



**THE DATASHEET OF  
SAT36A05L05**



# DATA SHEET

**ELECTROSTATIC DISCHARGE  
PROTECTION DEVICES**

**INDUSTRIAL / CONSUMER**

SAT36A05L05

RoHS compliant & Halogen free



Product specification—June 30, 2023 V.2



## Electrostatic Discharged Protection Devices (ESD) Data Sheet

### Description

Brightking's SAT36A05L05 is designed to protect sensitive electronics from damage or latch-up due to ESD and other voltage induced transient events. It is designed for use in applications where board space is at a premium. Each device will protect up to five lines. It is unidirectional devices and may be used on lines where the signal polarities are above ground. The low profile SOT-363 package allows flexibility in the design of crowded circuit boards.

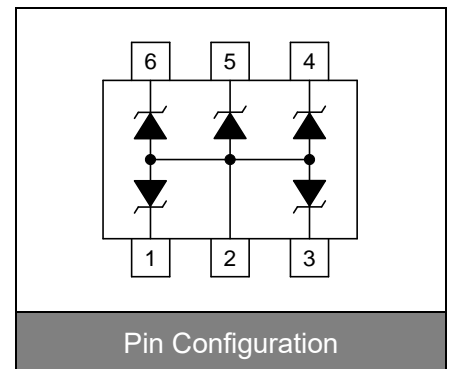


**Contact : ±8kV**  
**Air : ±15kV**



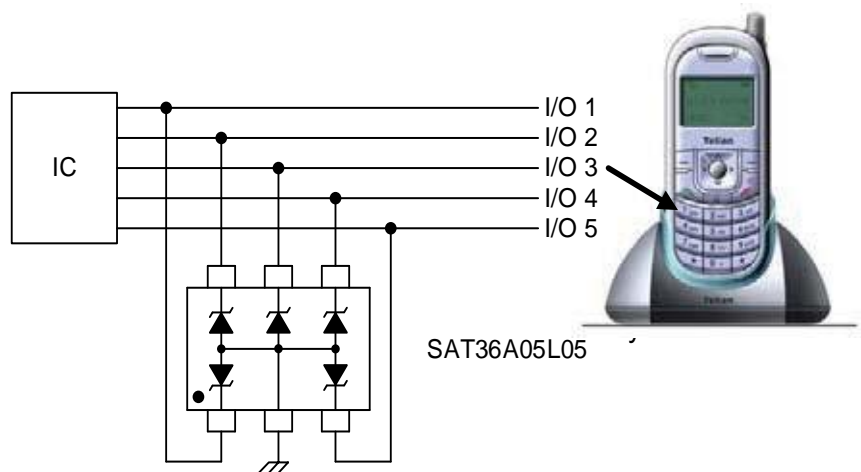
### Features

- IEC61000-4-2 ESD 15KV Air, 8KV contact compliance
- SOT-363 surface mount package
- Protects five unidirectional lines
- Peak power dissipation of 100W under 8/20µs waveform
- Working voltage: 5V
- 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
- Meets MSL level 1, per J-STD-020
- Marking: WF or 05C



### Applications

- Cell phone handsets and accessories
- Personal digital assistants (PDA's)
- Portable instrumentation
- Set Top Box (STB)
- Servers, notebook and desktop PC
- Digital cameras



## Maximum Ratings

| Rating                                | Symbol                            | Value    | Unit |
|---------------------------------------|-----------------------------------|----------|------|
| Peak pulse power (tp=8/20μs waveform) | P <sub>PP</sub>                   | 100      | W    |
| ESD voltage (Contact discharge)       | V <sub>ESD</sub>                  | ±8       | kV   |
| ESD voltage (Air discharge)           |                                   | ±15      |      |
| Storage & operating temperature range | T <sub>STG</sub> , T <sub>J</sub> | -55~+150 | °C   |

