



## DW4.5P4N3-B-S ESD Protection Diode

### Feature

- Bi-directional ESD protection of one line
- 5040Watts peak pulse power ( $t_p = 8/20\mu s$ )
- Working voltage: 4.5V
- Junction Capacitance: 1000pF(Max)
- Low clamping voltage
- Low leakage current
- IEC 61000-4-2  $\pm 30kV$  contact  $\pm 30kV$  air
- IEC 61000-4-5 (Lightning) 240A (8/20 $\mu s$ )

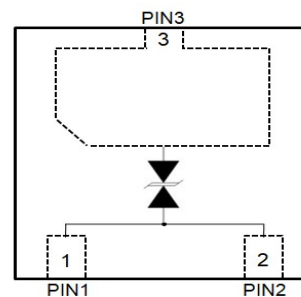
### Application

- Power supply protection
- Personal digital assistants (PDA's)
- Microprocessors based equipment
- Power Management
- Cell phone Handsets and Accessories
- Portable Electronics
- Peripherals

### Mechanical Data

- Package: DFN2020-3L
- Molding compound flammability rating: UL 94V-0
- RoHS/WEEE Compliant

### Schematic & PIN Configuration



### Ordering Information

| Part Number   | Package    | Marking | Packing          | Reel Size |
|---------------|------------|---------|------------------|-----------|
| DW4.5P4N3-B-S | DFN2020-3L | T45 008 | 3000 Tape & Reel | 7 inches  |



**Absolute Maximum Ratings** ( $T_A=25^{\circ}\text{C}$  unless otherwise specified)

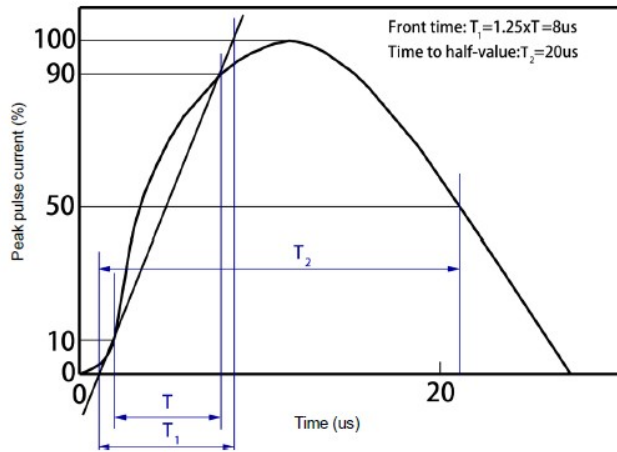
| Parameter                                                      | Symbol    | Value                | Unit               |
|----------------------------------------------------------------|-----------|----------------------|--------------------|
| Peak Pulse Power ( $t_p=8/20\mu\text{s}$ )                     | $P_{PP}$  | 5040                 | W                  |
| Peak Pulse Current (8/20 $\mu\text{s}$ )                       | $I_{PP}$  | 240                  | A                  |
| ESD per IEC 61000-4-2 (Air)<br>ESD per IEC 61000-4-2 (Contact) | $V_{ESD}$ | $\pm 30$<br>$\pm 30$ | kV                 |
| Lead Soldering Temperature                                     | $T_L$     | 260 (10seconds)      | $^{\circ}\text{C}$ |
| Operating Temperature                                          | $T_{OPT}$ | -55 to + 125         | $^{\circ}\text{C}$ |
| Storage Temperature                                            | $T_{stg}$ | -55 to + 150         | $^{\circ}\text{C}$ |

