

# DATA SHEET

**ELECTROSTATIC DISCHARGE  
PROTECTION DEVICES**

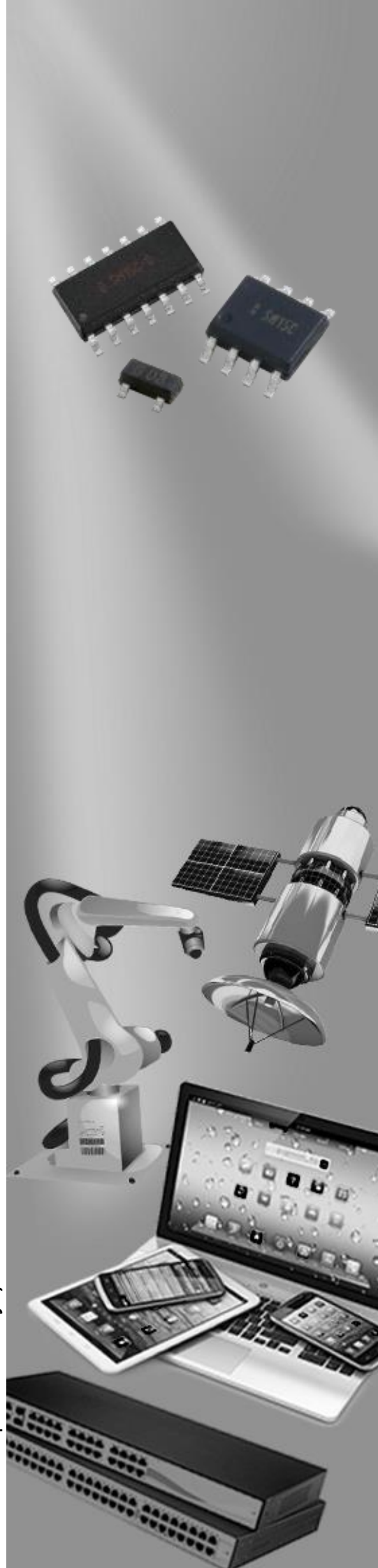
**INDUSTRIAL / CONSUMER**

UDD32C05L01C

RoHS compliant & Halogen free



Product specification— July 04, 2023 V.0



## Electrostatic Discharged Protection Devices (ESD) Data Sheet

### Description

The UDD32C05L01C is an ultra low ESD protection devices designed to protect high speed data interfaces. It is specifically designed to protect sensitive components which is connected to data transmission lines from overvoltage caused by electrostatic discharge (ESD), cable discharge events (CDE) and lightning. During a transient spike, the broken-down diodes direct the transient current to the ground. The internal TVS diode clamps the transient voltage to a safe level. The ultra low junction capacitance allows the user to protect the high-speed data lines. This device is in a signal package, RoHS/WEEE compliant, SOD-323 package. It measures 2.5×1.25×1.0mm. This device may be used to meet the immunity requirements of IEC61000-4-2 (ESD), IEC61000-4-4 (EFT) and IEC61000-4-5 (Surge).

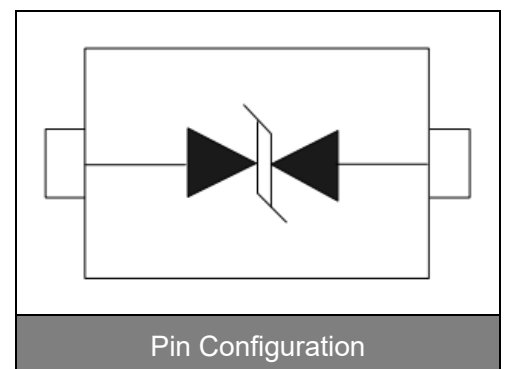


Contact :  $\pm 30\text{kV}$   
Air :  $\pm 30\text{kV}$



### Features

- IEC61000-4-2 ESD 30KV Air, 30KV contact compliance
- SOD-323 surface mount package
- Protection one power line
- Peak power dissipation of 280W under 8/20 $\mu\text{s}$  waveform
- Working voltage: 5V
- Low leakage current
- Low operating and clamping voltages
- Solid-state silicon avalanche technology
- Solder reflow temperature: Pure Tin-Sn, 260~270°C
- Flammability rating UL 94V-0
- Meets MSL level 1, per J-STD-020
- Marking: 5LH



### Applications

- USB 2.0 interface
- 10/100/1000 Ethernet
- Personal digital assistants (PDA)
- Serial ATA protection
- Digital visual interface (DVI)
- Wireless system devices
- Handhelds and notebooks
- Digital cameras
- RF interface

## Maximum Ratings

Rating	Symbol	Value	Unit
Peak pulse power (tp=8/20μs waveform)	P <sub>PP</sub>	280	W
ESD voltage (Contact discharge)	V <sub>ESD</sub>	±30	kV
ESD voltage (Air discharge)		±30	
Storage & operating temperature range	T <sub>STG</sub> , T <sub>J</sub>	-55~+150	°C

