Innovative Service Around the Globe YAGEO

# DATA SHEET

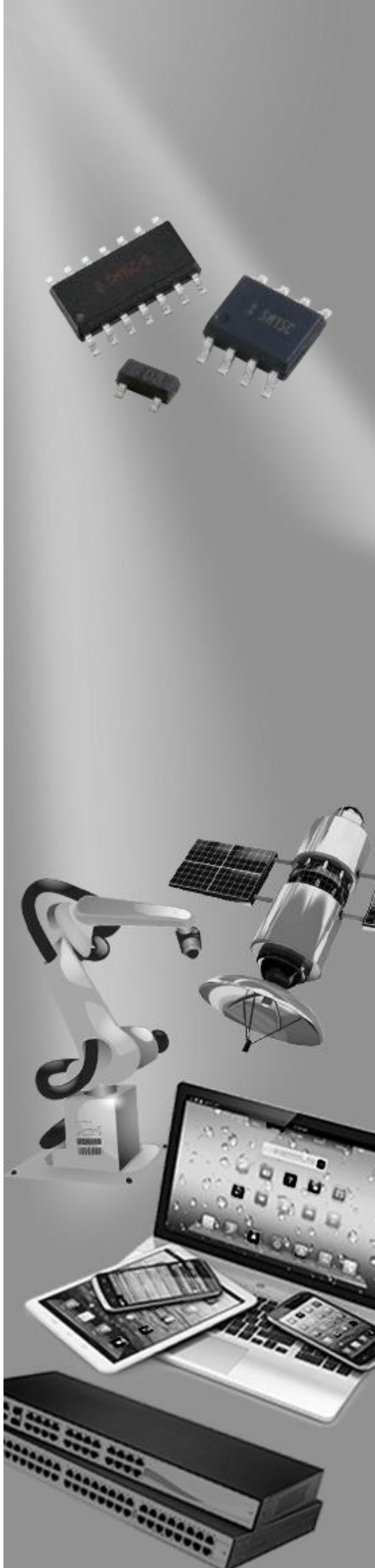
## ELECTROSTATIC DISCHARGE PROTECTION DEVICES

## INDUSTRIAL / CONSUMER

SDD32A36L01

**RoHS compliant & Halogen free**

Product specification– June 30, 2023 V.2



# Electrostatic Discharged Protection Devices (ESD) Data Sheet

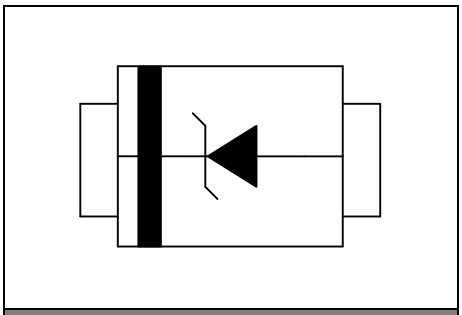
## Description

Brightking's SDD32A36L01 is designed to protect low 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).



## Features

- IEC61000-4-2 ESD 15KV Air, 8KV contact compliance
- SOD-323 surface mount package
- Protects one I/O line
- Peak power dissipation of 320W under 8/20μs waveform
- Working voltage: 36V
- Low leakage current
- Low clamping voltage
- Solid-state silicon avalanche technology
- Lead Free/RoHS compliant
- Solder reflow temperature: Pure Tin-Sn, 260~270℃
- Flammability rating UL 94V-0
- Meets MSL level 1, per J-STD-020
- Marking: 36A



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) | $P_{PP}$ | 320 | W |
| ESD voltage (Contact discharge) | $V_{ESD}$ | ±8 | kV |
| ESD voltage (Air discharge) | | ±15 | |
| 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 | $V_{RWM}$ | | | | 36 | V |
| Reverse breakdown voltage | $V_{BR}$ | $I_{BR}$=1mA | 40 | | | V |
| Reverse leakage current | $I_R$ | $V_R$=36V | | | 1 | μA |
| Clamping voltage (tp=8/20μs) | $V_C$ | $I_{PP}$=1A | | | 51 | V |
| Clamping voltage (tp=8/20μs) | $V_C$ | $I_{PP}$=3A | | | 75 | V |
| Peak pulse current (tp=8/20μs) | $I_{PP}$ | | | | 3 | A |
| Off state junction capacitance | $C_J$ | 0Vdc,f=1MHz | | 70 | | pF |

