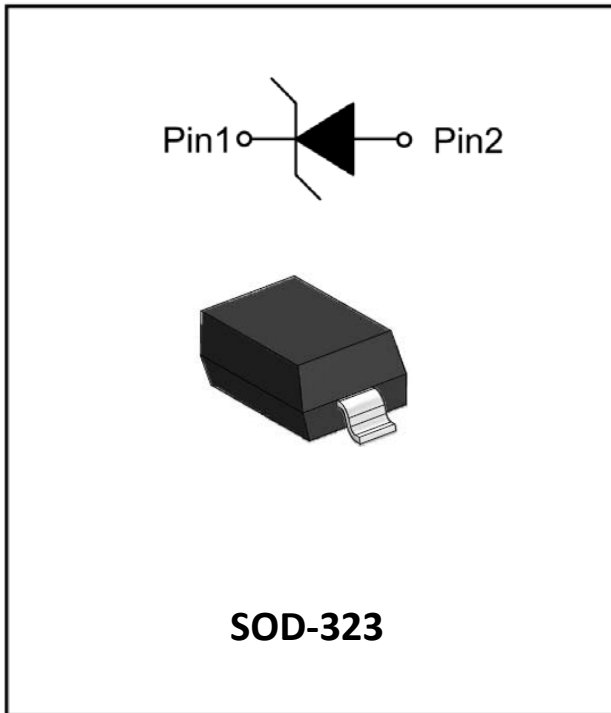


1- Line, Uni-directional, ESD protection diode



Features

- Transient protection for each line according to IEC61000-4-2(ESD): $\pm 30\text{kV}$ contact, $\pm 30\text{kV}$ air IEC61000-4-5:20A($t_p=8/20\mu\text{s}$)
- Low leakage current
- Ultra low clamping voltage
- RoHS Compliant
- Part no. with suffix "Q" means AEC-Q101 qualified

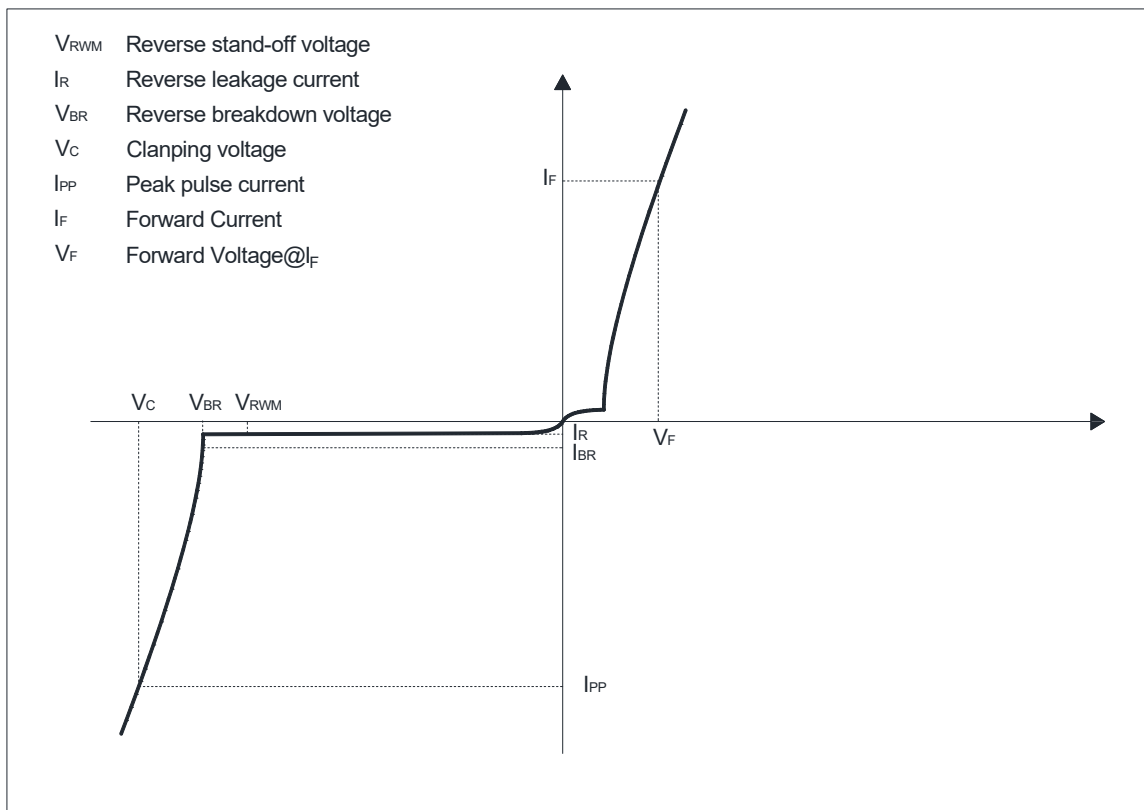
Applications

- Switches / Buttons
- Test Equipment/Instrumentation
- Point-of-Sale Terminals
- Medical Equipment
- Notebooks / Desktops / Servers
- Computer Peripherals
- CAN Bus protection
- Automotive applications

