Innovative Service Around the Globe YAGEO

# DATA SHEET

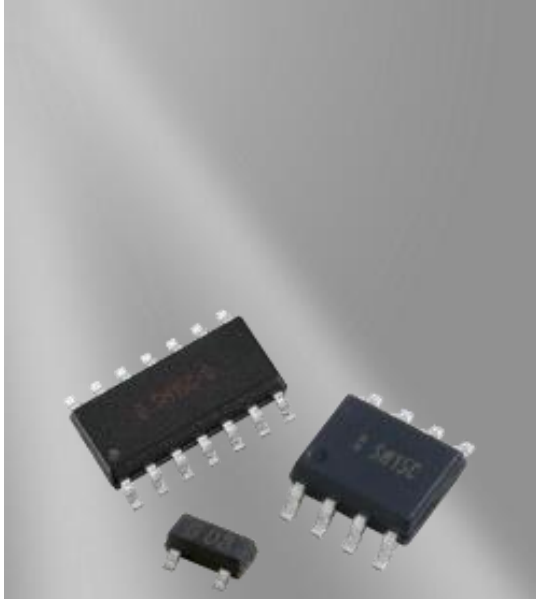
## ELECTROSTATIC DISCHARGE PROTECTION DEVICES

## INDUSTRIAL / CONSUMER

SDD8A12L01

**RoHS compliant & Halogen free**

Product specification– June 30, 2023 V.2





# Electrostatic Discharged Protection Devices (ESD) Data Sheet

## Description

The SDD8A12L01 is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium. Because of its small size, it is suited for use in cellular phones, portable devices, digital cameras, power supplies and many other portable applications. It is designed to protect sensitive semiconductor components from damage or upset due to electrostatic discharge(ESD), electrical fast transients(EFT), and cable discharge events(CDE).

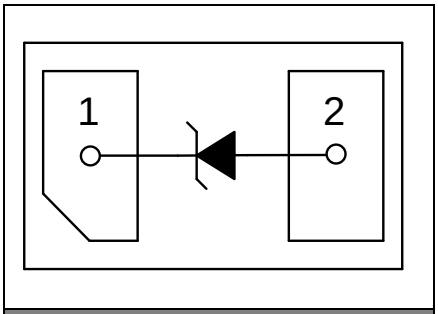


Contact : ±30kV
Air : ±30kV




## Features

- IEC61000-4-2 ESD 30KV Air, 30KV contact compliance
- SOD-882 surface mount package
- Working voltage: 12V
- Low leakage current
- Lead Free/RoHS compliant
- Flammability rating UL 94V-0
- Meets MSL level 1, per J-STD-020
- Marking: S12




Pin Configuration

## Applications

- Cellular handsets & Accessories
- Cordless phones
- Personal digital assistants (PDAs)
- Notebooks & Handhelds
- Portable instrumentation
- Digital cameras
- Peripherals
- MP3 players

## Maximum Ratings

| Rating | Symbol | Value | Unit |
|---|---|---|---|
| Peak pulse power (tp=8/20μs waveform) | $P_{PP}$ | 240 | W |
| ESD voltage (Contact discharge) | $V_{ESD}$ | ±30 | KV |
| ESD voltage (Air discharge) | | ±30 | |
| 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 | $V_{BR}$ | $I_{BR}$=1mA | 13.3 | | | V |
| Reverse leakage current | $I_R$ | $V_R$=12V | | | 1 | μA |
| Clamping voltage (tp=8/20μs) | $V_C$ | $I_{PP}$=1A | | 20 | | V |
| Clamping voltage (tp=8/20μs) | $V_C$ | $I_{PP}$=8A | | 28 | | V |
| Peak pulse current (tp=8/20μs) | $I_{PP}$ | | | | 8 | A |
| Off state junction capacitance | $C_J$ | 0Vdc,f=1MHz | | | 55 | pF |

