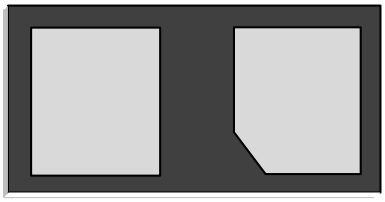
## Features

- 90 Watts Peak Pulse Power per Line ($t_p$ = 8/20μs)
- Small Body Outline Dimensions
- Protects one I/O or Power Line
- Low Clamping Voltage
- Working Voltage: 3.3V
- Low Leakage Current



DFN0603-2L

## IEC Compatibility (EN61000-4)

- IEC 61000-4-2 (ESD) ±30kV (air), ±30kV (contact)
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 10A (8/20μs)

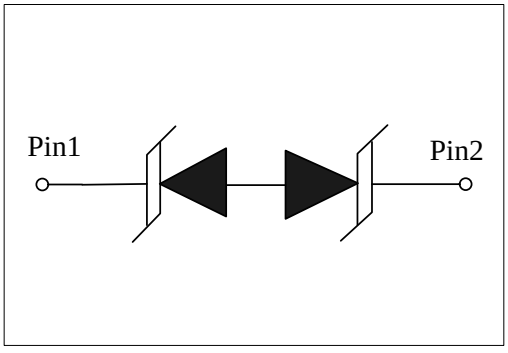
## Mechanical Characteristics

- DFN0603-2L package
- Marking : Marking Code
- Packaging: Tape and Reel per EIA 481
- RoHS Compliant

## Applications

- Laptop Computers
- Cellular Phones
- Digital Cameras
- Personal Digital Assistants (PDAs)

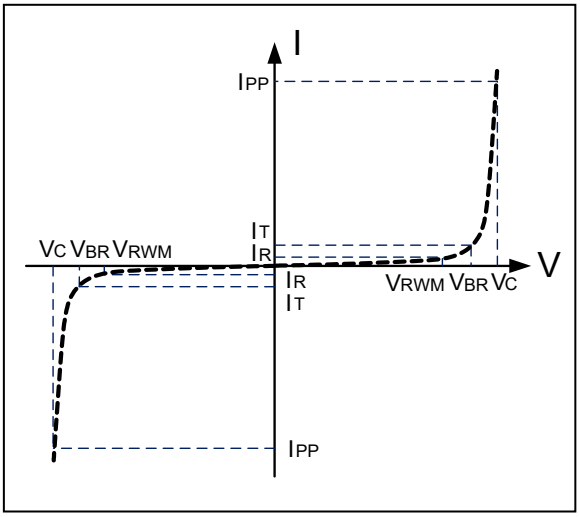
## Schematic & PIN Configuration



| Absolute Maximum Rating | | | |
|---|---|---|---|
| **Rating** | **Symbol** | **Value** | **Units** |
| Peak Pulse Power ( $t_p$ = 8/20μs ) | $P_{PP}$ | 90 | W |
| Peak Pulse Current ( $t_p$ = 8/20μs ) | $I_{PP}$ | 10 | A |
| Operating Temperature | $T_J$ | -55 to + 125 | ℃ |
| Storage Temperature | $T_{STG}$ | -55 to +150 | ℃ |

## Electrical Parameters (T=25℃)

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




## Electrical Characteristics

| DW03DMS-B-E | | | | | | |
|---|---|---|---|---|---|---|
| **Parameter** | **Symbol** | **Conditions** | **Minimum** | **Typical** | **Maximum** | **Units** |
| Reverse Stand-Off Voltage | $V_{RWM}$ | | | | 3.3 | V |
| Reverse Breakdown Voltage | $V_{BR}$ | $I_T$=1mA | 3.5 | | 7 | V |
| Reverse Leakage Current | $I_R$ | $V_{RWM}$=3.3V, T=25℃ | | | 100 | nA |
| Clamping Voltage | $V_C$ | $I_{PP}$=10A, $t_p$=8/20μs | | 7 | 9 | V |
| Dynamic Resistance[1,2] | $R_{DYN}$ | TLP=0.2/100ns | | 0.21 | | Ω |
| ESD Clamping Voltage[1] | $V_C$ | IPP = 4A,<br>tp = 0.2/100ns (TLP) | | 6.0 | | V |
| ESD Clamping Voltage[1] | $V_C$ | IPP = 16A,<br>tp = 0.2/100ns (TLP) | | 8.5 | | V |
| Junction Capacitance | $C_j$ | $V_R$=0V, f =1MHz | | | 20 | pF |