Mechanical Data

- Package: SOD-323
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound
- Moisture Sensitivity: Level 1 per J-STD-020

■ Definitions of electrical characteristics





ESD5V0D3Q

■Maximum Ratings

| PARAMETER | SYMBOL | LIMITS | UNIT |
|---|-----------|----------|-------------|
| Peak pulse power ($t_p = 8/20\mu s$) | P_{pk} | 300 | W |
| ESD according to IEC61000-4-2 air discharge | V_{ESD} | ± 30 | KV |
| ESD according to IEC61000-4-2 contact discharge | | ± 30 | |
| Junction temperature | T_J | -55~150 | $^{\circ}C$ |
| Storage temperature | T_{STG} | -55~150 | $^{\circ}C$ |

Notes:

CAUTION: Stresses above those listed in "Absolute Maximum Ratings" may cause permanent damage to the component. This is a stress only rating and operation of the component at these or any other conditions above those indicated in the operational sections of this specification is not implied.

■Electrical Characteristics ($T_J=25^{\circ}C$)

| PARAMETER | Symbol | UNIT | Conditions | Min | Typ | Max |
|----------------------------------|-----------|----------|----------------------------------|-----|-----|-----|
| Reverse Standoff Voltage | V_{RWM} | V | $I_R \leq 1\mu A$ | | | 5 |
| Reverse breakdown voltage | V_{BR} | V | $I_{BR} = 1mA$ | 6.2 | | 7.5 |
| Reverse leakage current | I_R | μA | $V_{RWM} = 5V$ | | | 1.0 |
| Forward Voltage | V_F | V | $I_F = 10mA$ | | | 1.1 |
| Clamping voltage ¹⁾ | V_C | V | $I_{PP} = 5A, t_p = 8/20\mu s$ | | | 9 |
| | | | $I_{PP} = 15A, t_p = 8/20\mu s$ | | | 12 |
| | | | $I_{PP} = 20A, t_p = 8/20\mu s$ | | | 15 |
| Dynamic resistance ²⁾ | R_{DYN} | Ω | TLP, $t_p=100ns$, I/O to Ground | | 0.1 | |
| Peak Pulse Current | I_{PP} | A | $t_p = 8/20\mu s$ | | | 20 |
| Junction capacitance | C_J | pF | $V_R = 0V, f = 1MHz$ | | 140 | 160 |

Notes:

(1). Non-repetitive current pulse, according to IEC61000-4-5.

(2). TLP parameter: $Z_0 = 50\Omega$, $t_p = 100ns$, $t_r = 2ns$, averaging window from 60ns to 80ns. R_{DYN} is calculated from 4A to 16A.

■Ordering Information (Example)

| PREFERRED P/N | PACKING CODE | UNIT WEIGHT(mg) | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|---------------|--------------|-----------------|----------------------|-------------------------|----------------------------|---------------|
| ESD5V0D3Q | F2 | Approximate 4.5 | 3000 | 30000 | 120000 | 7 reel |



■ Characteristics (Typical)