## Electrical Characteristics (T<sub>A</sub>=25°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V <sub>RWM</sub>				5	V
Reverse breakdown voltage	V <sub>BR</sub>	I <sub>BR</sub> =1mA	6			V
Reverse leakage current	I <sub>R</sub>	V <sub>R</sub> =5V			1	μA
Clamping voltage (tp=8/20μs)	V <sub>C</sub>	I <sub>PP</sub> =11A			23	V
Peak pulse current (tp=8/20μs)	I <sub>PP</sub>				11	A
Off state junction capacitance	C <sub>J</sub>	0Vdc, f=1MHz		1.4		pF

## Typical Characteristics Curves

Figure 1. Power Derating Curve

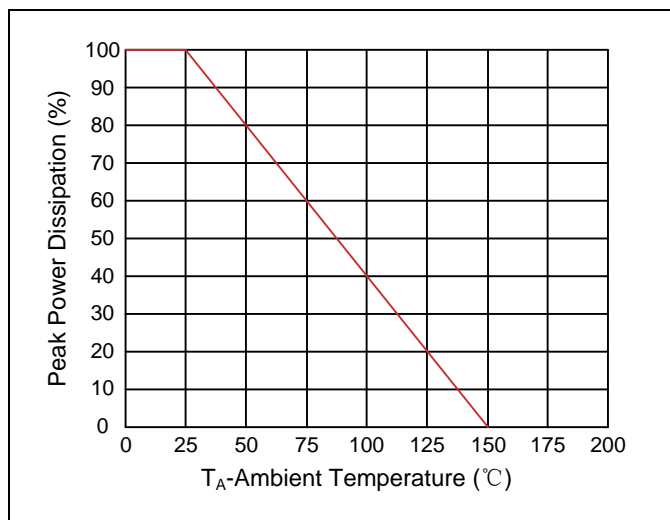


Figure 2. Pulse Waveform

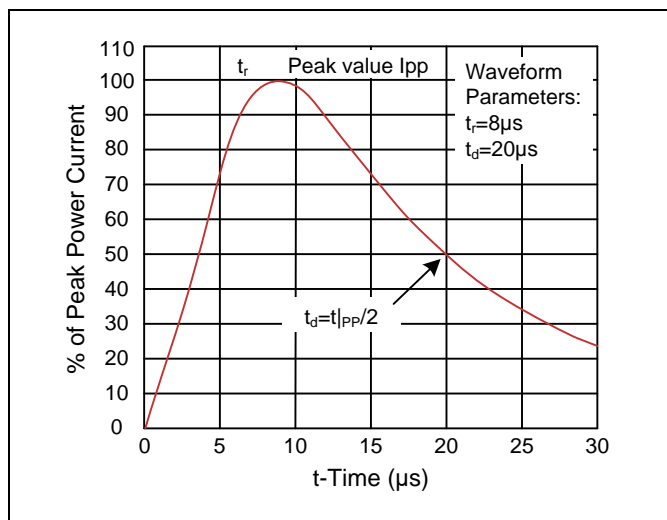


Figure 3. Clamping Voltage vs. Peak Pulse Current

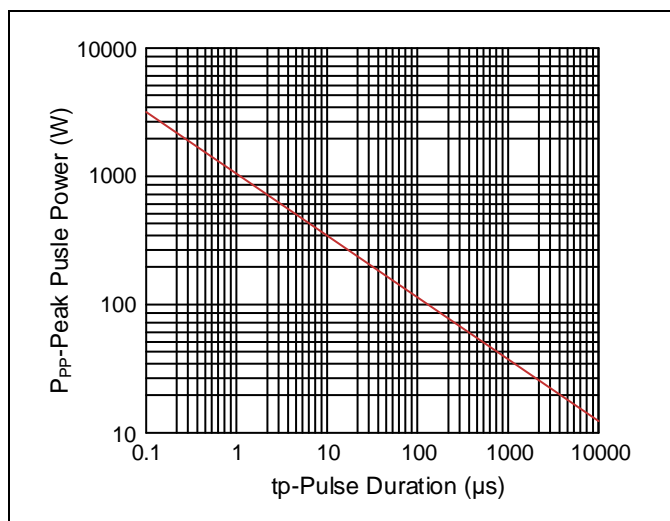
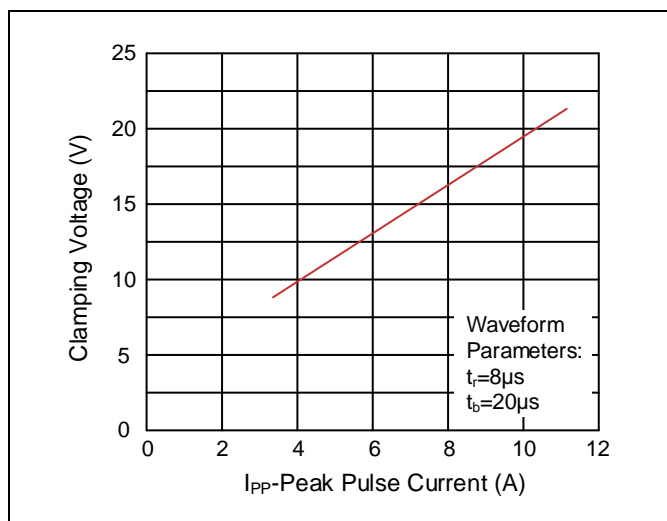
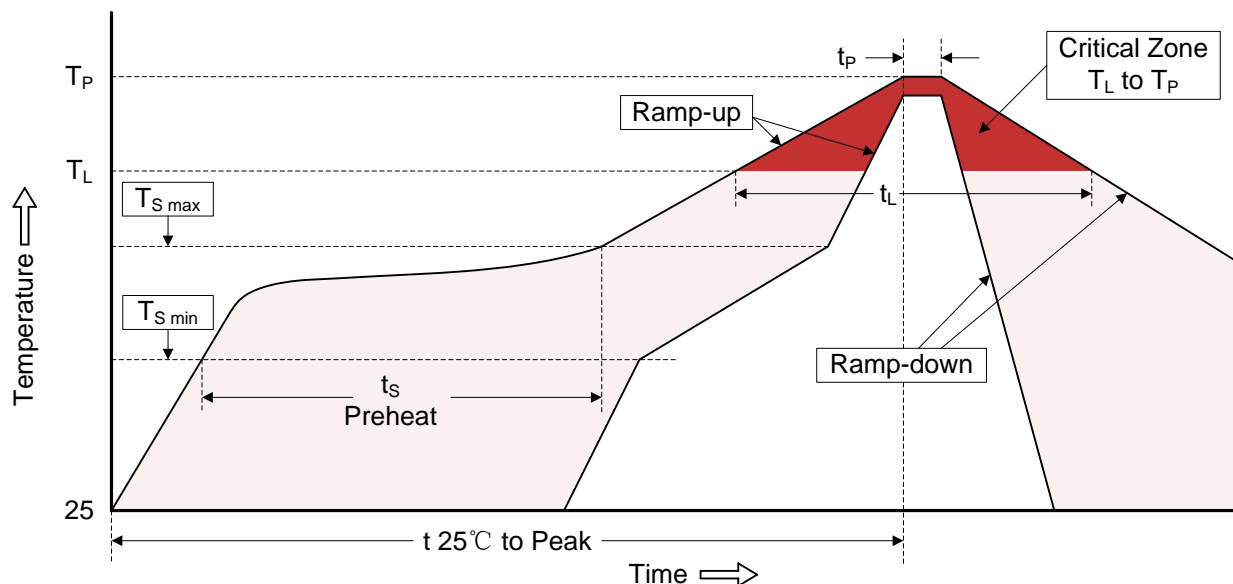


Figure 4. Clamping Voltage vs. Peak Pulse Current



## Recommended Soldering Conditions

### Reflow Soldering



### Recommended Condition

Profile Feature	Pb-Free Assembly
Average ramp-up rate ( $T_L$ to $T_P$ )	3°C/second max.
Preheat <ul style="list-style-type: none"> <li>-Temperature Min (<math>T_{S\ min}</math>)</li> <li>-Temperature Max (<math>T_{S\ max}</math>)</li> <li>-Time (min to max) (<math>t_s</math>)</li> </ul>	150°C 200°C 60-180 seconds
