

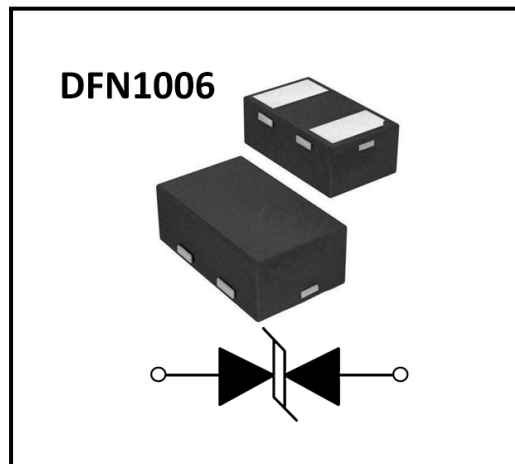
# BNPRSB6.8C

ESD Protection Diode

## Features

- 600Watts peak pulse power ( $t_p = 8/20\mu s$ )
- Tiny DFN1006 package
- Bidirectional configurations
- Solid-state silicon-avalanche technology
- Low clamping Voltage
- Low leakage current
- IEC 61000-4-2  $\pm 30kV$  contact  $\pm 30kV$  air
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 40A (8/20 $\mu s$ )

## Package



## Applications

- Cell Phone Handsets and Accessories
- Microprocessor based equipment
- Personal Digital Assistants (PDA's)
- Notebooks, Desktops, and Servers
- Portable Instrumentation

## Mechanical Characteristics

- DFN1006 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 |
|------------|---------|----------|---------------|
| BNPRSB6.8C | DFN1006 | 10k      | Tape and reel |

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Revision: 2022-Jan-1-A

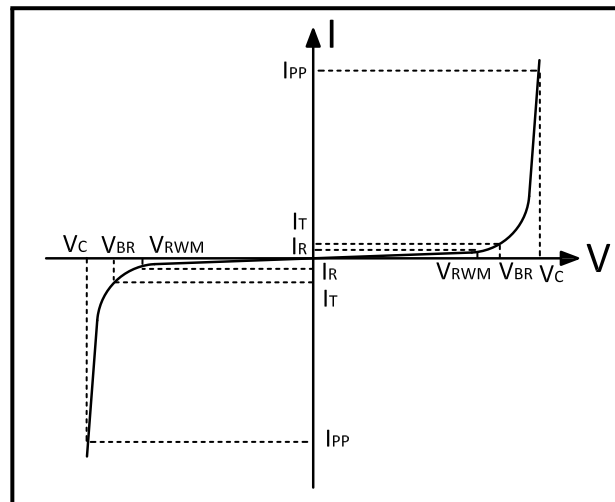


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Electrical Parameters ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

| 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                                         | Symler    | Value          | Units            |
|------------------------------------------------|-----------|----------------|------------------|
| Peak Pulse Power ( $t_p = 8/20\mu\text{s}$ )   | $P_{PP}$  | 600            | Watts            |
| Peak Pulse Current ( $t_p = 8/20\mu\text{s}$ ) | $I_{PP}$  | 40             | A                |
| ESD per IEC 61000-4-2 (Air)                    | $V_{ESD}$ | 30             | KV               |
| ESD per IEC 61000-4-2 (Contact)                |           | 30             |                  |
| Lead Soldering Temperature                     | $T_L$     | 260(10seconds) | $^\circ\text{C}$ |
| Junction Temperature                           | $T_J$     | -55 to + 150   | $^\circ\text{C}$ |
| Storage Temperature                            | $T_{stg}$ | -55 to + 150   | $^\circ\text{C}$ |