## Electrical Characteristics (T<sub>J</sub>=25°C)

| Parameter                      | Symbol           | Condition                                | Min. | Typ. | Max. | Unit |
|--------------------------------|------------------|--|------|------|------|------|
| Reverse stand-off voltage      | V <sub>RWM</sub> |  |      |      | 5    | V    |
| Reverse breakdown voltage      | V <sub>BR</sub>  | I <sub>BR</sub> =1mA                     | 6    |      |      | V    |
| Reverse leakage current        | I <sub>R</sub>   | V <sub>R</sub> =5V<br>Each I/O pin       |      |      | 5    | μA   |
| Clamping voltage (tp=8/20μs)   | V <sub>C</sub>   | I <sub>PP</sub> =1A                      |      |      | 9.8  | V    |
| Peak Pulse Current(tp=8/20μs)  | I <sub>PP</sub>  |  |      |      | 5    | A    |
| Off state junction capacitance | C <sub>J</sub>   | 0Vdc, f=1MHz<br>Between I/O pins and GND |      |      | 50   | pF   |

**Typical Characteristics Curves**

Figure 1. Power Derating Curve

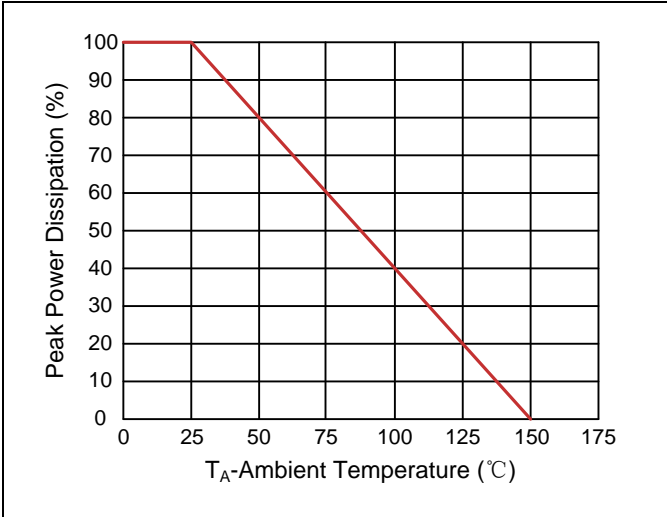


Figure 2. Pulse Waveforms

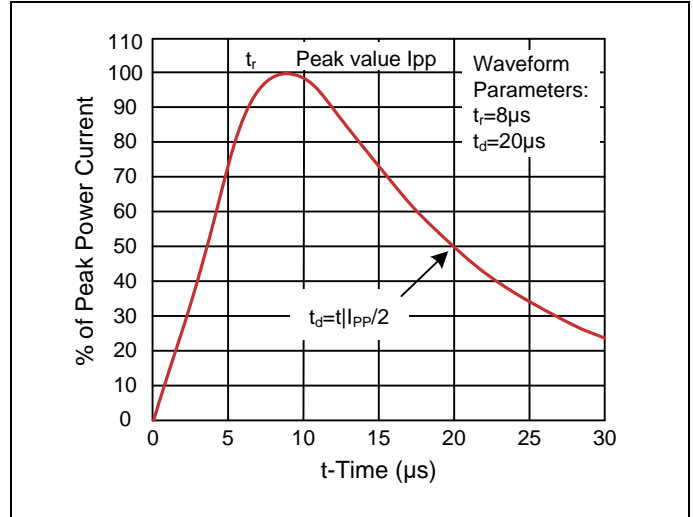


Figure 3. Non-Repetitive Peak Pulse vs. Pulse Time

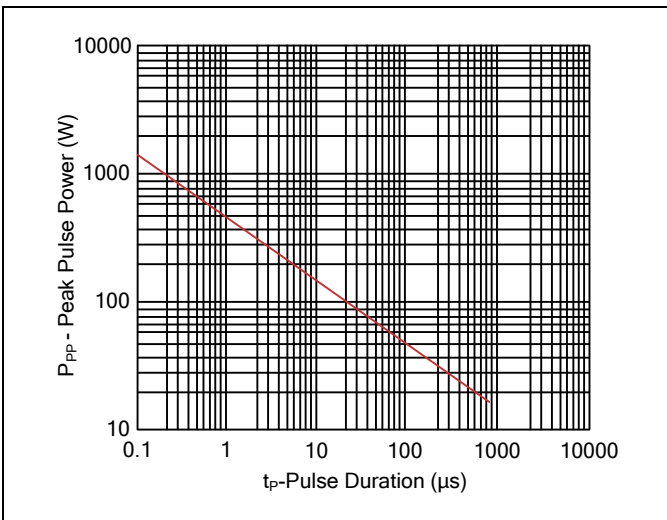
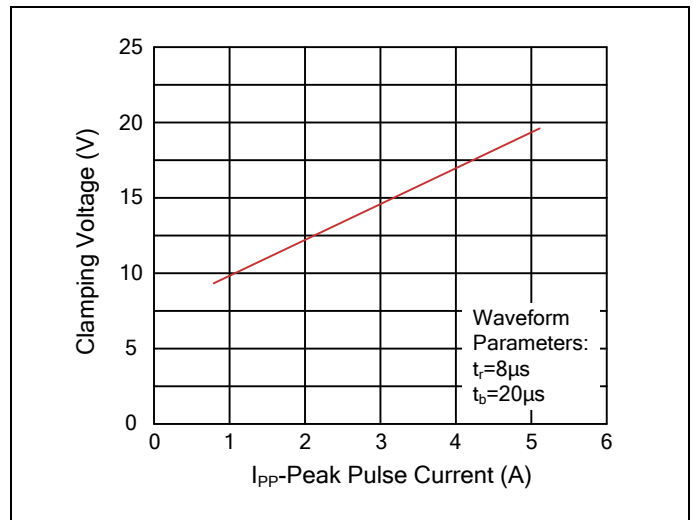
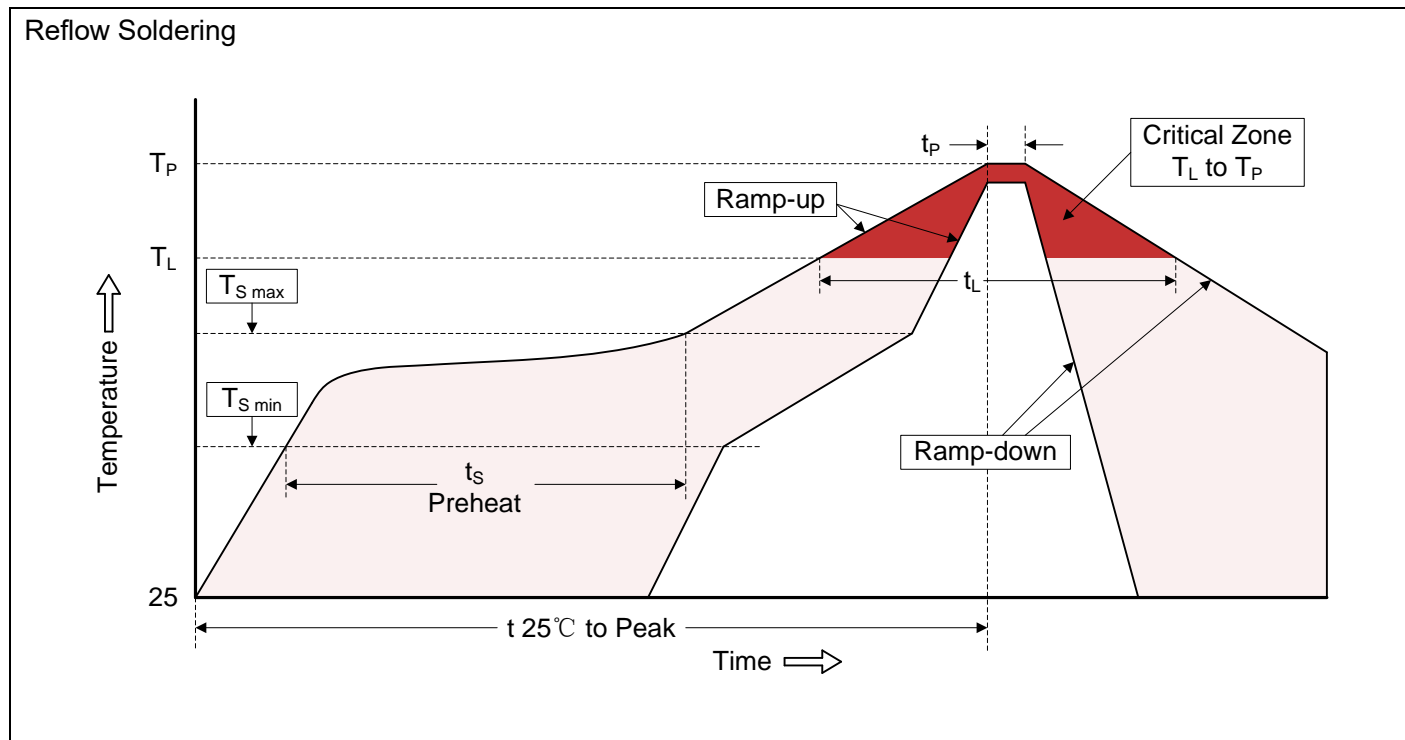