Notes：1、TLP Setting：$t_p$=100ns, $t_r$=0.2ns, $I_{TLP}$ and $V_{TLP}$ sample window:$t_1$=70ns to $t_2$=90ns.
2、Dynamic resistance calculated from $I_{PP}$=4A to $I_{PP}$=16A using “Best Fit”.

Ver.: A1 2019-02-22 WA

## Typical Characteristics

**Figure 1: Peak Pulse Power Vs Pulse Time**

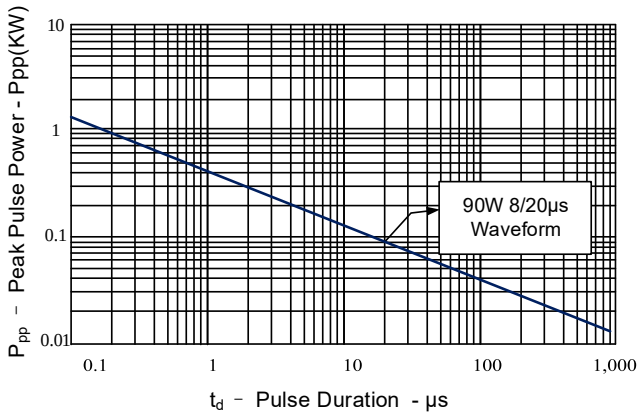



**Figure 2: Power Derating Curve**

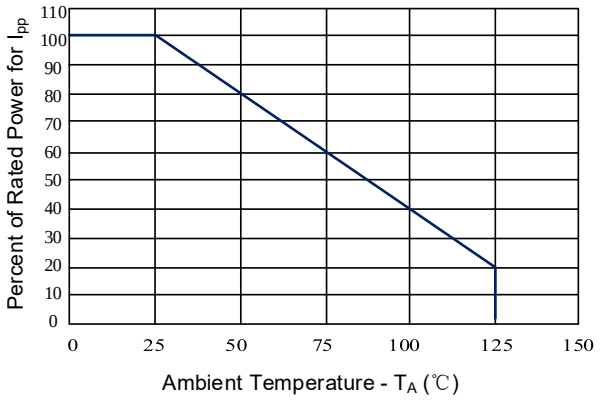