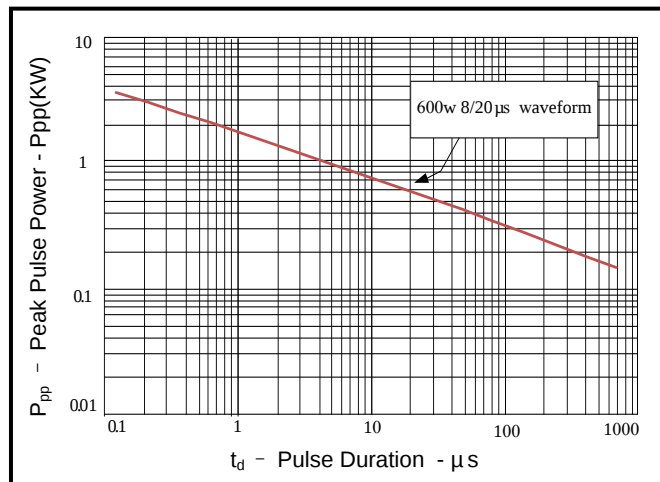
## Electrical Characteristics

| Parameter                 | Symler    | Conditions                                    | Min | Typical | Max | Units         |
|---------------------------|-----------|-----------------------------------------------|-----|---------|-----|---------------|
| Reverse Stand-Off Voltage | $V_{RWM}$ | —                                             | —   | —       | 4.5 | V             |
| Reverse Breakdown Voltage | $V_{BR}$  | $I_T = 1\text{mA}$                            | 4.7 | 5.2     | 7.5 | V             |
| Reverse Leakage Current   | $I_R$     | $V_{RWM} = 4.5\text{V}, T = 25^\circ\text{C}$ | —   | —       | 0.1 | $\mu\text{A}$ |
| Peak Pulse Current        | $I_{PP}$  | $t_p = 8/20\mu\text{s}$                       | —   | —       | 40  | A             |
| Clamping Voltage          | $V_C$     | $I_{PP} = 1\text{A}, t_p = 8/20\mu\text{s}$   | —   | 5.5     | 6.0 | V             |
| Clamping Voltage          | $V_C$     | $I_{PP} = 20\text{A}, t_p = 8/20\mu\text{s}$  | —   | 7.5     | 9.0 | V             |
| Clamping Voltage          | $V_C$     | $I_{PP} = 40\text{A}, t_p = 8/20\mu\text{s}$  | —   | 11      | 15  | V             |
| Junction Capacitance      | $C_j$     | $V_R = 0\text{V}, f = 1\text{MHZ}$            | —   | 75      | 90  | pF            |