Figure 4. Clamping Voltage vs. Peak Pulse Current



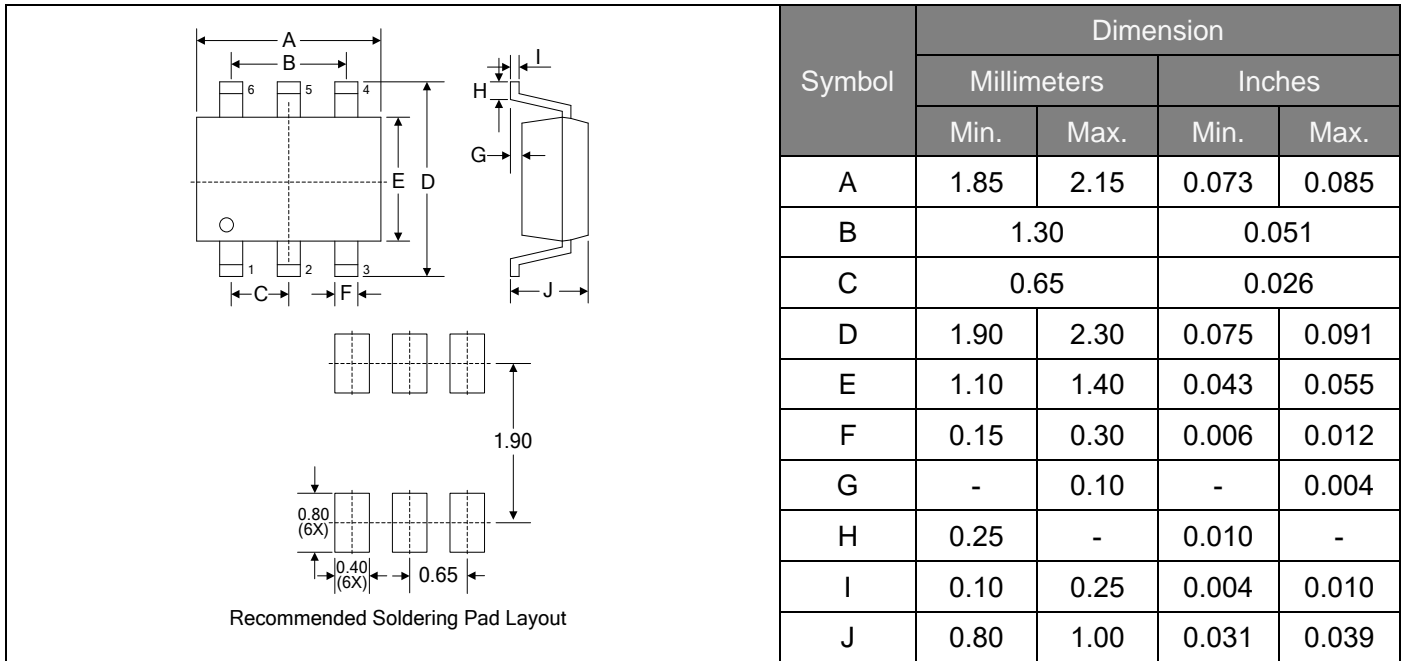
**Recommended Soldering Conditions**



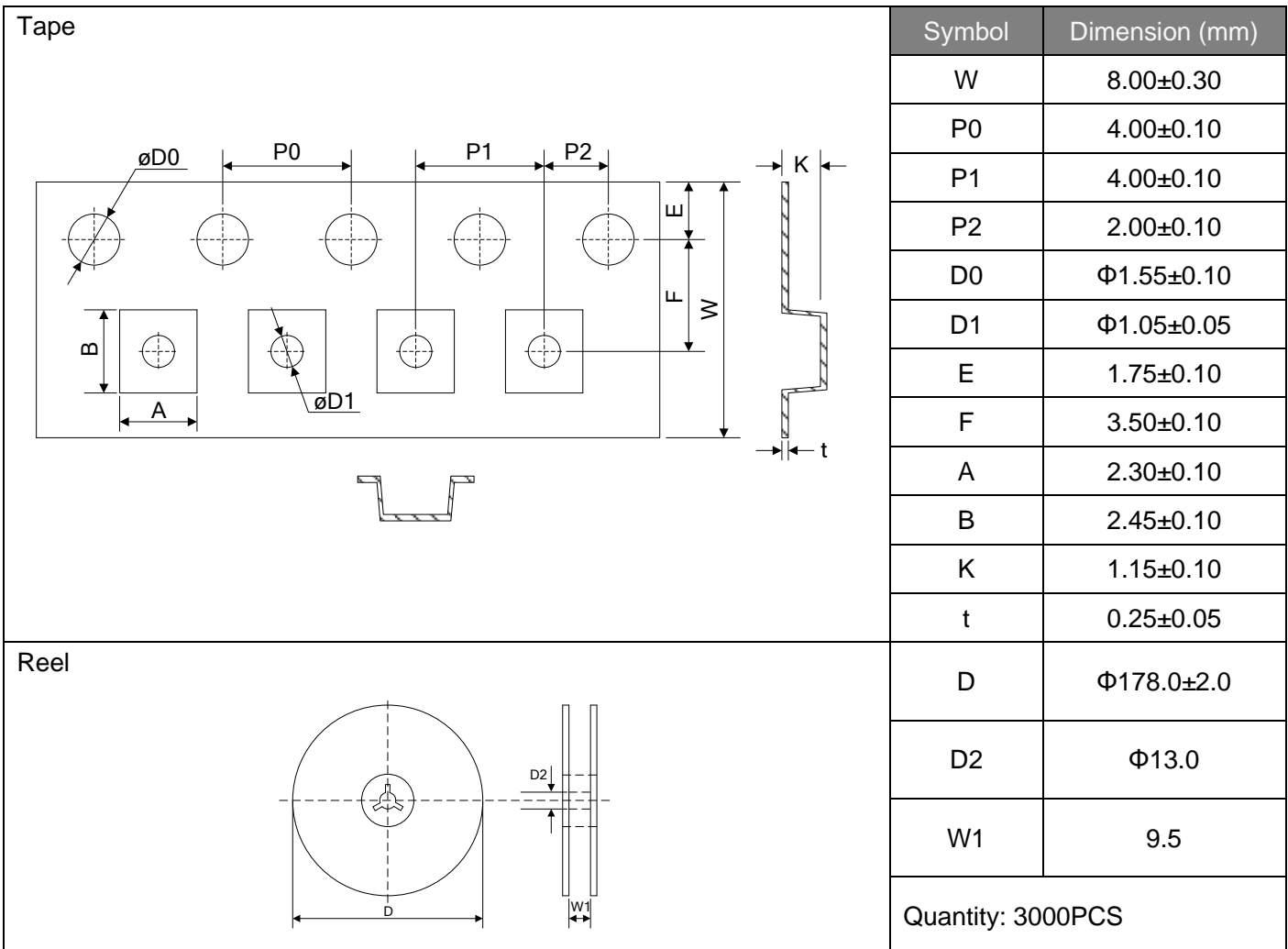
Recommended Conditions

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

**Dimensions (SOT-363)**



**Packaging**



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