**Figure 3: Clamping Voltage vs. Peak Pulse Current**

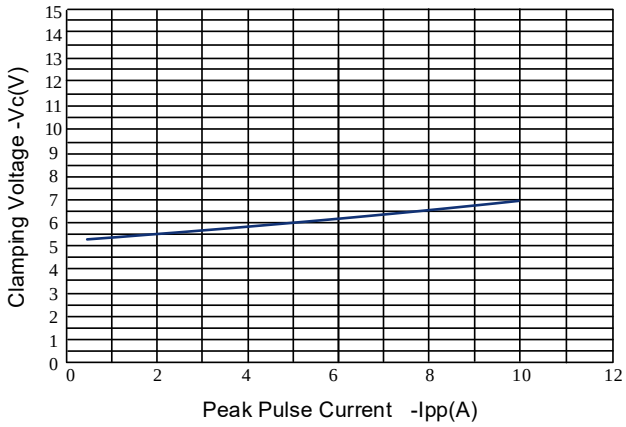



**Figure 4: Normalized Junction Capacitance vs. Reverse Voltage**

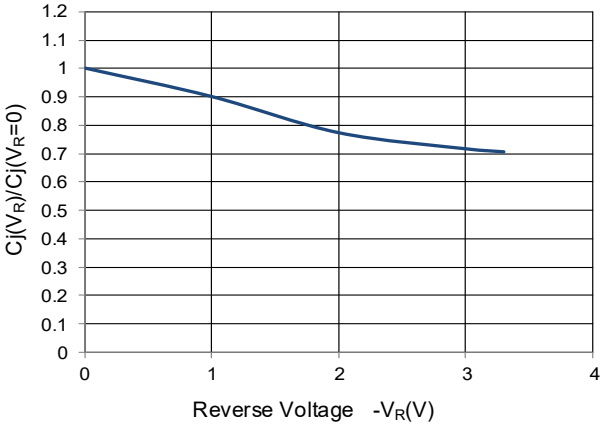



**Figure 5: TLP Positive I-V Curve**

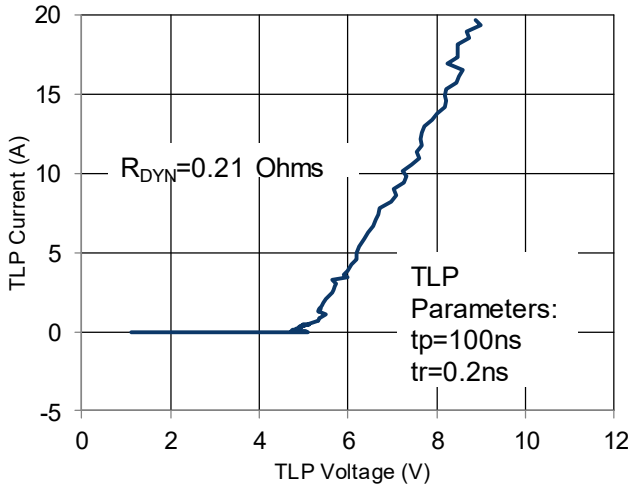
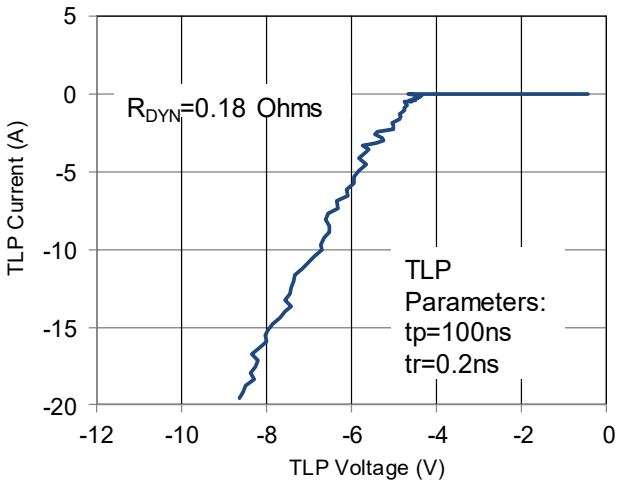
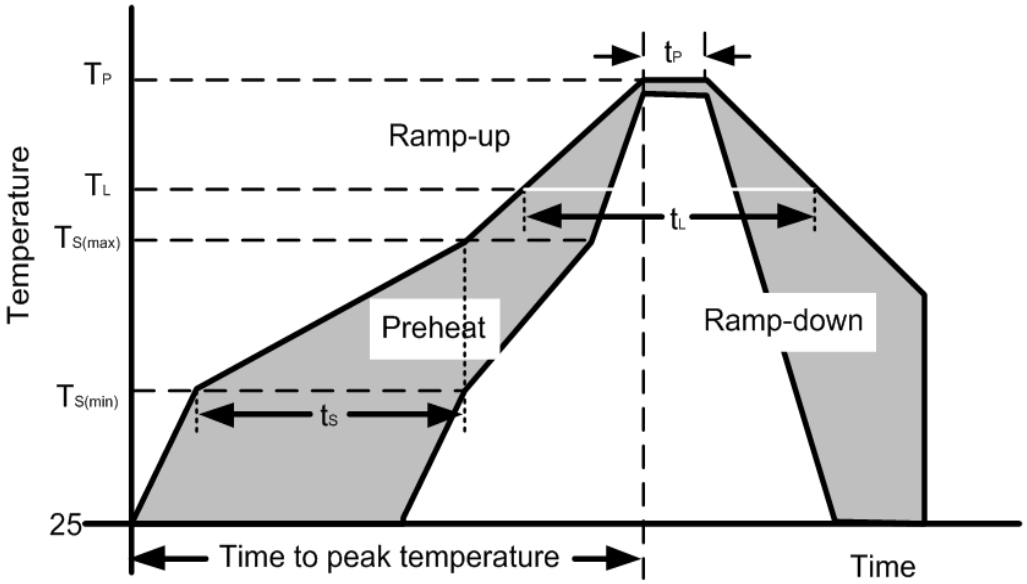