## Typical Characteristics Curves

Figure 1. Power Derating Curve

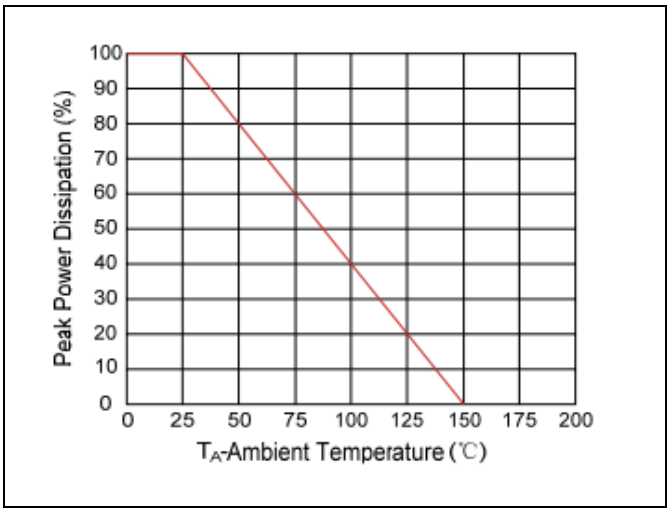



Figure 2. Pulse Waveform

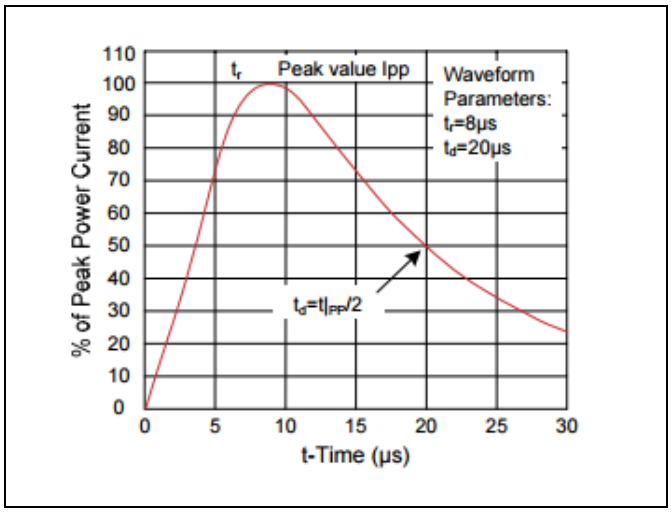



Figure 3. Capacitance vs. Reverse Voltage

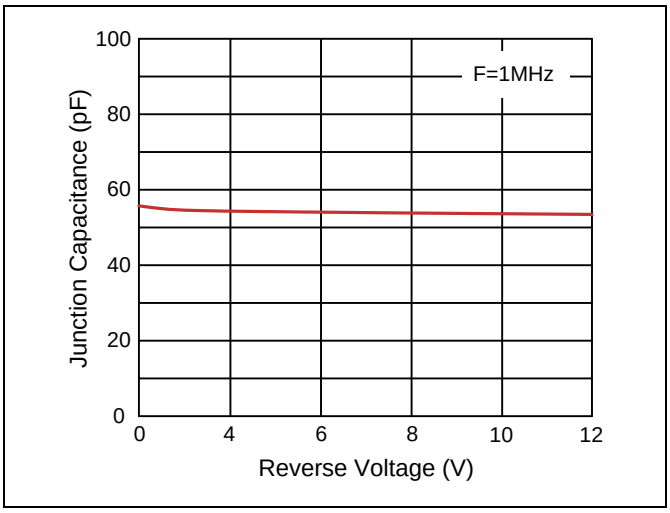
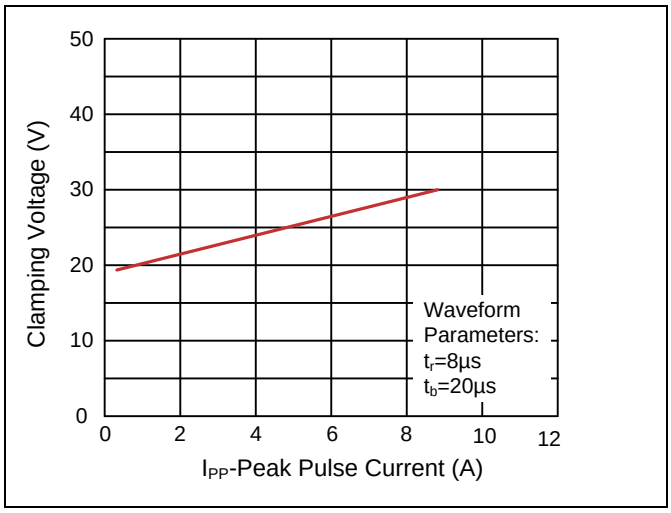
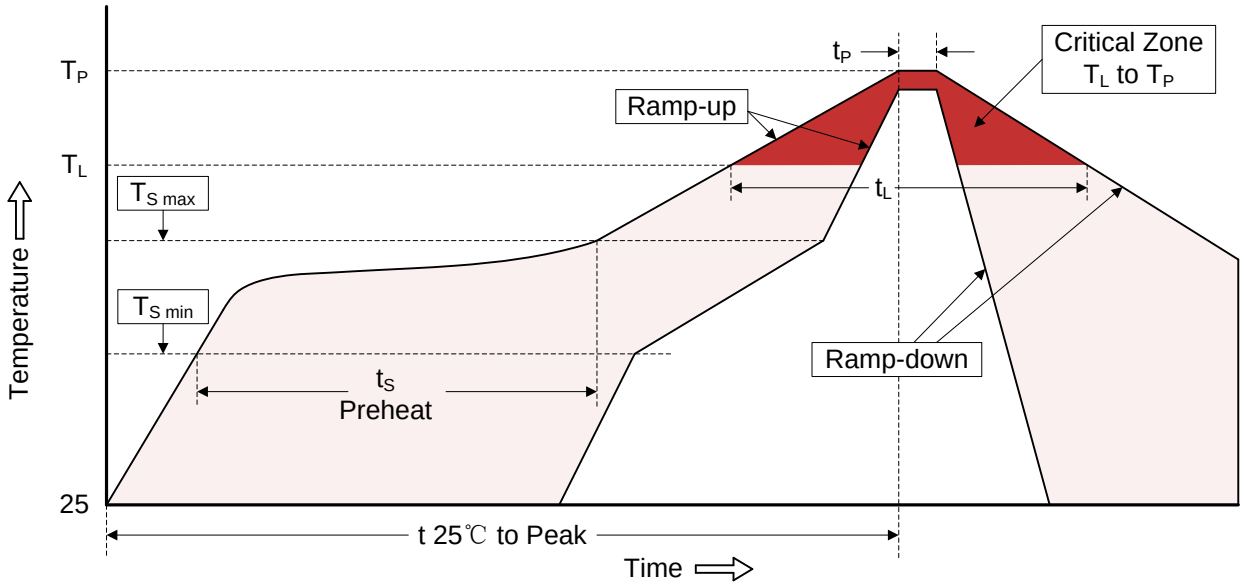



