

## DWC4840NS ESD Protection Diode

### Feature

- Bi-directional ESD protection of one line
- Working voltage: 48V
- Junction Capacitance: 0.35pF(Typ)
- Low clamping voltage
- Low leakage current
- IEC 61000-4-2 12kV contact
- IEC61000-4-4(EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 6A (8/20μs)

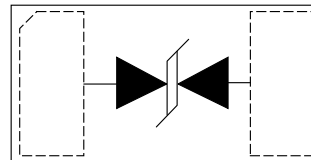
### Application

- USB Type-C
- High speed data and control line protection
- Personal Digital Assistants(PDA's)
- Notebooks,Desktops and Computers
- Consumer electronics

### Mechanical Data

- Package: DFN0603-2L
- Molding compound flammability rating: UL 94V-0
- RoHS/WEEE Compliant

### Schematic & PIN Configuration



### Ordering Information

| Part Number | Package    | Marking                                                                             | Packing           | Reel Size |
|-------------|------------|-------------------------------------------------------------------------------------|-------------------|-----------|
| DWC4840NS   | DFN0603-2L |  | 10000 Tape & Reel | 7 inches  |

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

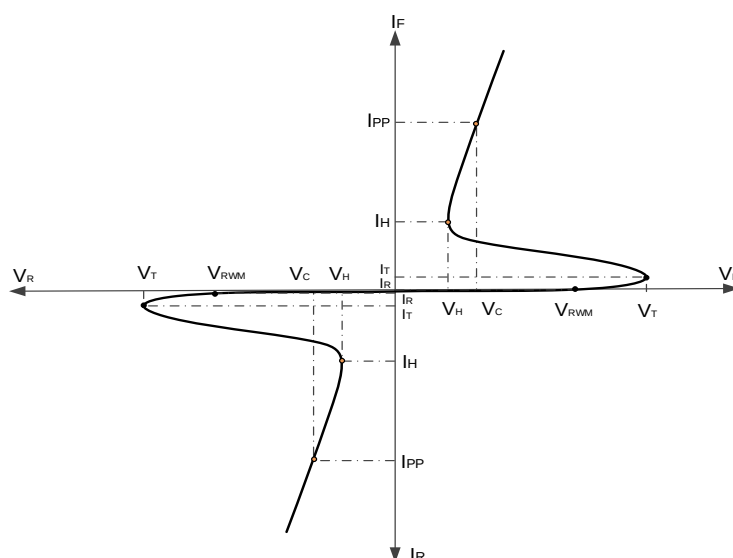
| Parameter                                            | Symbol    | Value           | Units              |
|------------------------------------------------------|-----------|-----------------|--------------------|
| Maximum Peak Pulse Current ( $t_p=8/20\mu\text{s}$ ) | $I_{PP}$  | 6               | A                  |
| ESD per IEC 61000-4-2 (Contact)                      | $V_{ESD}$ | $\pm 12$        | kV                 |
| Lead Soldering Temperature                           | $T_L$     | 260 (10seconds) | $^{\circ}\text{C}$ |
| Junction Temperature                                 | $T_J$     | -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)

| Parameter                 | Symbol    | Test Conditions                         | Min. | Typ. | Max. | Units         |
|---------------------------|-----------|-----------------------------------------|------|------|------|---------------|
| Reverse Stand-Off Voltage | $V_{RWM}$ |                                         | -48  |      | 48   | V             |
| Reverse Leakage Current   | $I_R$     | $V_{RWM}=\pm 48\text{V}$                |      |      | 0.5  | $\mu\text{A}$ |
| Reverse Breakdown Voltage | $V_{BR}$  | $I_T=1\text{mA}$                        | 55   |      |      | V             |
| Clamping Voltage          | $V_C$     | $I_{PP}=6\text{A}, t_p=8/20\mu\text{s}$ |      |      | 7    | V             |
| Junction Capacitance      | $C_j$     | $V_R = 0\text{V}, f = 1\text{MHz}$      |      | 0.35 | 0.45 | pF            |