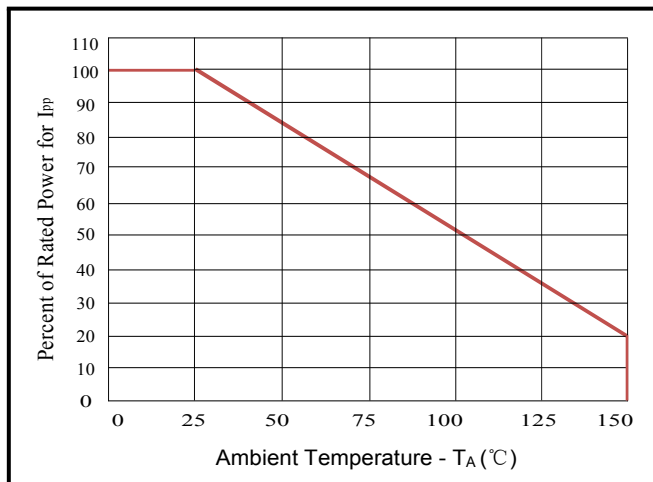


**Typical Characteristics**

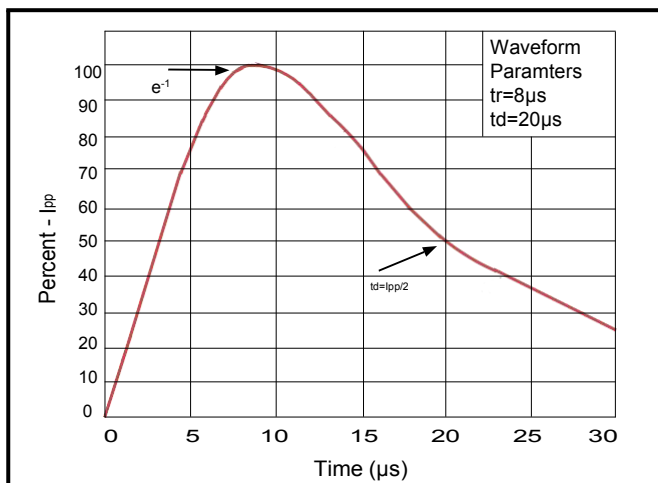
**Figure 1: Peak Pulse Power vs. Pulse Time**



