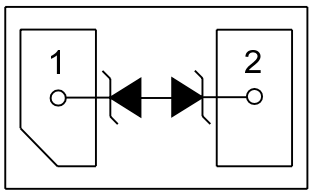
ElectroStatic Discharged Protection Devices (ESD) Data Sheet

Description

The UBD8C18L01 includes back-to-back TVS diodes fabricated in a proprietary silicon avalanche technology to provide protection for electronic equipment that may experience destructive electrostatic discharge (ESD). It has industry leading capacitance linearity over voltage making it ideal for RF applications.This capacitance linearity combined with the extremely small package and low insertion loss makes this part well suited for use in antenna line applications for wireless handsets and terminals.The back-to-back configuration provides symmetrical ESD protection for data lines when AC signals are present.

Features

- IEC61000-4-2 ESD 15KV Air, 8KV contact compliance
- SOD882 surface mount package
- Working voltage: 18V
- Low leakage current
- Lead Free/RoHS compliant
- Flammability rating UL 94V-0
- Meets MSL level 1, per J-STD-020
- Marking: B18



Pin Configuration

Applications

- RF Signal ESD Protection
- NFC Antenna Protection
- MP3/ PMP
- Portable Medical
- Set Top Boxes,
- Smart Phones
- External Storage
- Ultrabooks, Notebooks
- Tablets, eReaders

Maximum Ratings

Rating	Symbol	Value	Unit
Peak pulse current (tp=8/20μs)	I_{PP}	2	A
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	-50~+150	℃

Electrical Characteristics (T_J=25℃)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V_{RWM}				18	V
Reverse breakdown voltage	V_{BR}	I_{BR}=1mA	19			V
Reverse leakage current	I_R	V_R=18V			1	μA
Clamping voltage (tp=8/20μs)	V_C	I_{PP}=1A			30	V
Clamping voltage (tp=8/20μs)	V_C	I_{PP}=2A			35	V
Off state junction capacitance	C_J	0Vdc,f=1MHz		0.4	0.6	pF

