BORN SEMICONDUCTOR

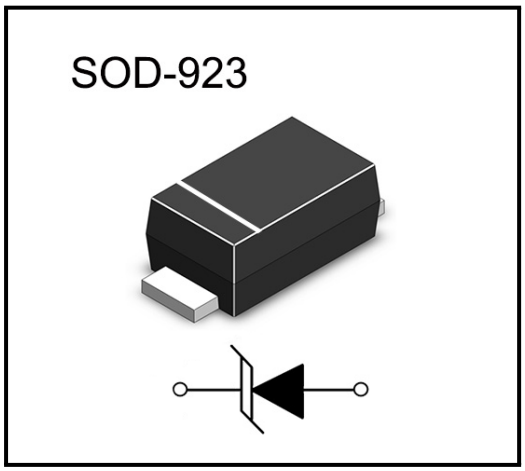
# ESD9X5.0ST5G-N

**ESD Protection Diode**

## Features

- 144Watts peak pulse power (tp = 8/20μs)
- Unidirectional configurations
- Solid-state silicon-avalanche technology
- Low clamping Voltage
- Low leakage current
- IEC 61000-4-2 ±30kV contact ; ±30kV air
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 12A (8/20μs)

## Package



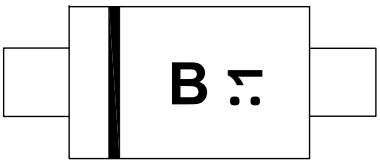

## Applications

- Microprocessor based equipment
- Personal Digital Assistants (PDA's)
- Notebooks, Desktops, and Servers
- Portable Instrumentation
- Pagers Peripherals

## Mechanical Characteristics

- SOD-923 package
- Molding compound flammability rating: UL 94V-0
- Packaging: Tape and Reel
- RoHS/WEEE Compliant

## Marking



## Ordering information

| Order code | Package | Base qty | Delivery mode |
|---|---|---|---|
| ESD9X5.0ST5G-N | SOD-923 | 8k | Tape and reel |



**Revision: 2022-Jan-1-A**

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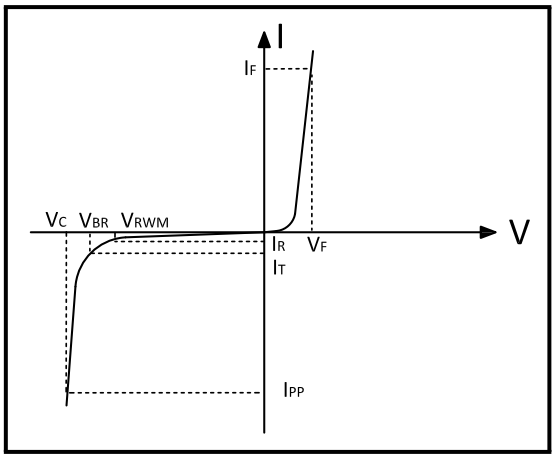
## Electrical Parameters ($T_A$ = 25°C unless otherwise noted)

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




Note:8/20us pulse Waveform.

## Absolute Maximum Rating

| Rating | Symber | Value | Units |
|---|---|---|---|
| Peak Pulse Power ( tp =8/20μs ) | $P_{PP}$ | 144 | Watts |
| Peak Pulse Current (tp =8/20μs ) | $I_{PP}$ | 12 | A |
| ESD per IEC 61000-4-2 (Air)<br>ESD per IEC 61000-4-2 (Contact) | $V_{ESD}$ | 30<br>30 | KV |
| Lead Soldering Temperature | $T_L$ | 260(10seconds) | °C |
| Junction Temperature | $T_J$ | -55 to + 150 | °C |
| Storage Temperature | $T_{stg}$ | -55 to + 150 | °C |

## Electrical Characteristics

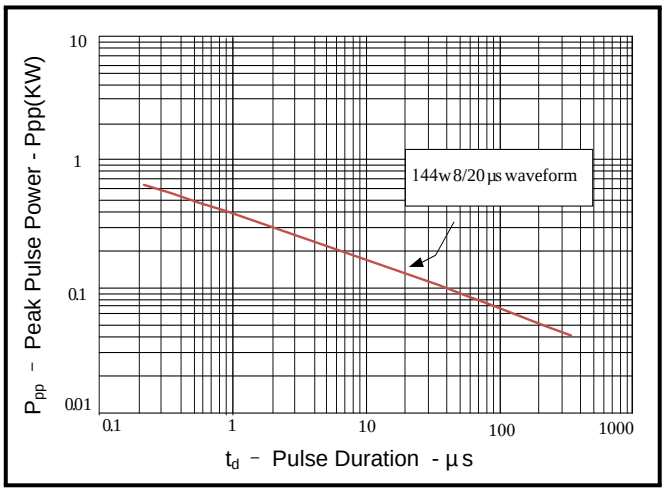
| Parameter | Symber | Conditions | Min | Typical | Max | Units |
|---|---|---|---|---|---|---|
| Reverse Stand-Off Voltage | $V_{RWM}$ | – | – | – | 5.0 | V |
| Reverse Breakdown Voltage | $V_{BR}$ | $I_T$=1mA | 6.5 | – | 9.0 | V |
| Reverse Leakage Current | $I_R$ | $V_{RWM}$=5.0V,T=25°C | – | – | 0.1 | uA |
| Peak Pulse Current | $I_{PP}$ | tp =8/20μs | – | – | 12.0 | A |
| Clamping Voltage | $V_C$ | $I_{PP}$=12A, tp =8/20us | – | 10.0 | 12.0 | V |
| Junction Capacitance | $C_j$ | $V_R$=0V,f=1MHZ | – | 70 | 80 | pF |