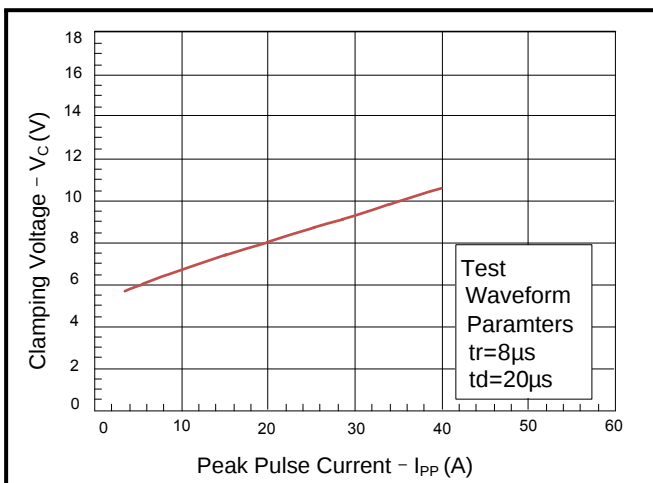
**Figure 2: Power Derating Curve**



**Figure 3: Pulse Waveform**



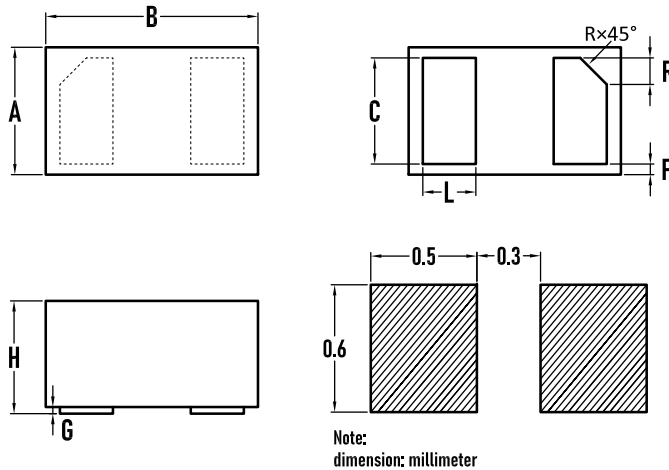
**Figure 4: Clamping Voltage vs. Ipp**



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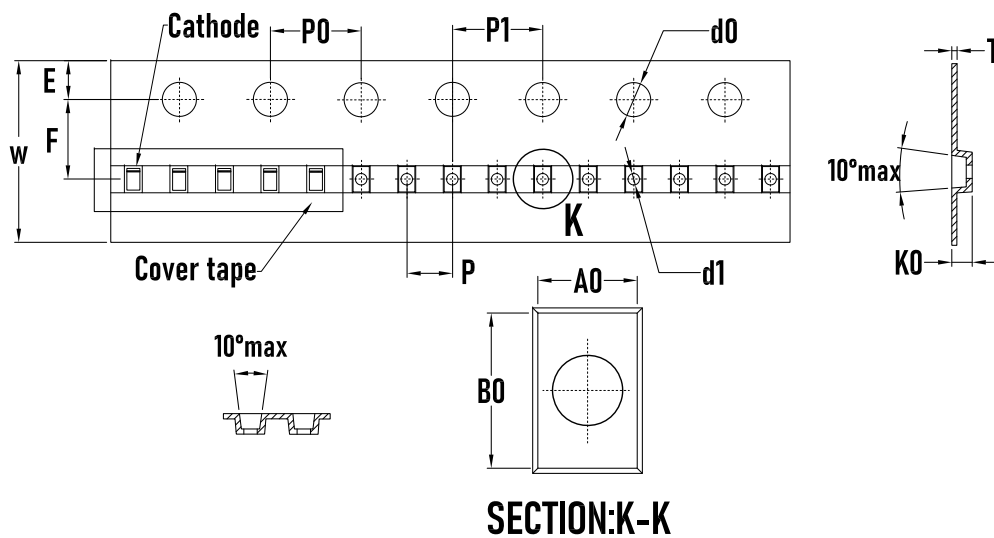
ESD Protection Diode

## Outline Drawing – DFN1006



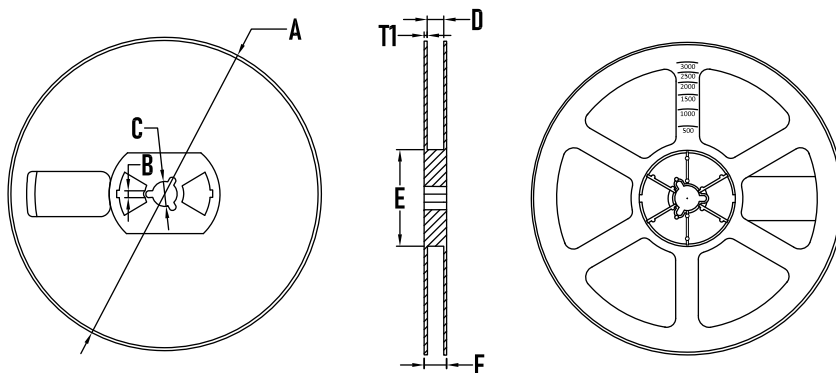
| SYMBOL | MILLIMETER |      |      |
|--------|------------|------|------|
|        | MIN.       | Typ. | MAX. |
| A      | 0.55       | 0.60 | 0.65 |
| B      | 0.95       | 1.00 | 1.05 |
| C      | 0.45       | 0.50 | 0.55 |
| L      | 0.20       | 0.25 | 0.30 |
| F      | 0.05REF    |      |      |
| G      | 0.00       | 0.02 | 0.05 |
| H      | 0.45       | 0.50 | 0.55 |
| R      | 0.07       | 0.12 | 0.17 |

## Packaging Tape - DFN1006



| SYMBOL | MILLIMETER                             |
|--------|----------------------------------------|
| A0     | 0.71±0.05                              |
| B0     | 1.11±0.05                              |
| d0     | 1.5 <sup>+0.1</sup> <sub>-0</sub>      |
| d1     | 0.50±0.05                              |
| E      | 1.75±0.10                              |
| F      | 3.50±0.05                              |
| K0     | 0.56±0.05                              |
| P      | 2.00±0.05                              |
| P0     | 4.00±0.10                              |
| P1     | 2.00±0.05                              |
| W      | 8.00 <sup>+0.03</sup> <sub>-0.01</sub> |
| T      | 0.2±0.015                              |

## Packaging Reel



| SYMBOL   | MILLIMETER                      |
|----------|---------------------------------|
| A        | 178±1                           |
| B        | 3.5±0.2                         |
| C        | 14.3±0.2                        |
| D        | 9.8 <sup>+2</sup> <sub>-1</sub> |
| E        | 54.5±0.5                        |
| F        | 12.4±0.2                        |
| T1       | 1.0±0.2                         |
| Quantity | 10000PCS                        |

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