


ESD Clamping (-8kV Contact per IEC 61000-4-2)



Package Outline

- DFN1.6*1.0-2 Package

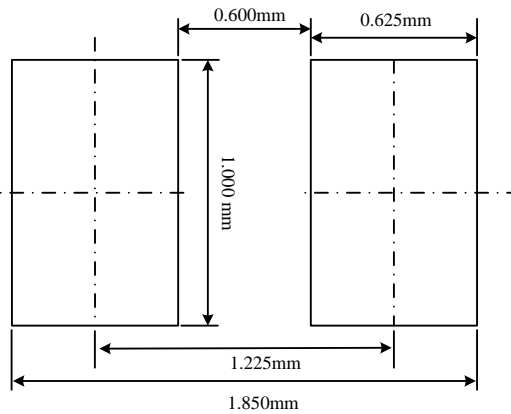


Package Dimensions

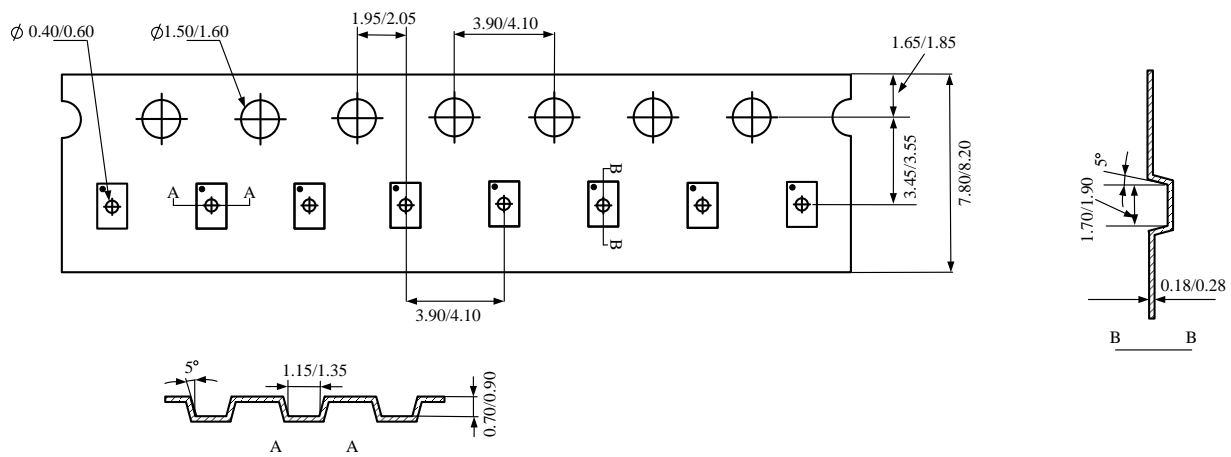
Symbol	Dimensions (mm)		
	MIN	NOM	MAX
A	0.45	0.50	0.55
A1	-----	0.02	0.05
b	0.75	0.80	0.85
c	0.10	0.15	0.20
c1	0.075REF		
D	1.55	1.60	1.65
e	1.10BSC		
E	0.95	1.00	1.05
L	0.35	0.40	0.45
L1	0.10	0.15	0.20
h	0.15	0.20	0.25

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

PCB Layout Pattern



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

Marking Codes



Ordering Information

Part Number	Working Voltage	Quantity Per Reel	Reel Size
SYS12V20SLC	20V	3,000	7 Inch

Note:

- (1) "P" is the device marking for SYS12V20SLC.
- (2) "YWA" is date code.



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