Fig.1: Non-Repetitive Peak Pulse Power vs. Pulse Time

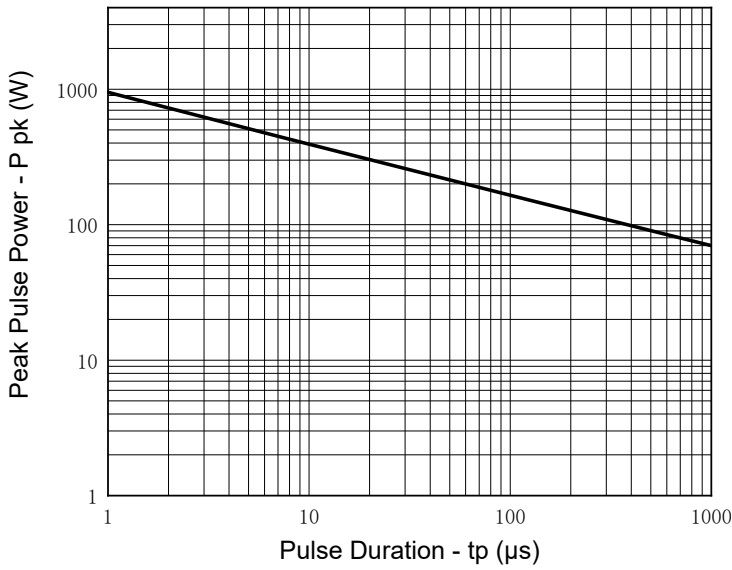


Fig.2: Capacitance vs. Bias

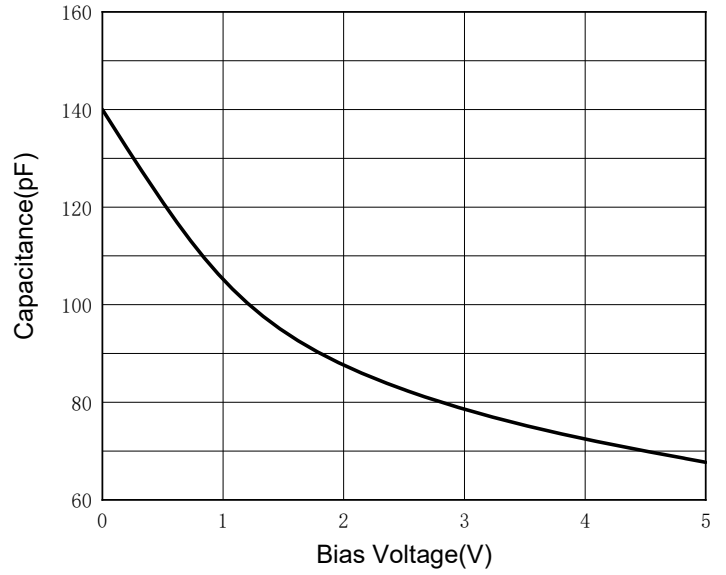


Fig.3: Power Derating Curve

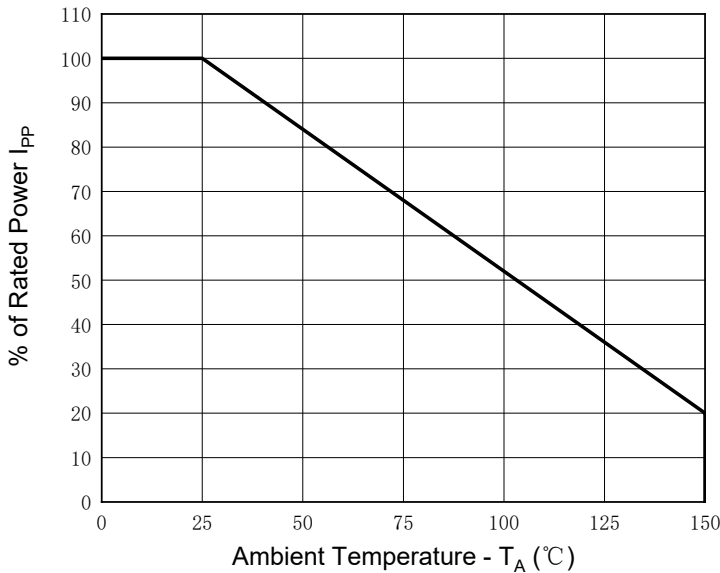


Fig.4: 8/20μs Pulse Waveform

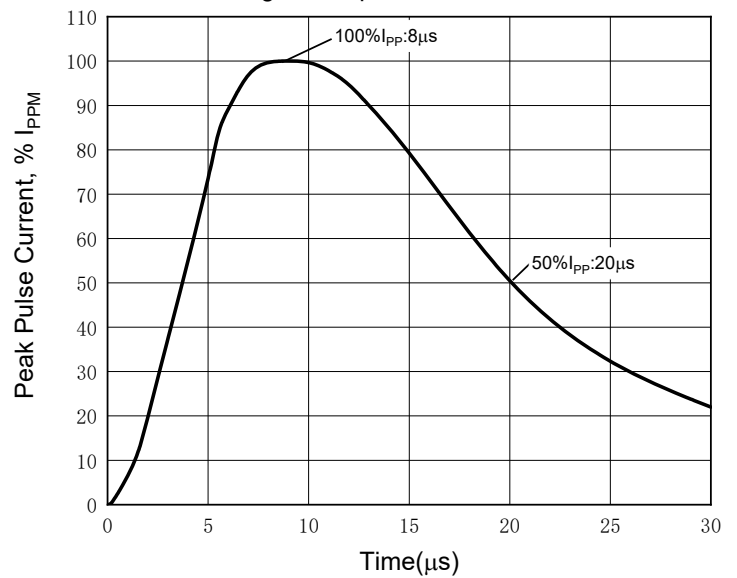
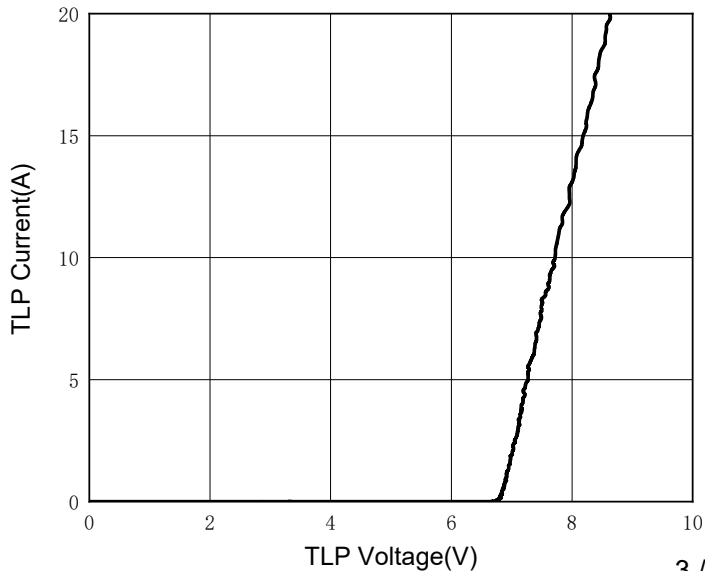