Typical Characteristics Curves

Figure 1. Insertion Loss (S21) I/O to GND

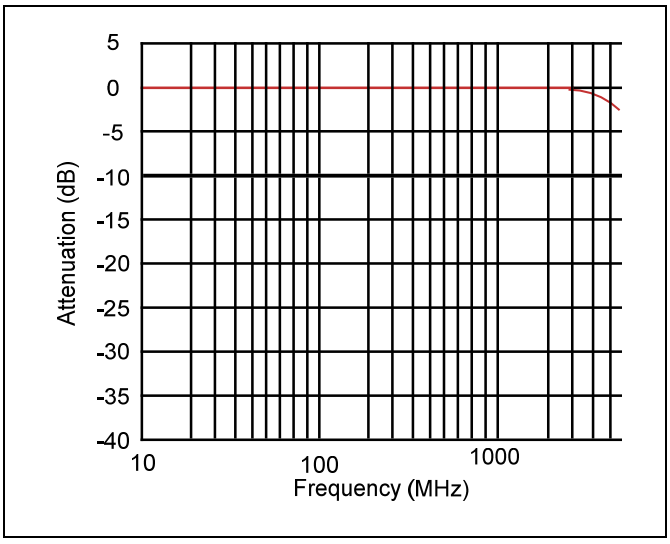


Figure 2. Capacitance vs. Bias Voltage

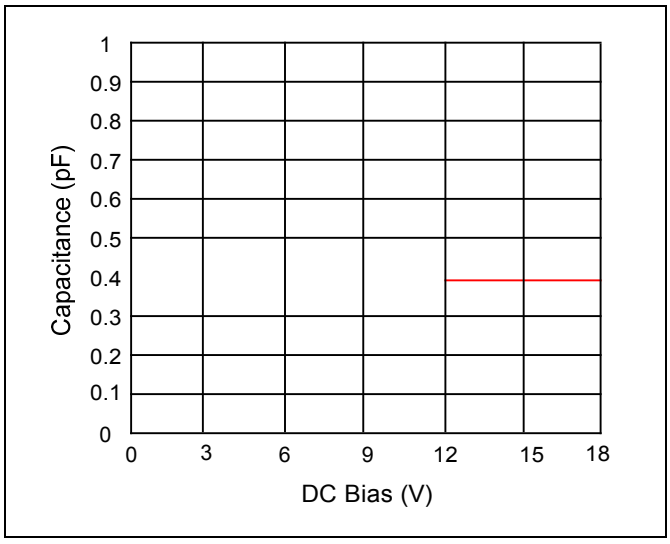


Figure 3. Pulse Waveform

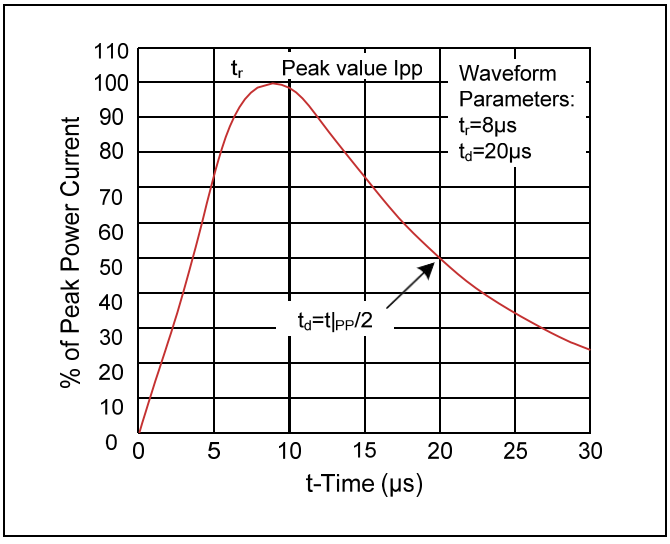
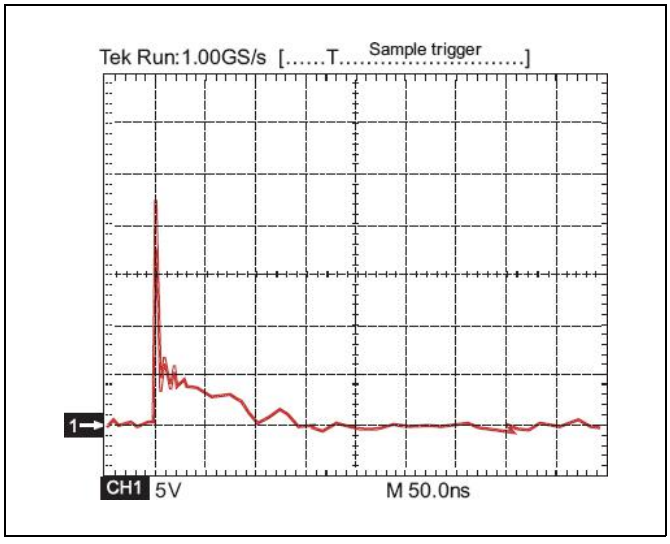
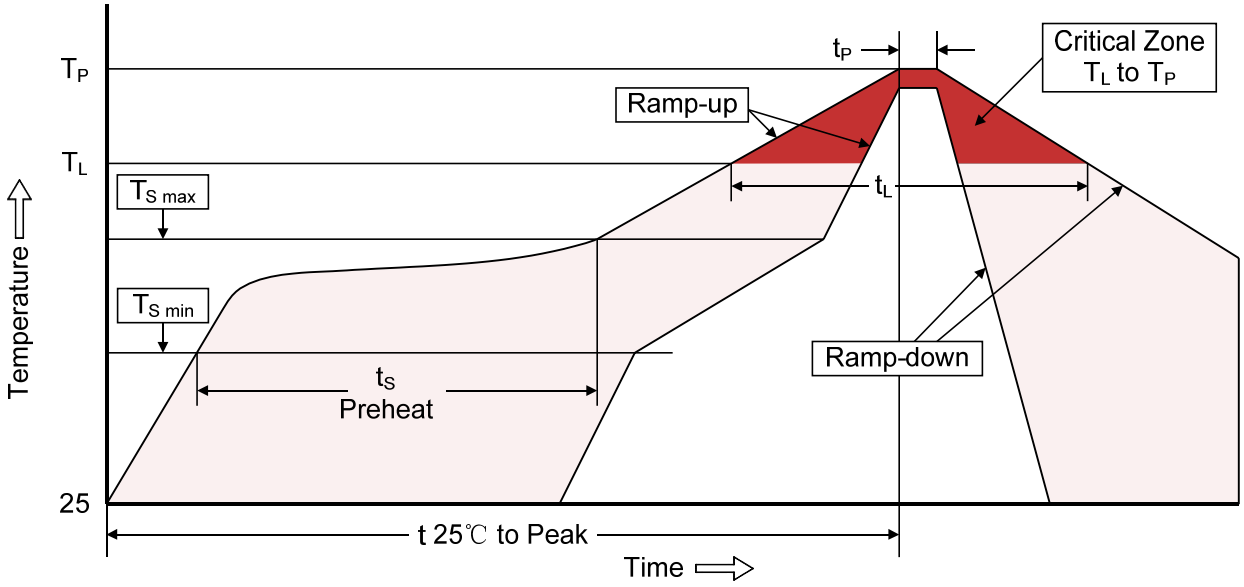


