UMW UDD32CxxL01

1.Description

The series are an ultra low capacitance TVS array designed to protect high speed data interfaces. This series has been specifically designed to protect sensitive components which are connected to data an transmission lines from overvoltage caused by electrostatic discharge (ESD),cable discharge events (CDE) and lightning.

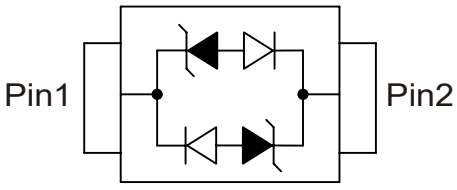
2.Applications

- USB 2.0 and USB 3.0 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

3.Features

- IEC61000-4-2 ESD 15KV Air, 8KV contact compliance
- SOD-323 surface mount package
- Protects one I/O line
- Peak power dissipation of 350W under 8/20μs waveform
- Working voltage: 3.3V, 5V, 12V and 15V
- Low leakage current
- Low operating and clamping voltages
- Solid-state silicon avalanche technology
- Lead Free/RoHS compliant
- Solder reflow temperature: Pure Tin-Sn 260~270°C
- Flammability rating UL 94V-0

4.Pinning information



SOD-323

5.Absolute Maximum Ratings

Parameter	Symbol	Value	Units
Peak pulse power (tp=8/20μs waveform)	P_{PP}	350	W
ESD voltage (Contact discharge)	V_{ESD}	±8	kV
ESD voltage (Air discharge)		±15	kV
Lead soldering temperature	T_L	260	°C
Storage & Junction temperature range	$T_{STG,}$ T_J	-55 to 150	°C

6.1Electrical Characteristics (T_J=25°C)

UDD32C03L01 (Marking: AC)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Reverse stand-off voltage	V_{RWM}				3.3	V
Reverse breakdown voltage	V_{BR}	I_{BR}=1mA	4			V
Reverse leakage current	I_R	V_R=3.3V			5	μA
Clamping voltage (tp=8/20μs)	V_C	I_{PP}=1A			7	V
Clamping voltage (tp=8/20μs)	V_C	I_{PP}=5A			15	V
Peak Pulse Current (tp=8/20μs)	I_{PP}				19	A
Off state junction capacitance	C_J	0Vdc, f=1MHz		0.8		pF

UDD32C05L01 (Marking: BC)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Reverse stand-off voltage	V_{RWM}				5	V
Reverse breakdown voltage	V_{BR}	I_{BR}=1mA	6			V
Reverse leakage current	I_R	V_R=5V			5	μA
Clamping voltage (tp=8/20μs)	V_C	I_{PP}=1A			9.8	V
Clamping voltage (tp=8/20μs)	V_C	I_{PP}=5A			18.3	V
Peak Pulse Current (tp=8/20μs)	I_{PP}				17	A
Off state junction capacitance	C_J	0Vdc, f=1MHz		0.8		pF

6.2Electrical Characteristics (T_J=25°C)

UDD32C12L01 (Marking: DC)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Reverse stand-off voltage	V_{RWM}				12	V
Reverse breakdown voltage	V_{BR}	I_{BR}=1mA	13.3			V
Reverse leakage current	I_R	V_R=12V			1	μA
Clamping voltage (tp=8/20μs)	V_C	I_{PP}=1A			19	V
Clamping voltage (tp=8/20μs)	V_C	I_{PP}=5A			28.6	V
Peak Pulse Current (tp=8/20μs)	I_{PP}				7	A
Off state junction capacitance	C_J	0Vdc, f=1MHz		0.8		pF

UDD32C15L01 (Marking: EC)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Reverse stand-off voltage	V_{RWM}				15	V
Reverse breakdown voltage	V_{BR}	I_{BR}=1mA	16.7			V
Reverse leakage current	I_R	V_R=15V			1	μA
Clamping voltage (tp=8/20μs)	V_C	I_{PP}=1A			24	V
Clamping voltage (tp=8/20μs)	V_C	I_{PP}=5A			35	V
Off state junction capacitance	C_J	0Vdc, f=1MHz		0.8		pF

