



## Discription

The ESD5B5.0S protects sensitive semiconductor components from damage or upset due to electrostatic discharge (ESD) and other voltage induced transient events. Excellent clamping capability, low leakage, low capacitance, and fast response time provide best in class protection on designs that are exposed to ESD.

It gives designer the flexibility to protect one bi-directional line in applications where arrays are not practical.



SOD-523

## Features

- ★ Small Body Outline Dimensions
- ★ Low Body Height
- ★ Peak Power up to 150 Watts @ 8 x 20  $\mu$ s Pulse
- ★ Low Leakage current
- ★ Response Time is Typically < 1 ns
- ★ ESD Rating of Class 3 (> 16 kV) per Human Body Model
- ★ IEC61000-4-2 Level 4 ESD Protection
- ★ IEC61000-4-4 Level 4 EFT Protection



Circuit Diagram

## Ordering Information

| Product ID | Pack    | Qty(PCS) |
|------------|---------|----------|
| ESD5B5.0S  | SOD-523 | 3000     |

## Absolute Ratings ( $T_{amb}=25^{\circ}C$ )

| Symbol    | Parameter                                         | Value       | Units       |
|-----------|---------------------------------------------------|-------------|-------------|
| $P_{PP}$  | Peak Pulse Power ( $t_p = 8/20 \mu s$ )           | 90          | W           |
| $T_L$     | Maximum lead temperature for soldering during 10s | 260         | $^{\circ}C$ |
| $T_{stg}$ | Storage Temperature Range                         | -55 to +155 | $^{\circ}C$ |
| $T_{op}$  | Operating Temperature Range                       | -40 to +125 | $^{\circ}C$ |
| $T_j$     | Maximum junction temperature                      | 150         | $^{\circ}C$ |
|           | IEC61000-4-2 (ESD) air discharge                  | $\pm 15$    | KV          |
|           | IEC61000-4-2 (ESD) contact discharge              | $\pm 8$     | KV          |
|           | IEC61000-4-4 (EFT)                                | 40          | A           |
|           | ESD Voltage Per Human Body Model                  | 16          | KV          |



**Electrical Characteristics** Ratings at 25°C ambient temperature unless otherwise specified. VF = 0.9V at IF = 10mA

| Device    | $V_{RWM}$<br>(V) | $I_R$ ( $\mu$ A)<br>@ $V_{RWM}$ | $V_{BR}$ (V)@ $I_T$<br>(Note 1) |     | $I_T$ | $V_C$ (V)<br>@ $I_{PP}=5$ A* | $V_C$ (V)<br>@ Max $I_{PP}$ * | $I_{PP}$<br>(A)* | $P_{PK}$<br>(W)* | $C$<br>(pF) |
|-----------|------------------|---------------------------------|---------------------------------|-----|-------|------------------------------|-------------------------------|------------------|------------------|-------------|
|           | Max              | Max                             | Min                             | Max | mA    | Typ                          | Max                           | Max              | Max              | Typ         |
| ESD5B5.0S | 5.0              | 1                               | 5.6                             | 7.8 | 1.0   | 11.6                         | 18.6                          | 9                | 100              | 15          |

\*Surge current waveform per Figure 1.

1.  $V_{BR}$  is measured with a pluse test current  $I_T$  at an ambient temperature of 25°C.

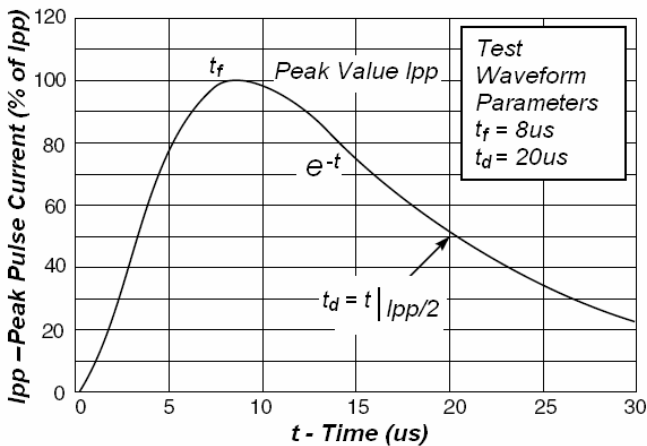


Fig1. Pulse Waveform

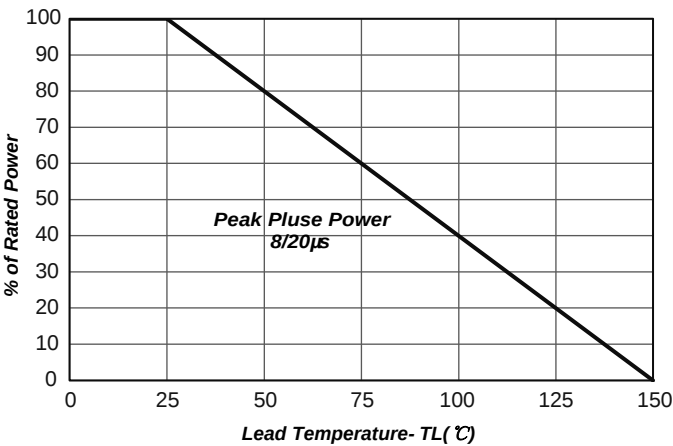


Fig2.Power Derating



## Outline And Dimensions



### Notes:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.

| DIM            | MILLIMETERS |      |      | INCHES    |       |       |
|----------------|-------------|------|------|-----------|-------|-------|
|                | MIN         | NOM  | MAX  | MIN       | NOM   | MAX   |
| A              | 0.50        | 0.60 | 0.70 | 0.020     | 0.024 | 0.028 |
| b              | 0.25        | 0.30 | 0.35 | 0.010     | 0.012 | 0.014 |
| c              | 0.07        | 0.14 | 0.20 | 0.003     | 0.006 | 0.008 |
| D              | 1.10        | 1.20 | 1.30 | 0.043     | 0.047 | 0.051 |
| E              | 0.70        | 0.80 | 0.90 | 0.028     | 0.031 | 0.035 |
| H <sub>E</sub> | 1.50        | 1.60 | 1.70 | 0.059     | 0.063 | 0.067 |
| L              | 0.30 REF    |      |      | 0.012 REF |       |       |
| L <sub>2</sub> | 0.15        | 0.20 | 0.25 | 0.006     | 0.008 | 0.010 |

## Soldering Footprint





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