Figure 4. ESD Clamping (8kV Contact IEC61000-4-2)



Recommended Soldering Conditions

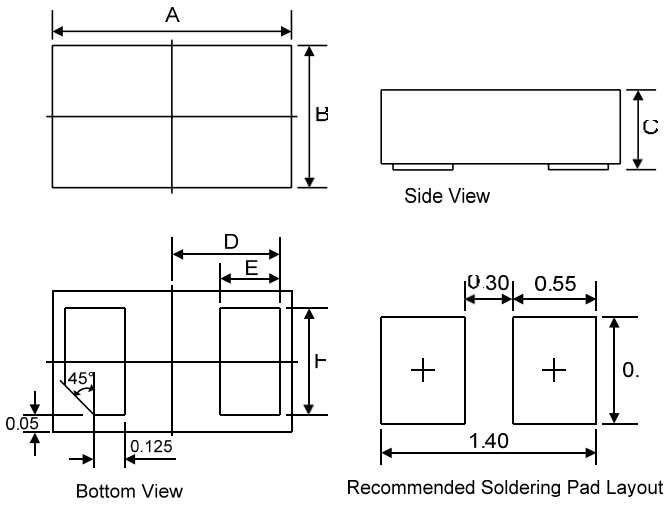
Reflow Soldering



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) (ts)	 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.

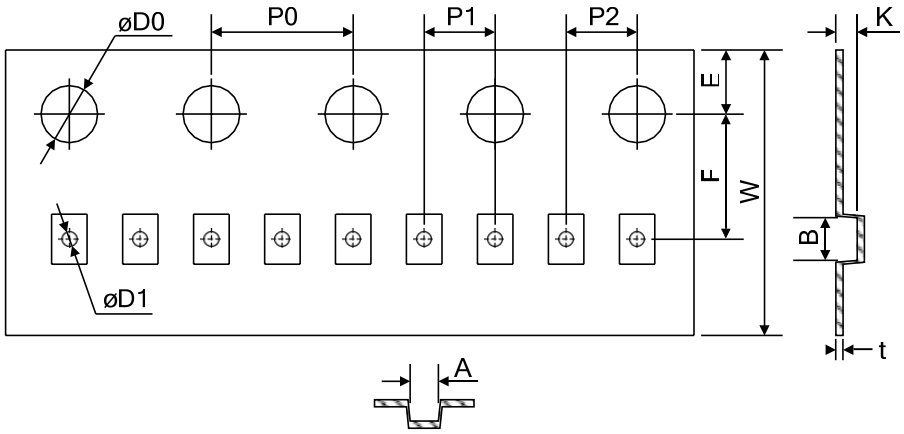
Dimensions (SOD882)



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

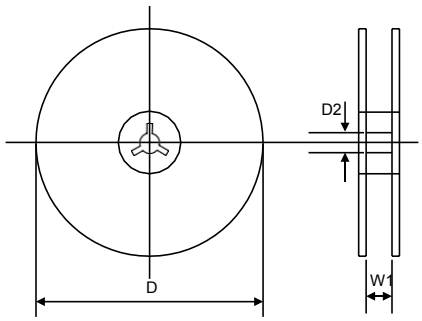
Packaging

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	