## DESCRIPTION

The ESD8LS5.0C is designed to protect voltage sensitive components that require ultra − low capacitance from ESD and transient voltage events.

Excellent clamping capability, low capacitance, 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 low capacitance, it is suited for use in high frequency designs such as USB 2.0 high speed and antenna line applications.

The ESD8LS5.0C is available in SOD-882 Package

## FEATURES

- Ultra Low Capacitance 0.4pF
- Low Clamping Voltage
- Small Body Outline Dimensions: 0.039″ x 0.024″ (1.00mm x 0.60mm)
- Low Body Height: 0.020″ (0.5mm)
- Stand−off Voltage: 5V
- Low Leakage
- Response Time is Typically < 1.0ns
- IEC61000−4−2 Level 4 ESD Protection
- Available in SOD-882 Package

## ORDERING INFORMATION

| Package Type | Part Number |
|---|---|
| SOD-882 | ESD8LS5.0C |
| Note | SPQ: 10,000pcs/Reel |
| AiT provides all RoHS Compliant Products | |

## MECHANICAL CHARACTERISTICS

CASE: Void-free, transfer-molded, thermosetting plastic Epoxy Meets UL 94 V−0

LEAD FINISH: 100% Matte Sn (Tin)

QUALIFIED MAX REFLOW TEMPERATURE: Device Meets MSL 1 Requirements

## PIN DESCRIPTION

## ABSOLUTE MAXIMUM RATINGS

| | | |
|---|---|---|
| IEC 61000−4−2 (ESD) | Air | ±15kV |
| | Contact | ±8kV |
| $P_D$, Total Power Dissipation on FR−5 Board NOTE1 @ $T_A$=25°C | | 150mW |
| $T_{STG}$, Storage Temperature Range | | -55ºC ~150ºC |
| $T_J$, Junction Temperature Range | | -55ºC ~125ºC |
| $T_L$, Lead Solder Temperature – Maximum (10 Second Duration) | | 260ºC |

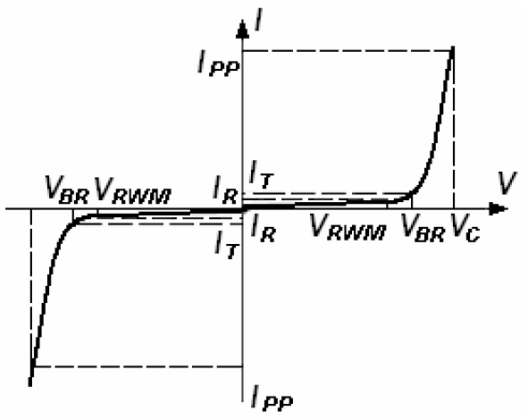
Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

NOTE1: FR−5 = 1.0 x 0.75 x 0.62 in.

## ELECTRICAL CHARACTERISTICS

$T_A$ = 25°C unless otherwise noted

| Symbol | Parameter |
|---|---|
| $I_{PP}$ | Maximum Reverse Peak Pulse Current |
| $V_C$ | Clamping Voltage @ $I_{PP}$ |
| $V_{RWM}$ | Working Peak Reverse Voltage |
| $I_R$ | Maximum Reverse Leakage Current @ $V_{RWM}$ |
| $I_T$ | Test Current |
| $V_{BR}$ | Breakdown Voltage @ $I_T$ |



## ELECTRICAL CHARACTERISTICS

| Part Number | $V_{RWM}$ (V) | $I_R$ (μA) @ $V_{RWM}$ | $V_{BR}$(V) @ $I_T$NOTE2 | $I_T$ | C (pF) | $V_C$ (V) @ $I_{PPMAX}$ =2.5A NOTE3 | $V_C$ |
|---|---|---|---|---|---|---|---|
| | Max | Max | Min | mA | Max | Max | Per IEC61000−4−2NOTE4 |
| ESD8LS5.0C | 5.0 | 1.0 | 6 | 1.0 | 0.5 | 18.4 | Figures 1 and 2 See Below |

