Innovative Service Around the Globe YAGEO

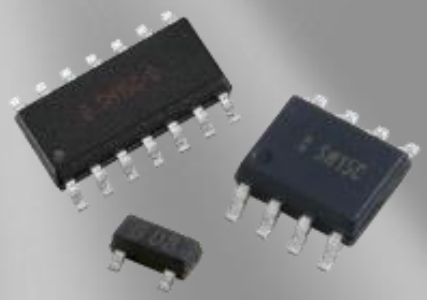
DATA SHEET

ELECTROSTATIC DISCHARGE PROTECTION DEVICES

INDUSTRIAL / CONSUMER

UBD8C12L01

RoHS compliant & Halogen free

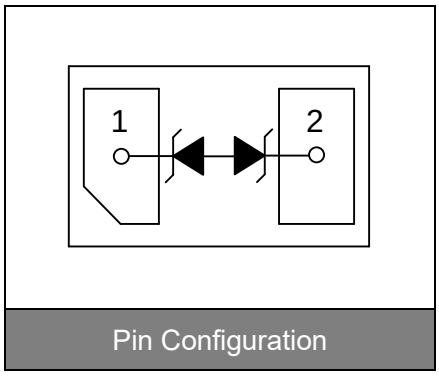


Product specification– July 04, 2023 V.1

Electrostatic Discharged Protection Devices (ESD) Data Sheet

Description

The UBD8C12L01 Transient Voltage Suppressors is designed to replace multilayer varistors (MLVs) in portable applications such as cell phones, notebook computer, and PDAs.
It offer superior electrical characteristics such as lower clamping voltage and no device degradation when compared to MLVs.
It is designed to protect sensitive semiconductor components from damage or upset due to electrostatic discharge (ESD), lightning, electrical fast transients (EFT), and cable discharge events (CDE).



Pin Configuration

Features

- IEC61000-4-2 ESD 15KV Air, 8KV contact compliance
- SOD882 surface mount package
- Working voltage: 12V
- Low leakage current
- Low operating and clamping voltages
- Solid-state silicon avalanche technology
- RoHS compliant
- Solder reflow temperature: Pure Tin-Sn, 260~270℃
- Flammability rating UL 94V-0
- Meets MSL level 1, per J-STD-020
- Marking: B12

Applications

- USB 3.0/USB 2.0
- Touch Panels
- Personal digital assistants (PDA)
- Serial ATA protection
- Wireless system devices
- Handhelds and notebooks
- Digital cameras
- Portable Devices

Maximum Ratings

Rating	Symbol	Value	Unit
ESD voltage (Contact discharge)	V_{ESD}	±8	kV
ESD voltage (Air discharge)		±15	
Lead soldering temperature	T_L	260	℃
Storage & operating temperature range	T_{STG} ,T_J	-55~+150	℃

Electrical Characteristics (T_J=25℃)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V_{RWM}				12	V
Reverse breakdown voltage	V_{BR}	I_{BR}=1.0mA	13.7			V
Reverse leakage current	I_R	V_R=12V			0.5	μA
Clamping voltage (tp=8/20μs)	V_C	I_{PP}=3.0A		35		V
Peak pulse current (tp=8/20μs)	I_{PP}				3	A
ESD Clamping voltage (TLP)	V_C	I_{PP}=8.0A		30		V
ESD Clamping voltage (TLP)	V_C	I_{PP}=16A		44		V
ESD Dynamic Turn-on Resistance	$R_{dynamic}$			1.75		Ω
Off state junction capacitance	C_J	0Vdc,f=1MHz		0.3	0.4	pF