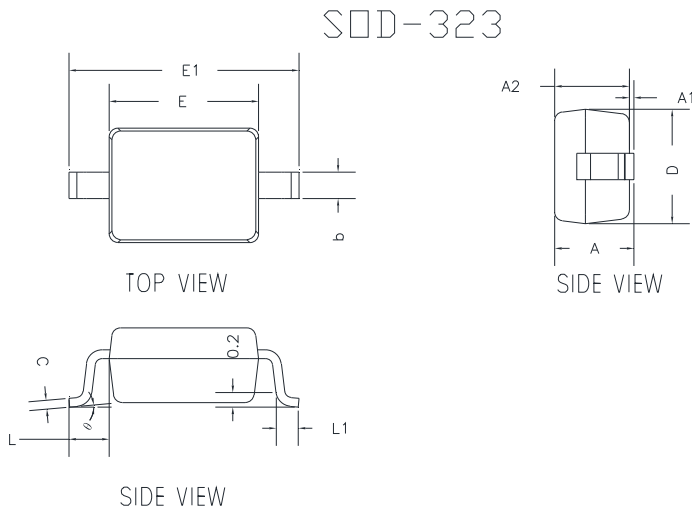
Fig.5: Transmission Line Pulsing (TLP) Plot



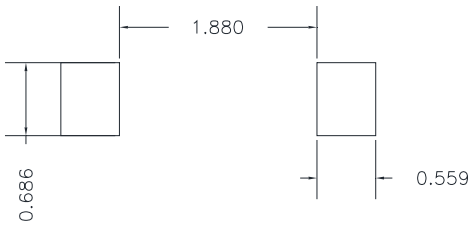


ESD5V0D3Q

■ Outline Dimensions



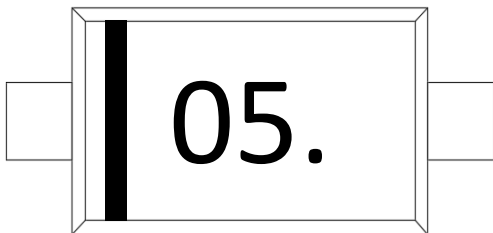
| DIM | DIMENSIONS | | | |
|-----|------------|--------|----------|--------|
| | INCHES | | MM | |
| | MIN | | MIN | MAX |
| A | --- | 0.0393 | --- | 1.0000 |
| A1 | 0.0000 | 0.0039 | 0.0000 | 0.1000 |
| A2 | 0.0314 | 0.0354 | 0.8000 | 0.9000 |
| b | 0.0098 | 0.0157 | 0.2500 | 0.4000 |
| c | 0.0031 | 0.0059 | 0.0800 | 0.1500 |
| D | 0.0472 | 0.0551 | 1.2000 | 1.4000 |
| E | 0.0629 | 0.0709 | 1.6000 | 1.8000 |
| E1 | 0.0984 | 0.1063 | 2.5000 | 2.7000 |
| L | 0.0187TYP | | 0.475TYP | |
| L1 | 0.0098 | 0.0157 | 0.250 | 0.400 |
| e | 0° | 8° | 0° | 8° |



UNIT: mm

SUGGESTED SOLDER PAD LAYOUT

■ Marking Information



Note:

1. All marking is at middle of the product body
2. All marking is in laser marking
3. Body color: Black



ESD5V0D3Q

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