NOTE2: $V_{BR}$ is measured with a pulse test current $I_T$ at an ambient temperature of 25°C.
NOTE3: Surge current waveform per Figure 5.
NOTE4: For test procedure see Figures 3 and 4

## TYPICAL CHARACTERISTICS

Figure1. ESD Clamping Voltage Screenshot
Positive 8kV Contact per IEC61000−4−2

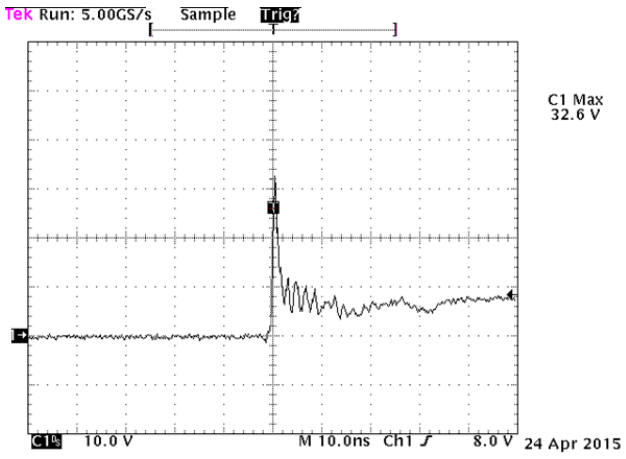



Figure 2. ESD Clamping Voltage Screenshot
Negative 8kV Contact per IEC61000−4−2

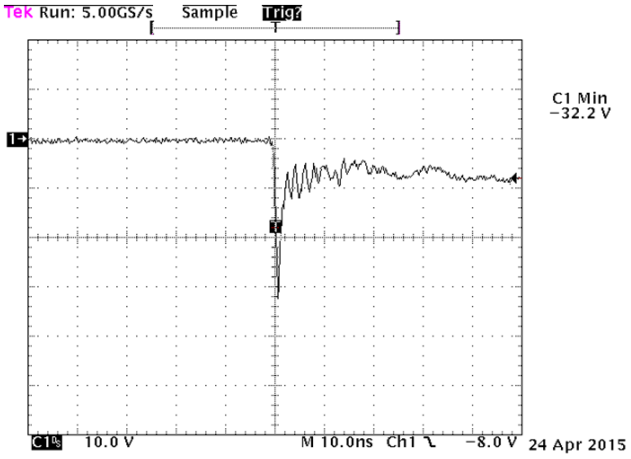



Figure3. IEC61000−4−2 Spec

| Level | Test Voltage (kV) | First Peak Current (A) | Current at 30ns (A) | Current at 60ns (A) |
|---|---|---|---|---|
| 1 | 2 | 7.5 | 4 | 2 |
| 2 | 4 | 15 | 8 | 4 |
| 3 | 6 | 22.5 | 12 | 6 |
| 4 | 8 | 30 | 16 | 8 |

