BORN SEMICONDUCTOR

# BNPESD5V0L5UY

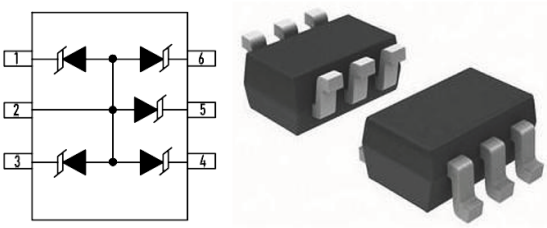
**ESD Protection Diode**

## Features

- 104Watts peak pulse power (tp = 8/20μs)
- Solid-state silicon-avalanche technology
- Low clamping Voltage
- Low leakage current
- Protection one data/power line
- IEC 61000-4-2 ±30kV contact ; ±30kV air
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 8A (8/20μs)

## Package

SOT-363



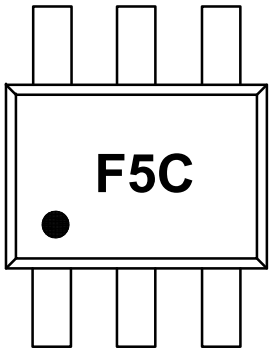

## Applications

- Cellular Handsets & Accessories
- Personal Digital Assistants (PDAs)
- Notebooks & Handhelds
- Portable Instrumentation
- Digital Cameras

## Mechanical Characteristics

- SOT-363 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 |
|---|---|---|---|
| BNPESD5V0L5UY | SOT-363 | 3k | Tape and reel |

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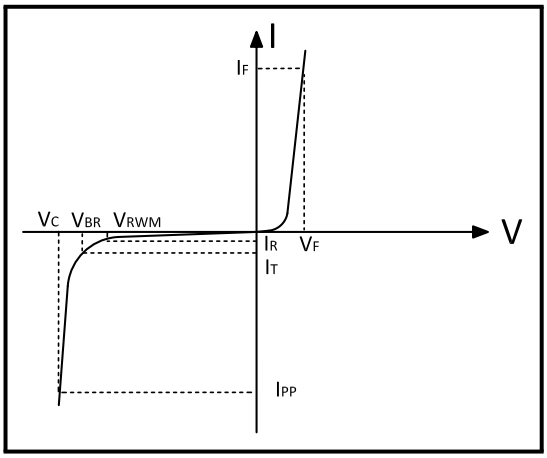
**Revision: 2022-Jan-1-A**

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**ESD Protection Diode**

## 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 ) | $P_{PP}$ | 104 | Watts |
| Peak Pulse Current (tp =8/20μs ) | $I_{PP}$ | 8 | 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 | 7.5 | 9.5 | V |
| Reverse Leakage Current | $I_R$ | $V_{RWM}$=5V,T=25°C | – | – | 0.5 | uA |
| Peak Pulse Current | $I_{PP}$ | tp =8/20us | – | – | 8 | A |
| Clamping Voltage | $V_C$ | $I_{PP}$=8A, tp =8/20us | – | 10 | 13 | V |
| Junction Capacitance | $C_j$ | $V_R$=0V,f=1MHZ,IO to IO | – | 30 | 40 | pF |
| Junction Capacitance | $C_j$ | $V_R$=0V,f=1MHZ,IO to GND | – | 60 | 80 | pF |

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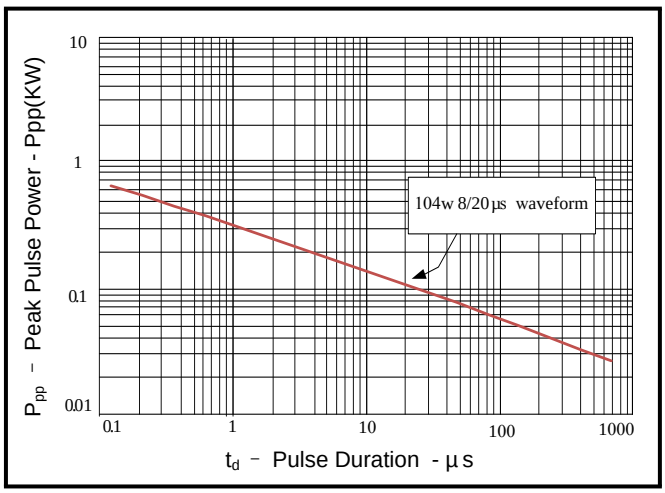
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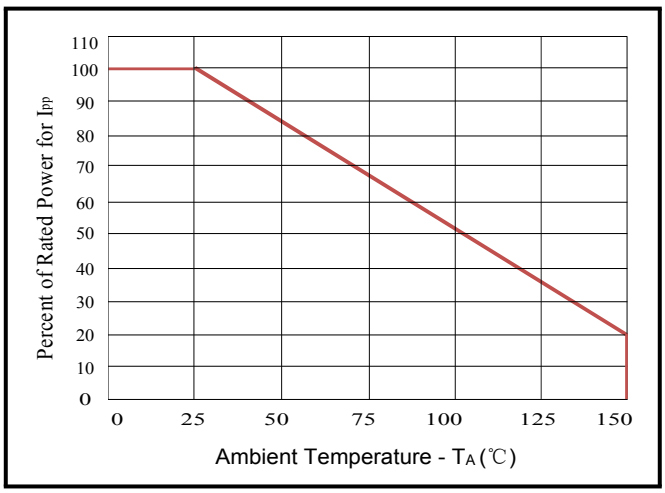
**ESD Protection Diode**