# ESD9X5.0ST5G-N

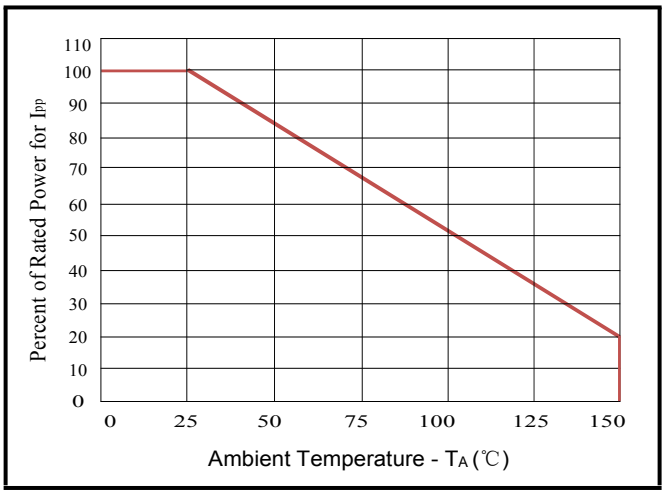
ESD Protection Diode

## Typical Characteristics

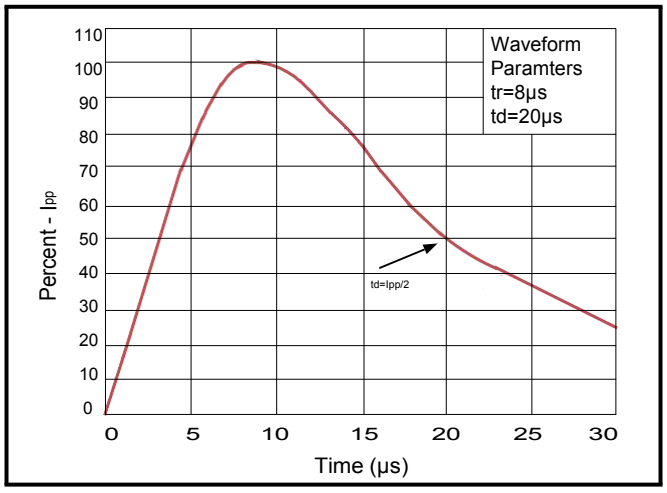
### Figure 1: Peak Pulse Power vs. Pulse Time



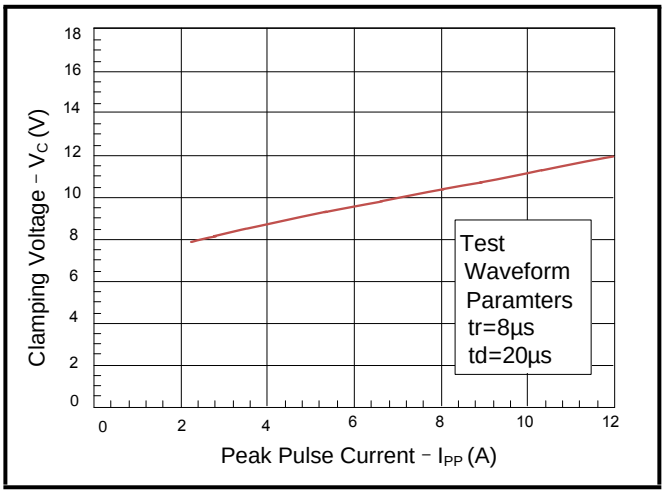

### Figure 2: Power Derating Curve




### Figure 3: Pulse Waveform



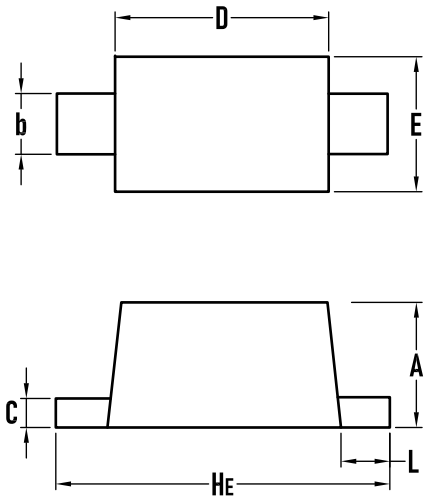

### Figure 4: Clamping Voltage vs. $I_{PP}$



# ESD9X5.0ST5G-N

**ESD Protection Diode**

## Outline Drawing - SOD-923




| SYMBOL | MILLIMETER | | INCHES | |
|---|---|---|---|---|
| | MIN. | MAX. | MIN. | MAX. |
| A | 0.39 | 0.45 | 0.015 | 0.018 |
| b | 0.15 | 0.30 | 0.006 | 0.012 |
| C | 0.06 | 0.20 | 0.002 | 0.008 |
| D | 0.70 | 0.90 | 0.028 | 0.035 |
| E | 0.55 | 0.65 | 0.026 | 0.028 |
| HE | 0.90 | 1.10 | 0.035 | 0.043 |
| L | 0.05 | 0.15 | 0.002 | 0.006 |