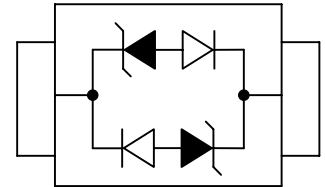


Description

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 transmission lines from overvoltage caused by electrostatic discharge (ESD), cable discharge events (CDE) and lightning.

The unique design incorporates surge rated, low capacitance steering diodes and a TVS diode in a single package. During transient conditions, the steering diodes direct the transient current to ground. The internal TVS diode clamps the transient voltage to a safe level. The ultra low capacitance array configuration allows the user to protect up to the high speed data lines. These devices are in a signal package, RoHS/WEEE compliant, SOD-323 package. It measures 2.5×1.25×1.0mm.

The series devices may be used to meet the immunity requirements of IEC61000-4-2 (ESD), IEC61000-4-4 (EFT) and IEC61000-4-5 (Surge).



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

Applications

- | | |
|---|---|
| <ul style="list-style-type: none"> ● USB 2.0 and USB 3.0 interface ● 10/100/1000 Ethernet ● Personal digital assistants (PDA) ● Serial ATA protection ● Digital visual interface (DVI) | <ul style="list-style-type: none"> ● Wireless system devices ● Handhelds and notebooks ● Digital cameras ● RF interface |
|---|---|

Rating	Symbol	Value	Unit
Peak pulse power (tp=8/20μs waveform)	P _{PP}	350	W
ESD voltage (Contact discharge)	V _{ESD}	±8	kV
ESD voltage (Air discharge)		±15	
Lead soldering temperature	T _L	260	°C
Storage & operating temperature range	T _{STG} , T _J	-55~+150	°C

Electrical Characteristics (T_J=25°C)

UDD32C03L01 (Marking: AC)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
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	Condition	Min.	Typ.	Max.	Unit
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

UDD32C12L01 (Marking: DC)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
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=8/20 μs)	V_C	$I_{PP}=1A$			19	V
Clamping voltage (tp=8/20 μs)	V_C	$I_{PP}=5A$			28.6	V
Peak Pulse Current (tp=8/20 μs)	I_{PP}				7	A
Off state junction capacitance	C_J	0Vdc,f=1MHz		0.8		pF

UDD32C15L01 (Marking: EC)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
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=8/20 μs)	V_C	$I_{PP}=1A$			24	V
Clamping voltage (tp=8/20 μs)	V_C	$I_{PP}=5A$			35	V
Off state junction capacitance	C_J	0Vdc,f=1MHz		0.8		pF