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

- $V_{RWM}$  .....Reverse Working Voltage Max.  
 $I_R$  ..... Maximum Reverse Leakage Current @  $V_{RWM}$   
 $V_T$ ..... Trigger Voltage  
 $V_H$ ..... Holding Voltage  
 $I_H$ ..... Holding Current  
 $V_{BR}$  ..... Reverse Breakdown Voltage  
 $I_{PP}$  ..... Maximum Reverse Peak Pulse Current  
 $V_C$  ..... Clamping Voltage @  $I_{PP}$





## Typical Characteristics

Figure1: ESD pulse waveform according to IEC 61000-4-2

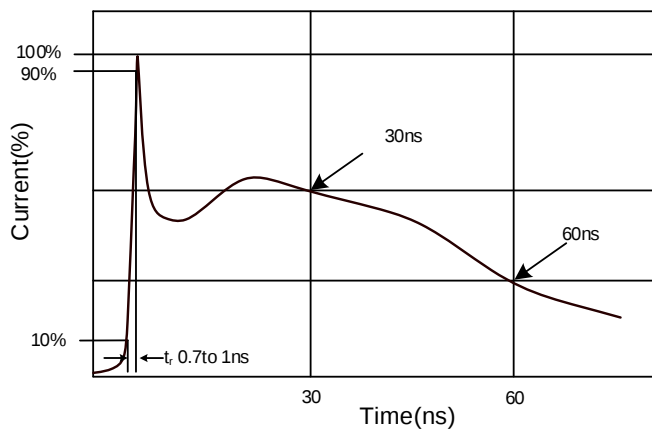


Figure 2: Power Derating Curve

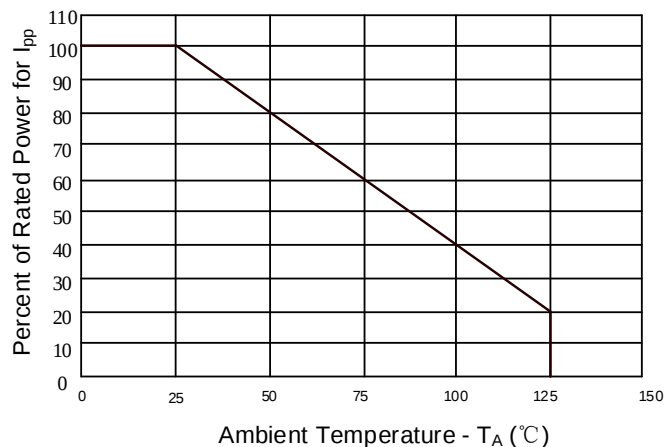


Figure3: 8/20  $\mu$ s Pulse Waveform

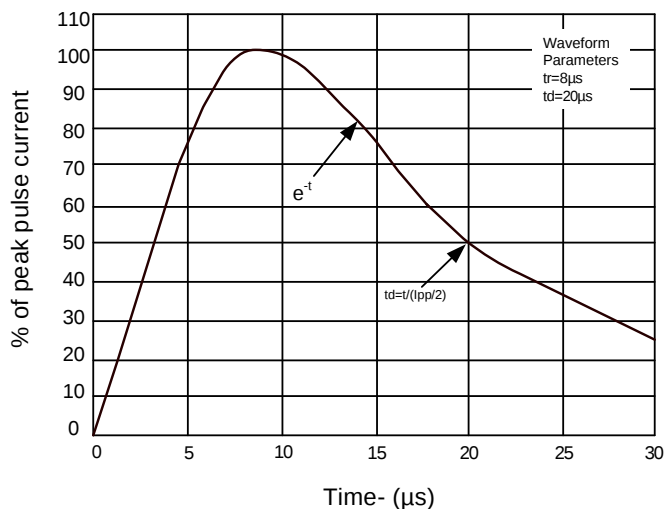
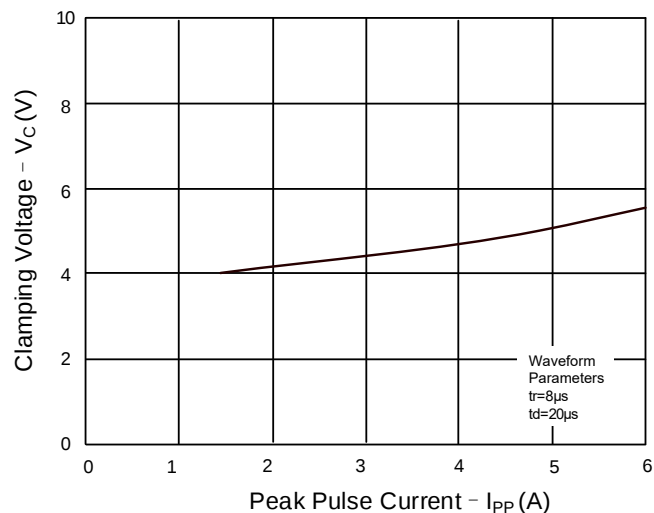
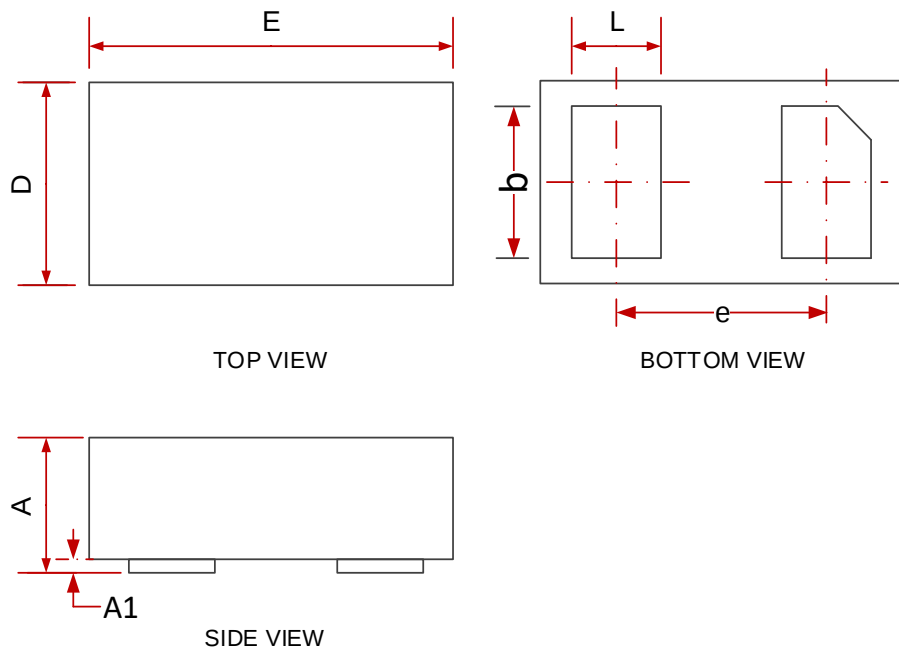


Figure 4: Clamping Voltage vs.  $I_{pp}$

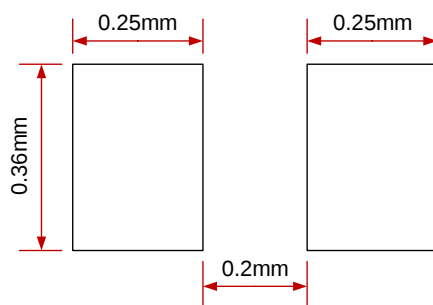


## DFN0603-2L Outline Drawing



| COMMON DIMENSION (mm) |         |      |       |
|-----------------------|---------|------|-------|
| PKG                   | DFN0603 |      |       |
| REF.                  | MIN.    | NOM. | MAX.  |
| A                     | 0.28    | 0.30 | 0.34  |
| A1                    | 0.00    | 0.02 | 0.05  |
| b                     | 0.21    | 0.23 | 0.265 |
| L                     | 0.14    |      | 0.24  |
| e                     | 0.40BSC |      |       |
| D                     | 0.25    | 0.30 | 0.35  |
| E                     | 0.55    | 0.60 | 0.65  |

## Land Pattern \*



\* This land pattern is for reference purposes only