IEC61000−4−2 Waveform

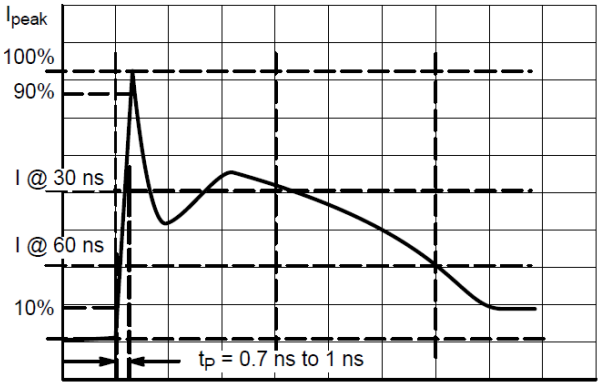


Figure4. Diagram of ESD Test Setup

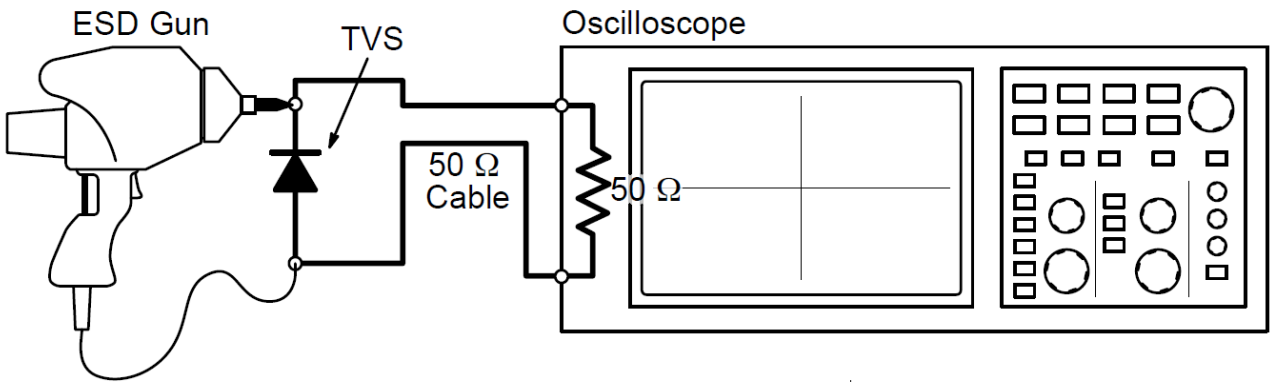
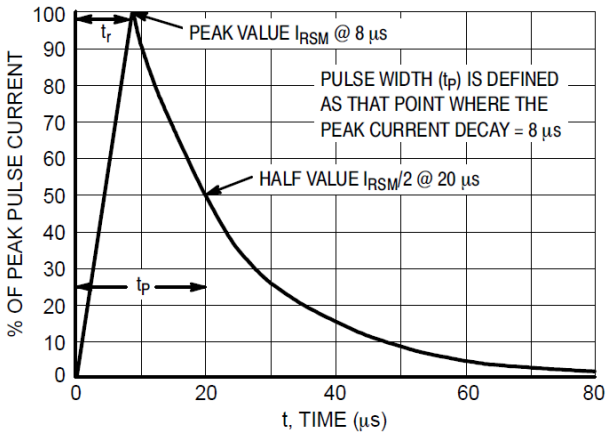
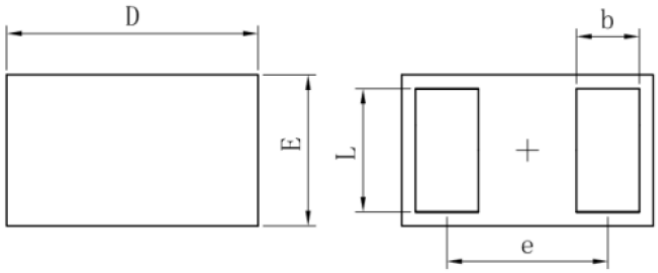


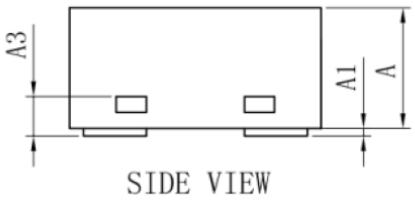

Figure 5. 8 X 20μs Pulse Waveform



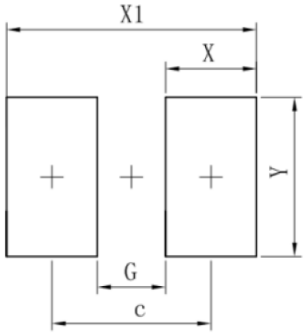
## PACKAGE INFORMATION

Dimension in SOD-882 Package (Unit: mm)




| Dim | Min | Max |
|---|---|---|
| D | 0.95 | 1.05 |
| E | 0.55 | 0.65 |
| e | 0.64TYP | |
| L | 0.44 | 0.54 |
| b | 0.20 | 0.30 |
| A | 0.43 | 0.53 |
| A1 | 0.00 | 0.05 |
| A3 | 0.127REF. | |




| Dimensions | (mm) |
|---|---|
| c | 0.70 |
| G | 0.30 |
| X | 0.40 |
| X1 | 1.10 |
| Y | 0.70 |

# IMPORTANT NOTICE

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