7.Typical characteristic

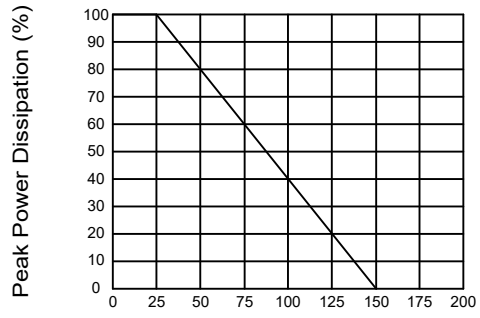


Figure 1: Power Derating Curve

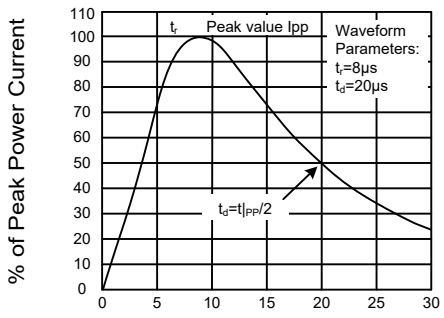


Figure 2: Pulse Waveform

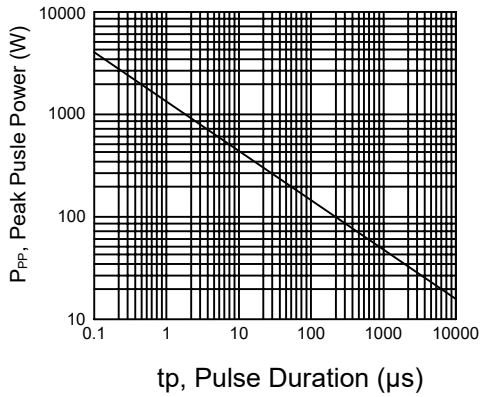


Figure 3: Non-Repetitive Peak Pulse vs Pulse Time

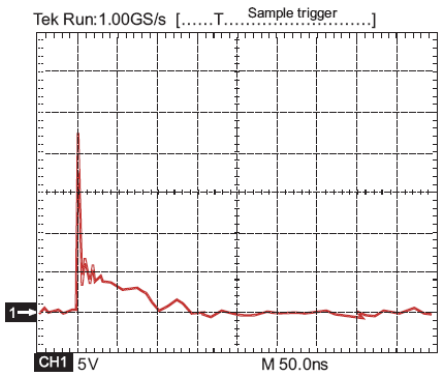
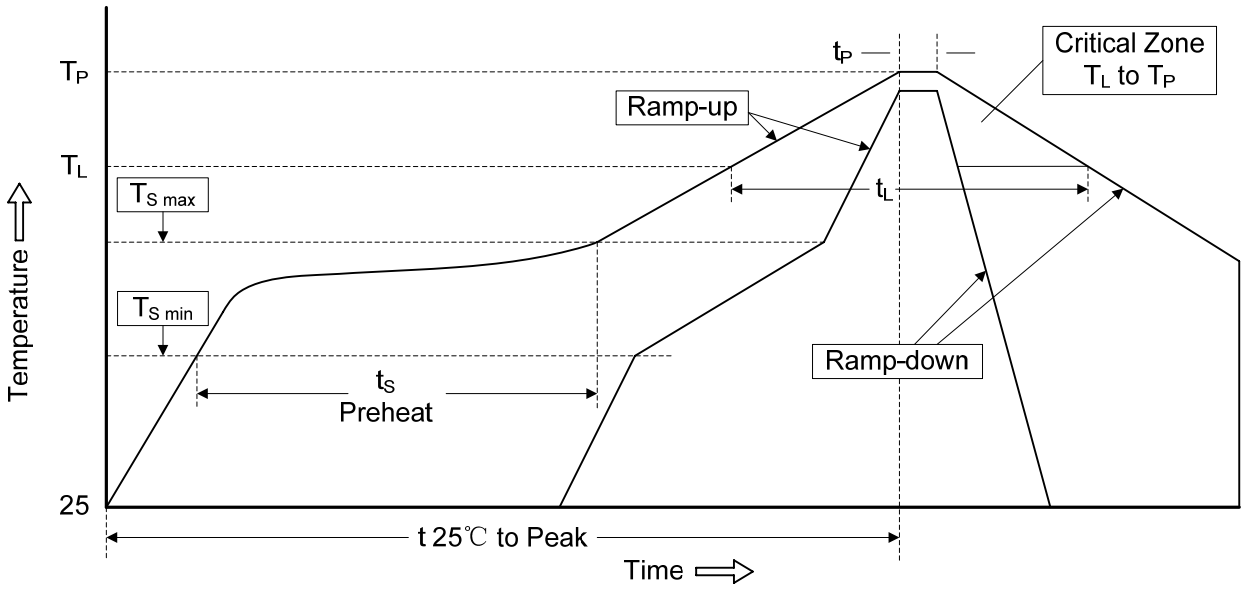