Figure 1. Power Derating Curve

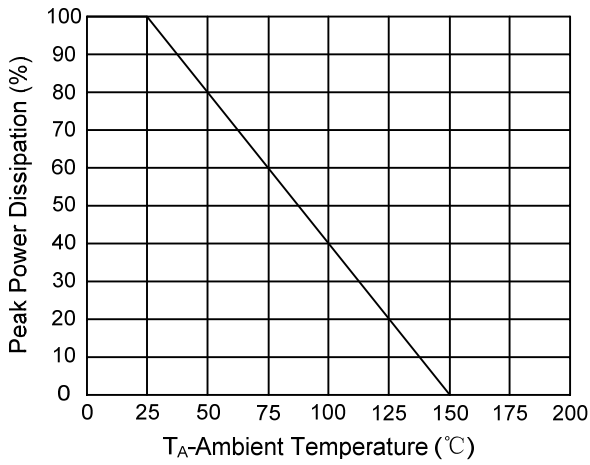


Figure 2. Pulse Waveform

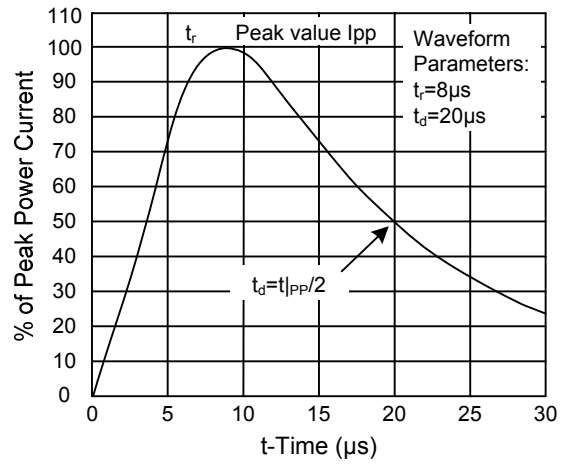


Figure 3. Non-Repetitive Peak Pulse vs Pulse Time

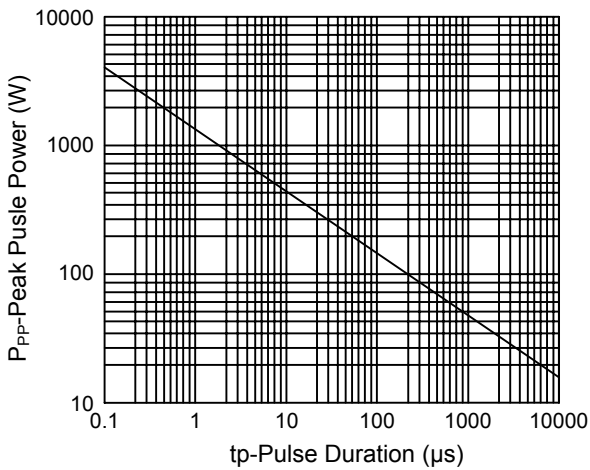
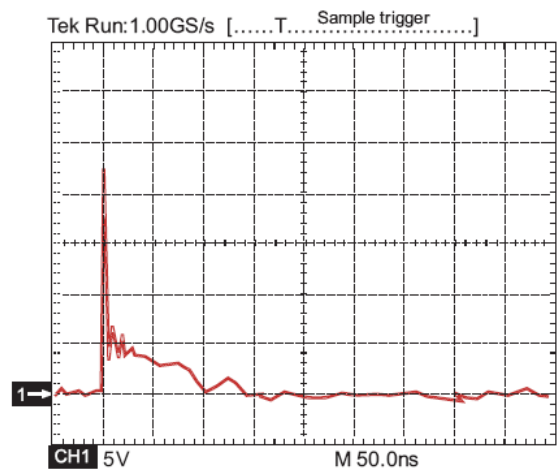
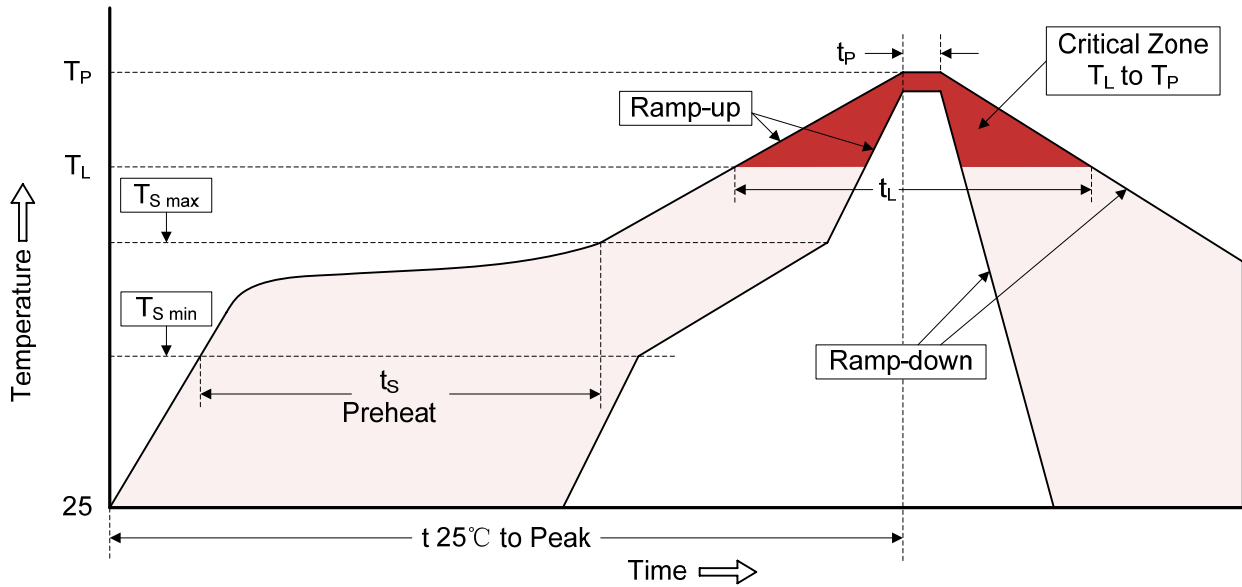


Figure 4. ESD Clamping (8kV Contact IEC61000-4-2)



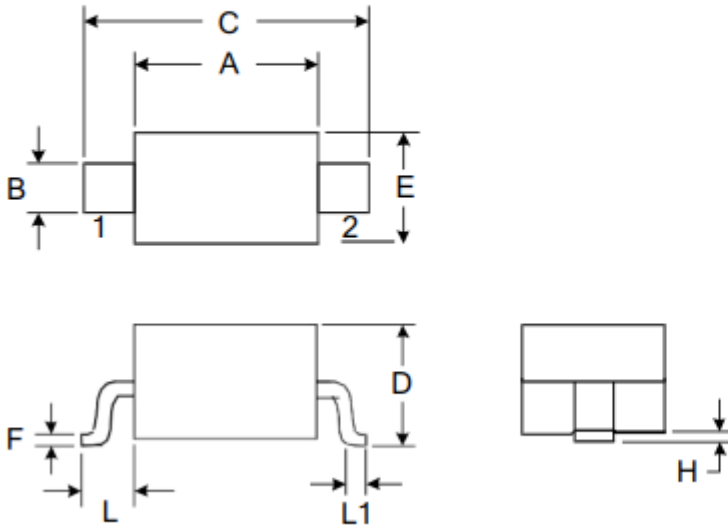
Reflow Soldering



Recommended Condition

Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3°C/second max.
Preheat -Temperature Min ($T_{S\ min}$) -Temperature Max ($T_{S\ max}$) -Time (min to max) (t_s)	150°C 200°C 60-180 seconds
$T_{S\ max}$ to T_L -Ramp-up Rate	3°C/second max.
Time maintained above: -Temperature (T_L) -Time (t_L)	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.

Outline Drawing – SOD323



DIMENSIONS				
SYMBOL	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	1.600	1.800	0.063	0.071
B	0.250	0.350	0.010	0.014
C	2.500	2.700	0.098	0.106
D		1.000		0.039
E	1.200	1.400	0.047	0.055
F	0.080	0.150	0.003	0.006
L	0.475 REF		0.019REF	
L1	0.250	0.400	0.010	0.016
H	0.000	0.100	0.000	0.004

Ordering information

Order code	Package	Baseqty	Deliverymode	Marking
UMW UDD32C03L01	SOD-323	3000	Tape and reel	AC
UMW UDD32C05L01	SOD-323	3000	Tape and reel	BC
UMW UDD32C12L01	SOD-323	3000	Tape and reel	DC
UMW UDD32C15L01	SOD-323	3000	Tape and reel	EC