**Figure 6: TLP Negative I-V Curve**



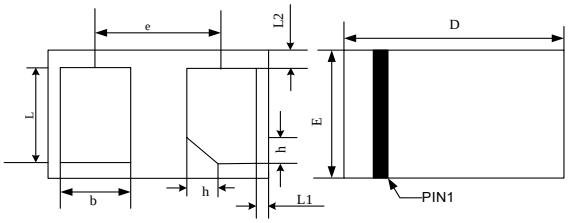
## Soldering Parameters

| Reflow Condition | | Pb – Free assembly |
|---|---|---|
| Pre Heat | Temperature Min ($T_{s(min)}$) | 150°C |
| | Temperature Max ($T_{s(max)}$) | 200°C |
| | Time (min to max) (ts ) | 60 – 190 secs |
| Average ramp up rate (Liquidus Temp) ($T_L$) to peak | | 5°C/second max |
| $T_{S(max)}$ to $T_L$——Ramp-up Rate | | 5°C/second max |
| Reflow | Temperature ($T_L$) (Liquidus) | 217°C |
| | Temperature ($t_L$) | 60 – 150 seconds |
| Peak Temperature ($T_P$) | | 260+0/-5℃ |
| Time within actual peak Temperature ($t_p$ ) | | 20 – 40 seconds |
| Ramp-down Rate | | 5°C/second max |
| Time 25°C to peak Temperature ($T_P$) | | 8 minutes Max. |
| Do not exceed | | 280°C |

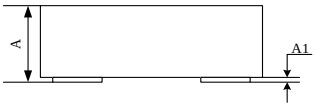


## Outline Drawing –DFN0603-2L

### PACKAGE OUTLINE




Bottom View Top View

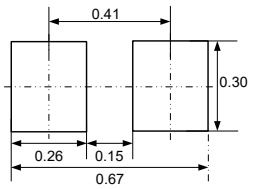



Side View

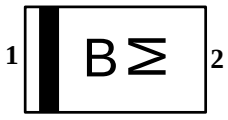
DFN0603-2L

| SYMBOL | MILIMETER | | | Dimension In Inches | | |
|---|---|---|---|---|---|---|
| | NOM | MIN | MAX | NOM | MIN | MAX |
| A | -- | 0.280 | 0.320 | -- | 0.011 | 0.013 |
| A1 | -- | -- | 0.050 | -- | -- | 0.002 |
| D | 0.610 | 0.570 | 0.630 | 0.024 | 0.022 | 0.025 |
| E | 0.310 | 0.270 | 0.330 | 0.012 | 0.011 | 0.013 |
| b | 0.180 | 0.155 | 0.205 | 0.007 | 0.006 | 0.008 |
| L | 0.240 | 0.200 | 0.260 | 0.009 | 0.008 | 0.010 |
| h | -- | 0.050 | 0.100 | -- | 0.002 | 0.004 |
| L1 | 0.035REF | | | 0.001REF | | |
| L2 | 0.035REF | | | 0.001REF | | |
| e | 0.360BSC | | | 0.014BSC | | |

### Land Pattern




## Marking Codes

| Part Number | Marking Code |
|---|---|
| DW03DMS-B-E |  |



## Package Information

Qty：15k/Reel