Typical Characteristics Curves

Figure 1. Pulse Waveforms

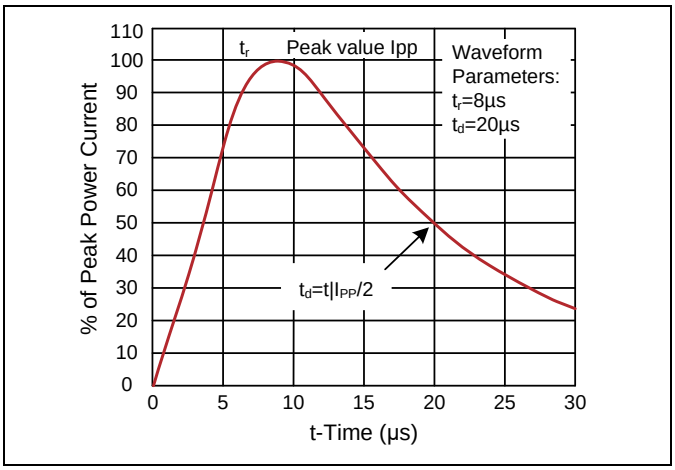


Figure 2. Clamping Voltage vs. Peak Pulse Current

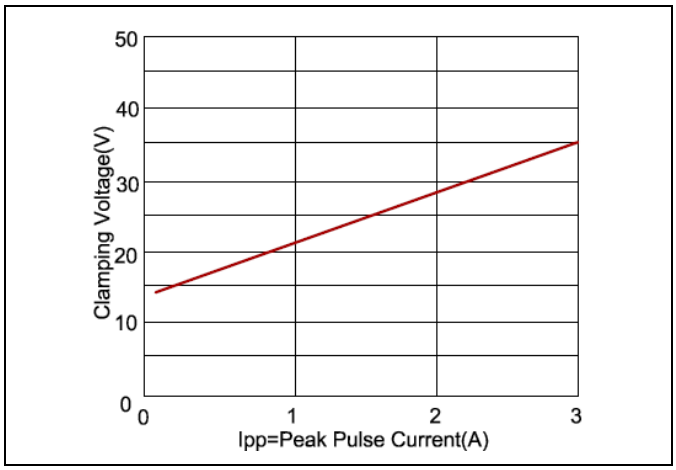


Figure 3. Capacitance vs. Reverse Voltage

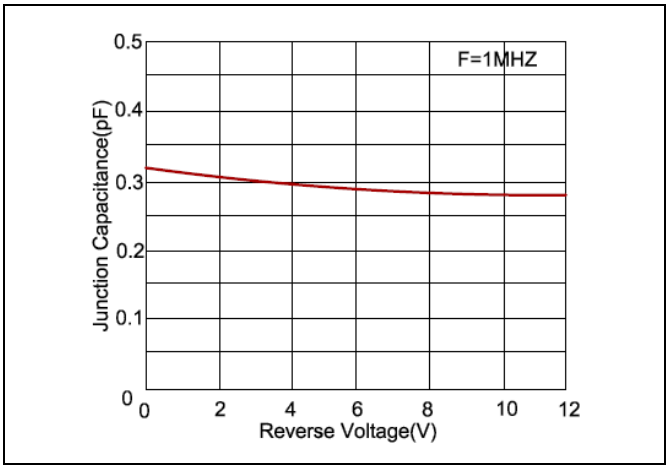
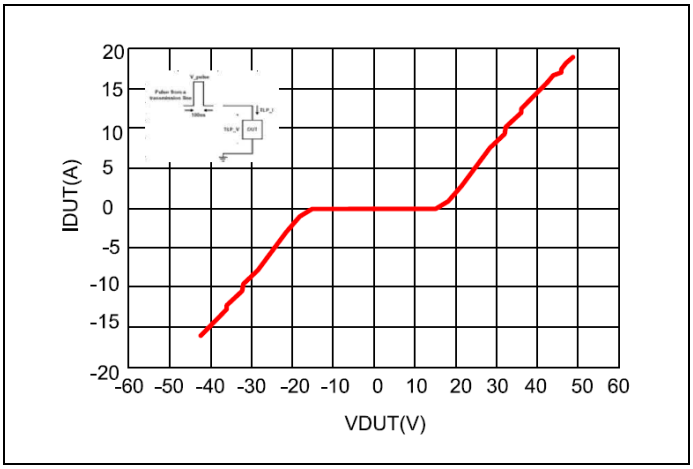
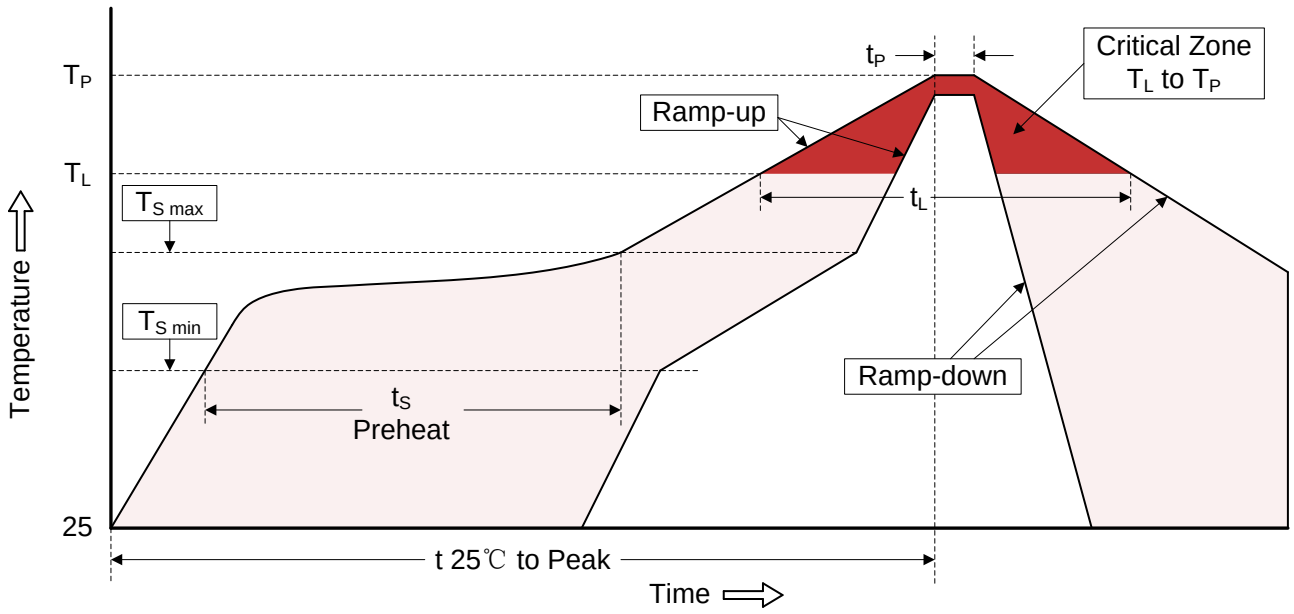