$T_{S\ max}$ to $T_L$ <ul style="list-style-type: none"> <li>-Ramp-up Rate</li> </ul>	3°C/second max.
Time maintained above: <ul style="list-style-type: none"> <li>-Temperature (<math>T_L</math>)</li> <li>-Time (<math>t_L</math>)</li> </ul>	217°C 60-150 seconds
Peak Temperature ( $T_P$ )	260°C
Time within 5°C of actual Peak Temperature ( $t_P$ )	20-40 seconds
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.

## Dimensions (SOD-323)

Symbol	Dimension			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.80	1.10	0.031	0.043
B	0.00	0.10	0.000	0.004
C	0.20	-	0.008	-
D	0.11	0.20	0.004	0.008
E	1.15	1.35	0.045	0.053
F	0.25	0.35	0.010	0.014
G	1.60	1.80	0.063	0.071
H	2.40	2.70	0.094	0.102

## Packaging

Tape		Symbol	Dimension (mm)
		W	8.00±0.30
		P0	4.00±0.10
		P1	4.00±0.10
		P2	2.00±0.10
		D0	Φ1.55±0.10
		D1	Φ1.00±0.05
		E	1.75±0.10
		F	3.50±0.10
		A	1.48±0.10
		A0	0.80±0.10
		B	3.00±0.10
		B0	1.80±0.10
		K	1.05±0.10
		t	0.25±0.05
Reel		D	Φ178.0±2.0
		D2	Φ13.0
		W1	9.5
		Quantity: 3000PCS	

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