Figure 4. Clamping Voltage vs. Peak Pulse Current



## Recommended Soldering Conditions

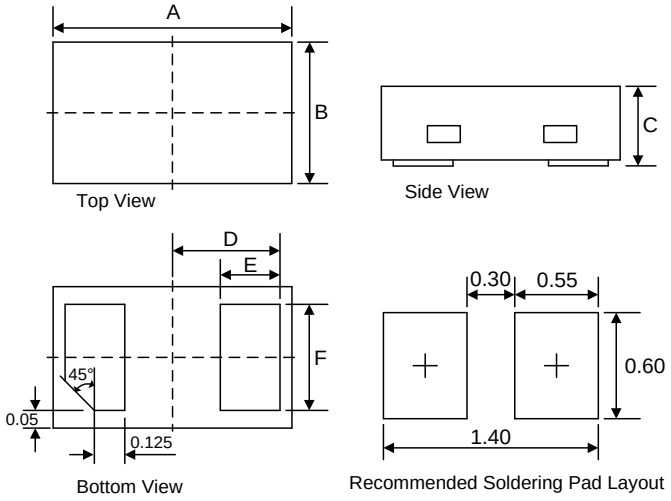
Reflow Soldering




Recommended Conditions

| Profile Feature | Pb-Free Assembly |
|---|---|
| Average ramp-up rate ($T_L$ to $T_P$) | 3℃/second max. |
| Preheat<br>-Temperature Min ($T_{S\ min}$)<br>-Temperature Max ($T_{S\ max}$)<br>-Time (min to max) (ts) | <br>150℃<br>200℃<br>60-180 seconds |
| $T_{S\ max}$ to $T_L$<br>-Ramp-up Rate | <br>3℃/second max. |
| Time maintained above:<br>-Temperature ($T_L$)<br>-Time ($t_L$) | <br>217℃<br>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. |

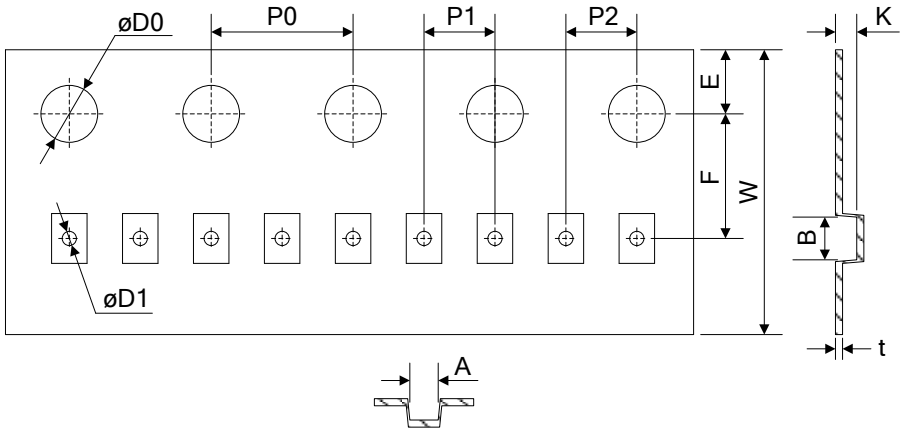
## Dimensions (SOD-882)




| 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 |

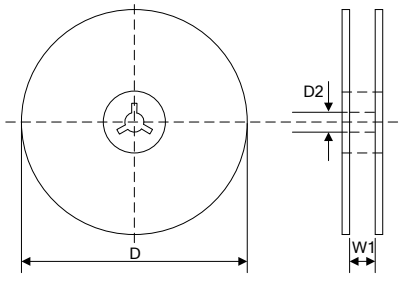
## Packaging

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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