## Typical Characteristics Curves

Figure 1. Power Derating Curve

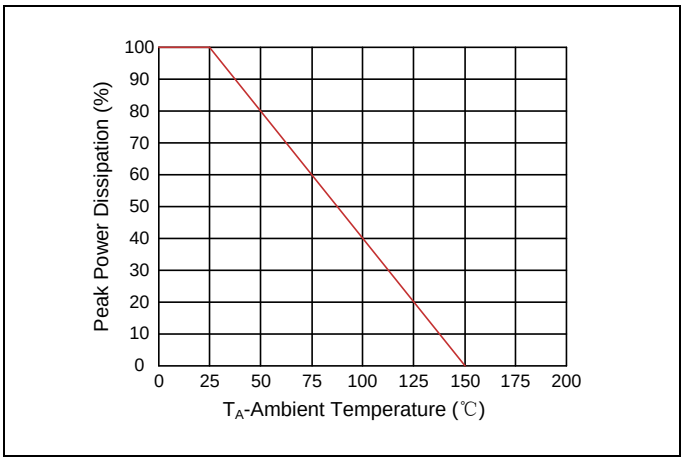



Figure 2. Pulse Waveform

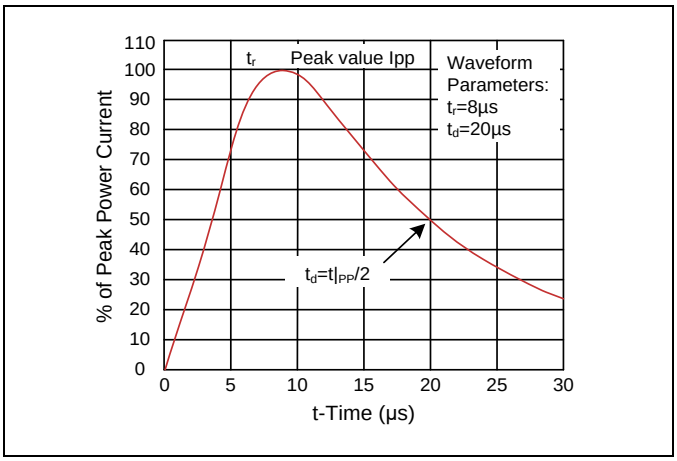
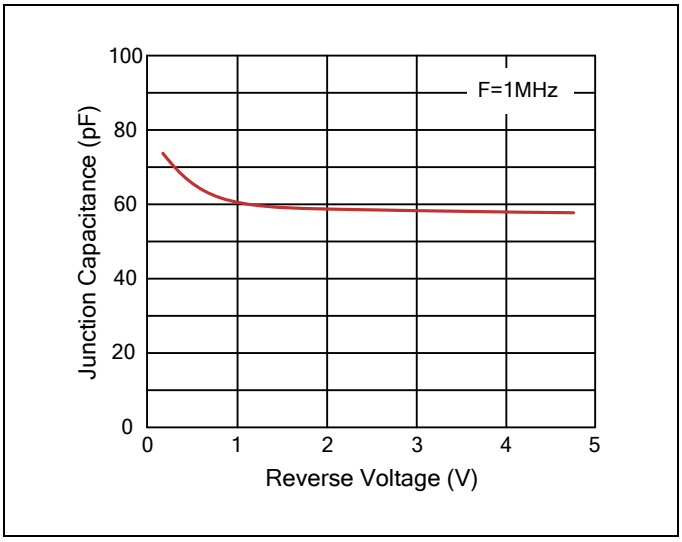
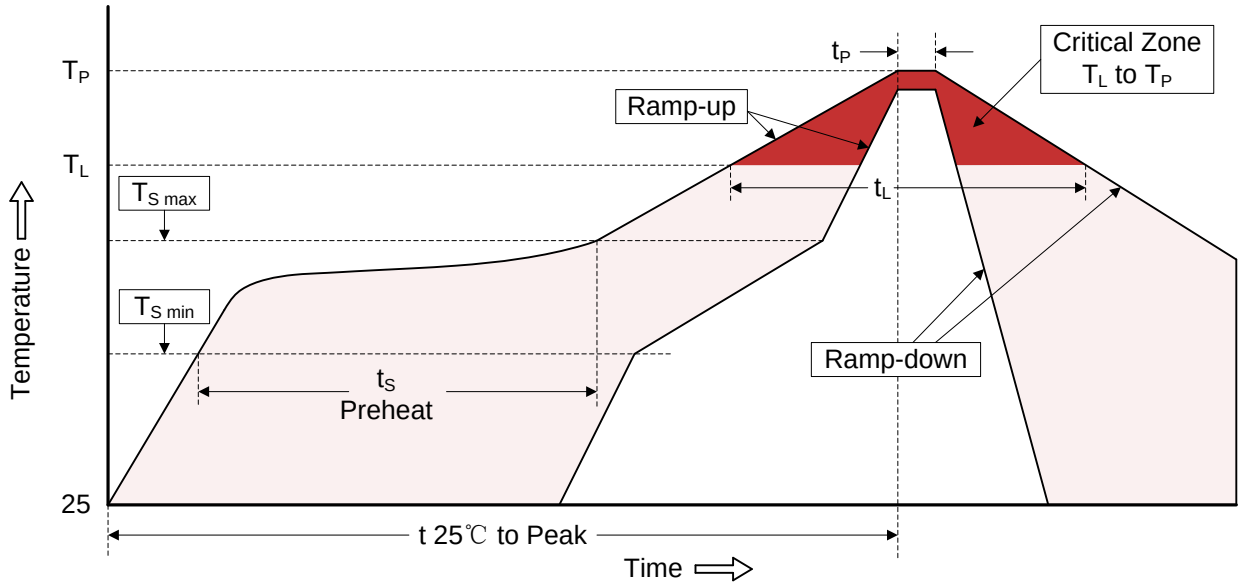