Figure4 .Transmission Line Pulsing(TLP)Measurement



Recommended Soldering Conditions

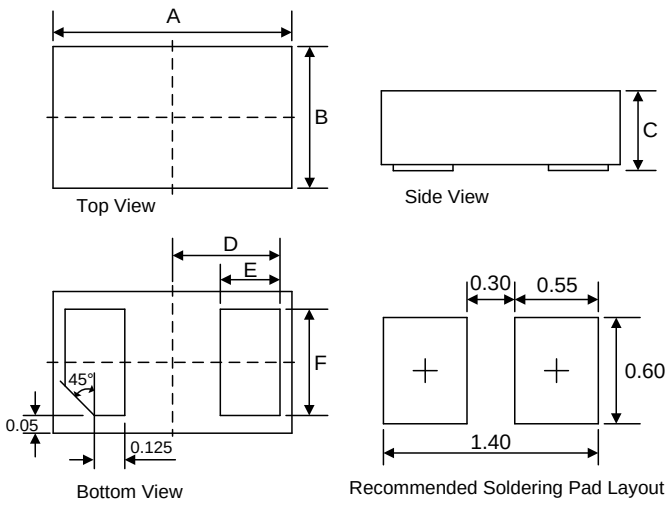
Reflow Soldering



Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3℃/second max.
Preheat -Temperature Min ($T_{S\ min}$) -Temperature Max ($T_{S\ max}$) -Time (min to max) (t_S)	 150℃ 200℃ 60-180 seconds
$T_{S\ max}$ to T_L -Ramp-up Rate	3℃/second max.
Time maintained above: -Temperature (T_L) -Time (t_L)	 217℃ 60-150 seconds
Peak Temperature (T_P)	260℃
Time within 5℃ of actual Peak Temperature (t_P)	20-40 seconds
Ramp-down Rate	6℃/second max.
Time 25℃ to Peak Temperature	8 minutes max.

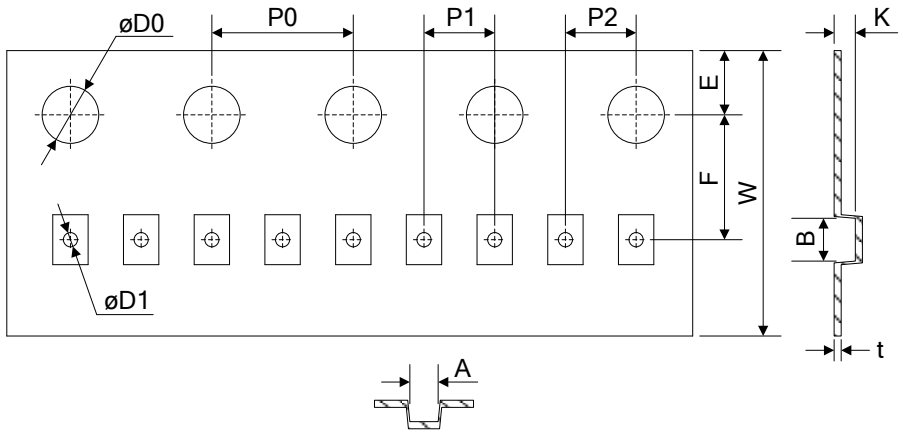
Dimensions (SOD882)



Symbol	Dimension (mm)			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.95	1.05	0.037	0.041
B	0.55	0.65	0.022	0.026
C	0.32	0.55	0.013	0.022
D	0.45		0.018	
E	0.20	0.30	0.008	0.012
F	0.45	0.55	0.018	0.022

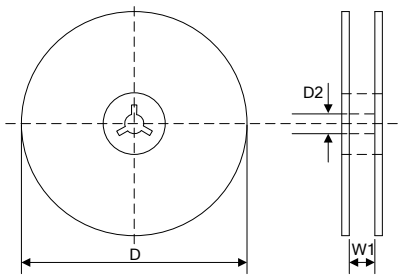
Packaging

Tape



Symbol	Dimension (mm)
W	8.00±0.30
P0	4.00±0.10
P1	2.00±0.10
P2	2.00±0.10
D0	Φ1.55±0.10
D1	Φ0.40±0.05
E	1.75±0.10
F	3.50±0.10
A	0.75±0.10
B	1.15±0.10
K	0.60±0.05
t	0.20±0.05

Reel



D	Φ178.0±2.0
D2	Φ13.00.
W1	9.50
Quantity: 10000PCS	

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