**Electrical Characteristics** ( $T_A=25^{\circ}\text{C}$  unless otherwise specified)

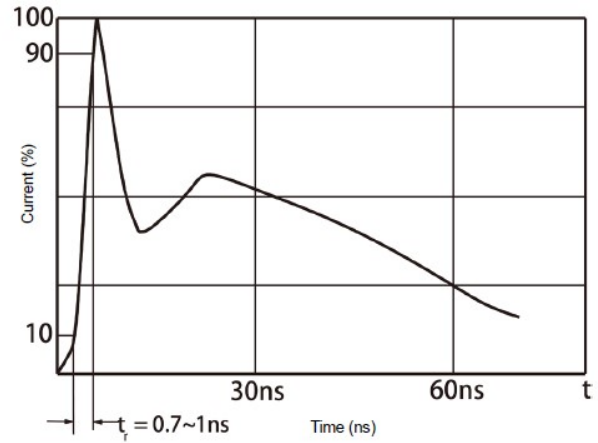
| Symbol    | Parameter                 | Test Condition                                | Min | Typ | Max  | Units         |
|-----------|---------------------------|-----------------------------------------------|-----|-----|------|---------------|
| $V_{RWM}$ | Reverse Working Voltage   |                                               |     |     | 4.5  | V             |
| $V_{BR}$  | Reverse Breakdown Voltage | $I_T = 1\text{mA}$                            | 4.6 | 5.2 | 6.1  | V             |
| $I_R$     | Reverse Leakage Current   | $V_{RWM} = 4.5\text{V}$                       |     |     | 1    | $\mu\text{A}$ |
| $I_{PP}$  | Peak Pulse Current        | $t_p = 8/20\mu\text{s}$                       |     |     | 240  | A             |
| $V_C$     | Clamping Voltage          | $I_{PP} = 150\text{A}, t_p = 8/20\mu\text{s}$ |     |     | 16   | V             |
|           |                           | $I_{PP} = 200\text{A}, t_p = 8/20\mu\text{s}$ |     |     | 18   | V             |
|           |                           | $I_{PP} = 240\text{A}, t_p = 8/20\mu\text{s}$ |     |     | 21   | V             |
| $C_J$     | Junction Capacitance      | $V_R = 0\text{V}, f = 1\text{MHz}$            |     |     | 1000 | pF            |



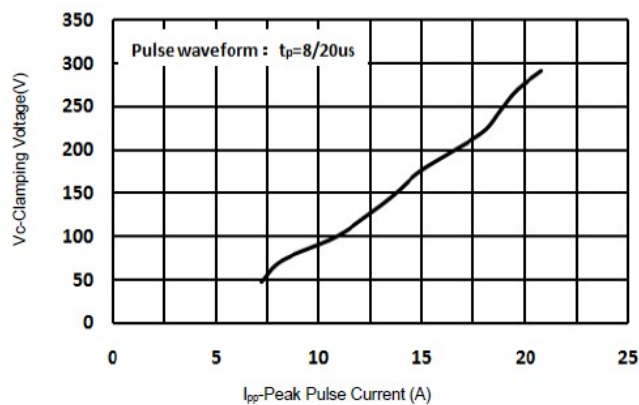
## Electrical Characteristics Curve



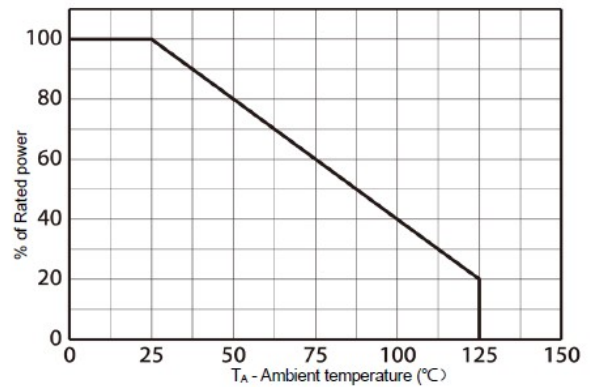
8/20 us waveform per IEC61000-4-5



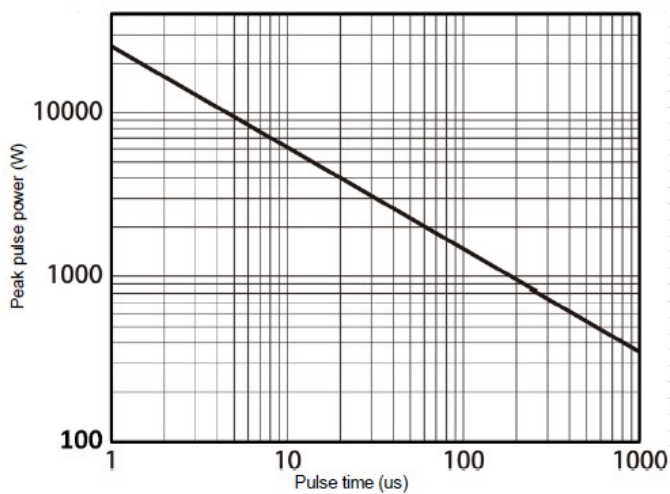
Contact discharge current waveform per IEC61000-4-2