## Typical Characteristics

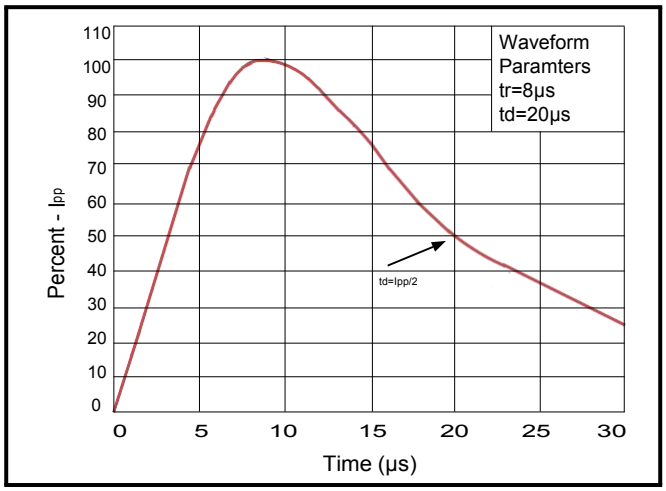
### Figure 1: Peak Pulse Power vs. Pulse Time



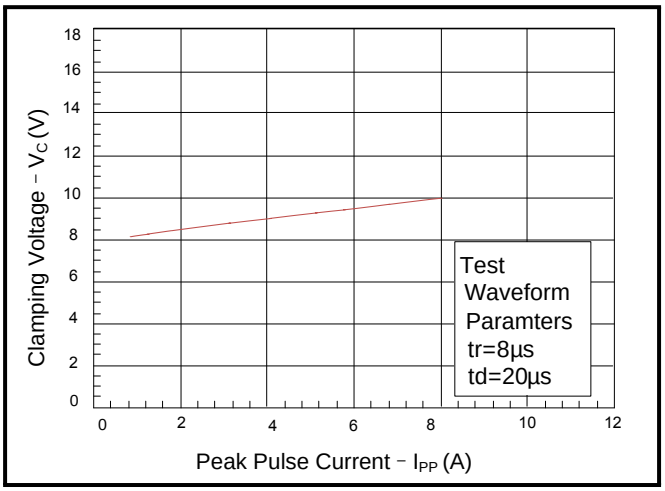

### Figure 2: Power Derating Curve




### Figure 3: Pulse Waveform




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



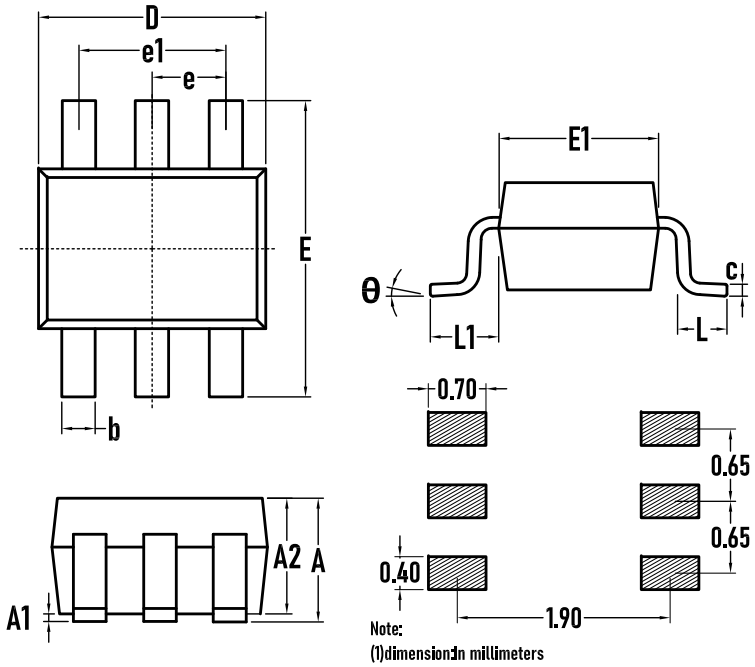

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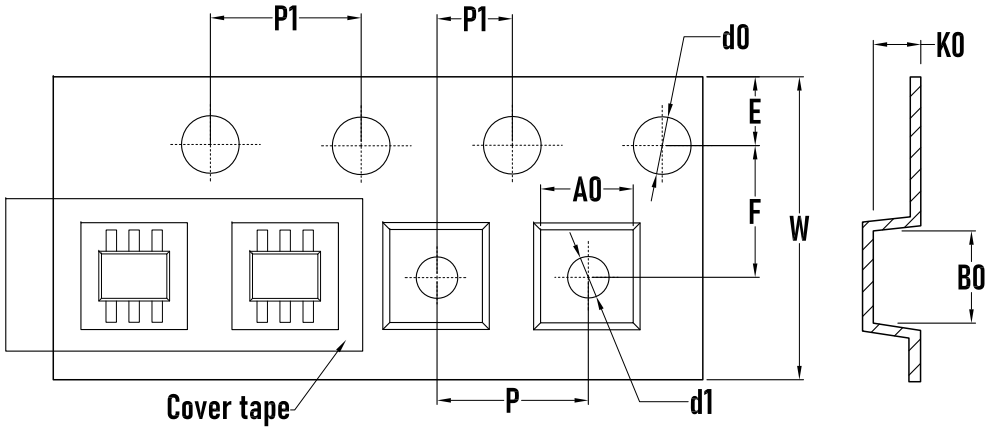
**ESD Protection Diode**

## Outline Drawing – SOT-363



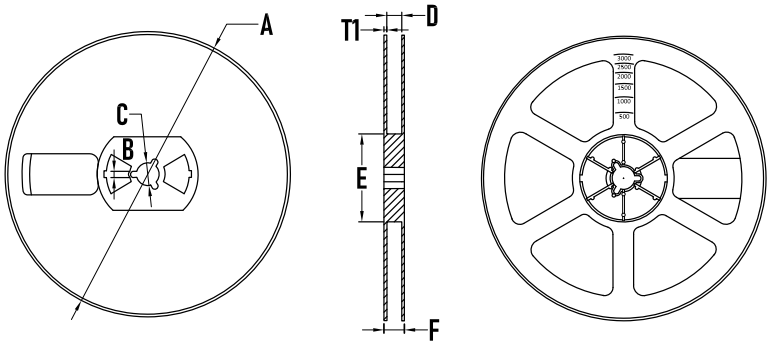

| SYMBOL | MILLIMETER | | |
|---|---|---|---|
| | MIN | TYP | MAX |
| A | 0.90 | 1.00 | 1.10 |
| A1 | 0.00 | 0.05 | 0.10 |
| A2 | 0.90 | 0.95 | 1.00 |
| b | 0.15 | 0.25 | 0.35 |
| C | 0.08 | 0.12 | 0.15 |
| D | 2.00 | 2.10 | 2.20 |
| E | 2.15 | 2.30 | 2.45 |
| E1 | 1.15 | 1.25 | 1.35 |
| e | 0.65(TYP) | | |
| e1 | 1.20 | 1.30 | 1.40 |
| L | 0.26 | 0.36 | 0.46 |
| L1 | 0.525(REF) | | |
| θ | 0° | 4° | 8° |

## Packaging Tape - SOT-363




| SYMBOL | MILLIMETER |
|---|---|
| A0 | 2.25±0.1 |
| B0 | 2.55±0.1 |
| E | 1.75±0.1 |
| F | 3.50±0.1 |
| K0 | 1.20±0.1 |
| P | 4.00±0.1 |
| P0 | 4.00±0.1 |
| P1 | 2.00±0.1 |
| W | 8.00±0.2 |

## Packaging Reel




| SYMBOL | MILLIMETER |
|---|---|
| A | 177.8±0.2 |
| B | 2.7±0.2 |
| C | 13.5±0.2 |
| D | 9.6±0.3 |
| E | 54.5±0.2 |
| F | 12.3±0.3 |
| T1 | 1.0±0.2 |
| Quantity | 3000PCS |

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