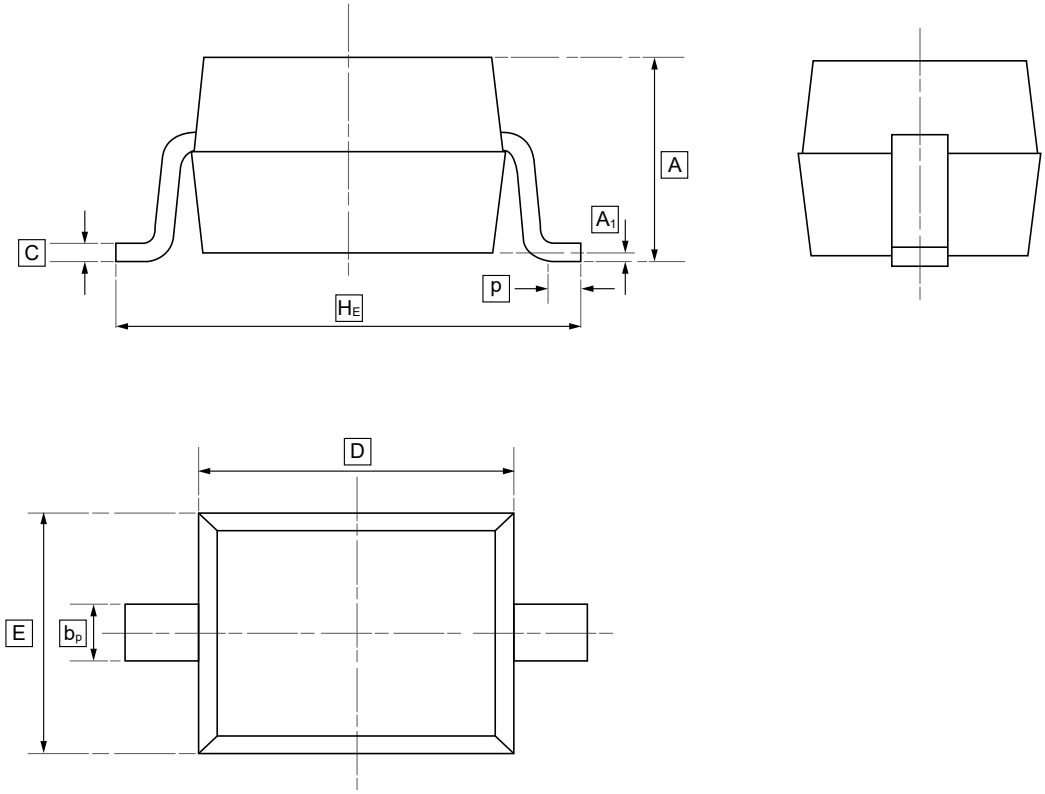
Figure 4: ESD Clamping (8kV Contact IEC61000-4-2)

8.Recommended Soldering Conditions

Profile Feature		Pb-Free Assembly
Average ramp-up rate (T_L to T_P)		3°C/second max.
Preheat	-Temperature Min ($T_{s(min)}$)	150°C
	-Temperature Max ($T_{s(max)}$)	200°C
	-Time (Min to Max) (t_s)	60-180 secs.
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Time maintained above	-Temperature (T_L)	217°C
	-Time (T_L)	60-150 secs.
Peak Temperature (T_p)		260°C
Time within 5°C of actual Peak Temperature (T_p)		20-40 seconds
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temperature		8 min. Max



9.SOD-323 Package Outline Dimensions



DIMENSIONS (mm are the original dimensions)

Symbol	A	b_p	C	D	E	H_E	A_1	p
Min	0.80	0.25	0.10	1.50	1.15	2.30	0.01	0.20
Max	1.20	0.40	0.15	1.80	1.35	2.80	0.10	0.50

10.Ordering information



ww: Batch Code

Order Code	Marking	Package	Base QTY	Delivery Mode
UMW UDD32C03L01	AC	SOD-323	3000	Tape and reel
UMW UDD32C05L01	BC	SOD-323	3000	Tape and reel
UMW UDD32C12L01	DC	SOD-323	3000	Tape and reel
UMW UDD32C15L01	EC	SOD-323	3000	Tape and reel

11.Disclaimer

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