Clamping Voltage vs. Peak pulse current



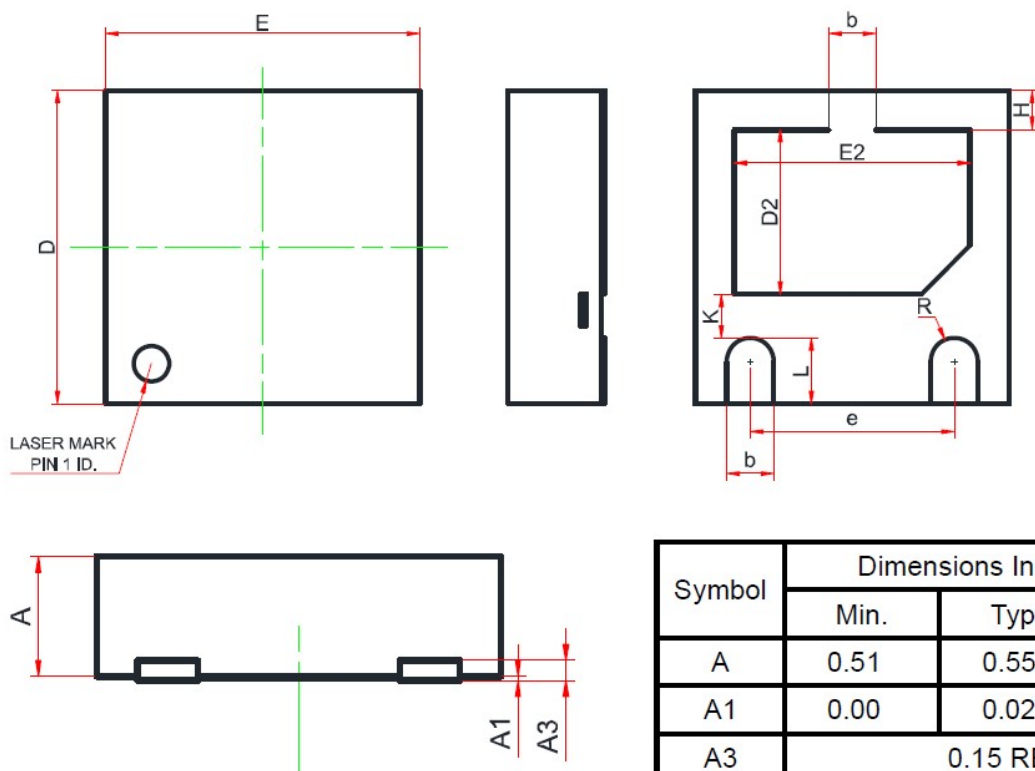
Power derating vs. Ambient temperature



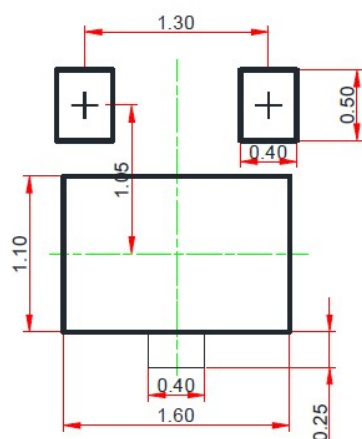
Non-repetitive peak pulse power vs. Pulse time



## DFN2020-3L Package Outline Dimensions



### Recommend Land Pattern (Unit: mm)



| Symbol | Dimensions In Millimeters |      |      |
|--------|---------------------------|------|------|
|        | Min.                      | Typ. | Max. |
| A      | 0.51                      | 0.55 | 0.60 |
| A1     | 0.00                      | 0.02 | 0.05 |
| A3     | 0.15 REF.                 |      |      |
| b      | 0.25                      | 0.30 | 0.35 |
| D      | 1.90                      | 2.00 | 2.10 |
| E      | 1.90                      | 2.00 | 2.10 |
| D2     | 0.85                      | 1.00 | 1.10 |
| E2     | 1.35                      | 1.50 | 1.60 |
| e      | 1.20                      | 1.30 | 1.40 |
| H      | 0.20                      | 0.25 | 0.30 |
| K      | 0.20                      | 0.30 | 0.40 |
| L      | 0.35                      | 0.40 | 0.45 |
| R      | 0.15                      | -    | -    |

Note:

This recommended land pattern is for reference purpose only.