Figure 3. Capacitance vs. Reverse Voltage



## Recommended Soldering Conditions

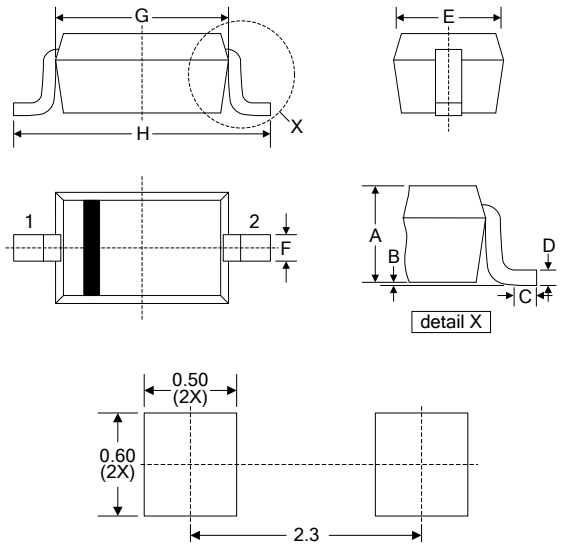
Reflow Soldering




Recommended Condition

| 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-323)

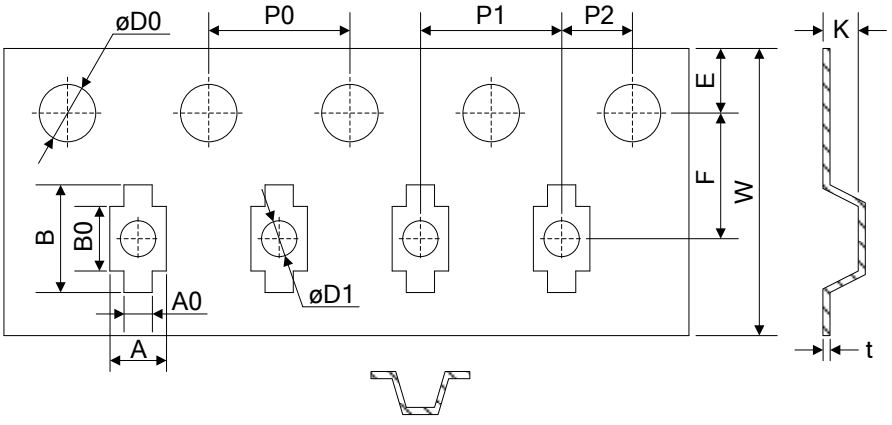


Recommended Soldering Pad Layout

| Symbol | Dimension | | | |
|---|---|---|---|---|
| | Millimeters | | Inches | |
| | Min. | Max. | Min. | Max. |
| A | 0.80 | 1.10 | 0.031 | 0.043 |
| B | - | 0.10 | - | 0.004 |
| C | 0.20 | - | 0.008 | - |
| D | 0.11 | 0.20 | 0.004 | 0.008 |
| E | 1.15 | 1.35 | 0.045 | 0.053 |
| F | - | 0.35 | - | 0.014 |
| G | 1.60 | 1.80 | 0.063 | 0.071 |
| H | 2.40 | 2.70 | 0.094 | 0.102 |

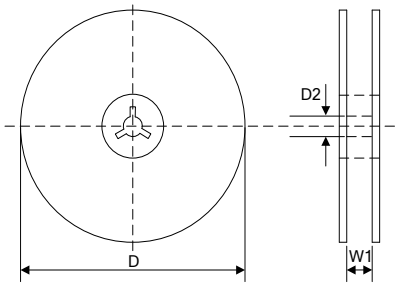
## Packaging

Tape




| Symbol | Dimension (mm) |
|---|---|
| W | 8.00±0.30 |
| P0 | 4.00±0.10 |
| P1 | 4.00±0.10 |
| P2 | 2.00±0.10 |
| D0 | Φ1.55±0.10 |
| D1 | Φ1.00±0.05 |
| E | 1.75±0.10 |
| F | 3.50±0.10 |
| A | 1.48±0.10 |
| A0 | 0.80±0.10 |
| B | 3.00±0.10 |
| B0 | 1.80±0.10 |
| K | 1.05±0.10 |
| t | 0.25±0.05 |

Reel




| | |
|---|---|
| D | Φ178.0±2.0 |
| D2 | Φ13.0 |
| W1 | 9.5 |
| Quantity: 3000PCS | |

## LEGAL DISCLAIMER

YAGEO, its distributors and agents (collectively, "YAGEO"), hereby disclaims any and all liabilities for any errors, inaccuracies or incompleteness contained in any product related information, including but not limited to product specifications, datasheets, pictures and/or graphics. YAGEO may make changes, modifications and/or improvements to product related information at any time and without notice.

YAGEO makes no representation, warranty, and/or guarantee about the fitness of its products for any particular purpose or the continuing production of any of its products. To the maximum extent permitted by law, YAGEO disclaims (i) any and all liability arising out of the application or use of any YAGEO product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for a particular purpose, non -infringement and merchantability.

YAGEO products are designed for general purpose applications under normal operation and usage conditions. Please contact YAGEO for the applications listed below which require especially high reliability for the prevention of defects which might directly cause damage to the third party's life, body or property: Aerospace equipment (artificial satellite, rocket, etc.), Atomic energy-related equipment, Aviation equipment, Disaster prevention equipment, crime prevention equipment, Electric heating apparatus, burning equipment, Highly public information network equipment, data-processing equipment , Medical devices, Military equipment, Power generation control equipment, Safety equipment, Traffic signal equipment, Transportation equipment and Undersea equipment, or for any other application or use in which the failure of YAGEO products could result in personal injury or death, or serious property damage. Particularly **YAGEO Corporation and its affiliates do not recommend the use of commercial or automotive grade products for high reliability applications or manned space flight.**

Information provided here is intended to indicate product specifications only. YAGEO reserves all the rights for revising this content without further notification, as long as products are unchanged. Any product change will be announced by PCN.