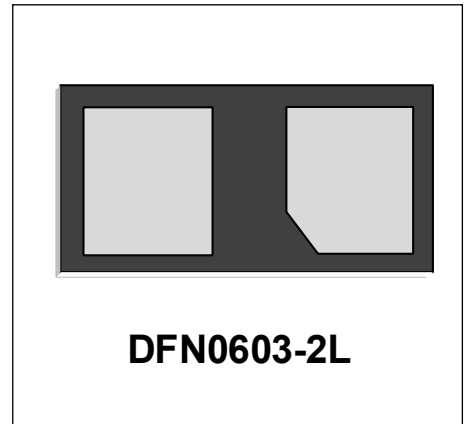




## Features

- 100 Watts Peak Pulse Power per Line ( $t_p = 8/20\mu s$ )
- Small Body Outline Dimensions
- Protects one I/O or Power Line
- Low Clamping Voltage
- Working Voltage: 5V
- Low Leakage Current



## IEC Compatibility (EN61000-4)

- IEC 61000-4-2 (ESD)  $\pm 30kV$  (air),  $\pm 30kV$  (contact)
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 10A (8/20 $\mu s$ )

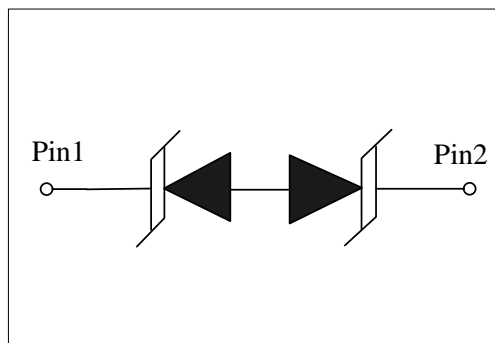
## Mechanical Characteristics

- 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)

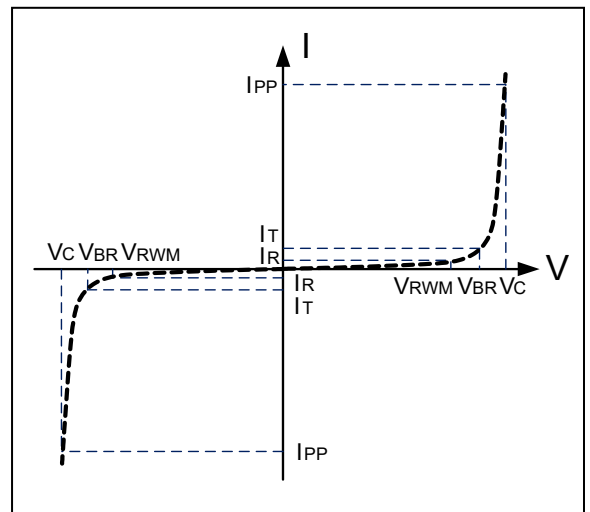
## Schematic & PIN Configuration



| Absolute Maximum Rating                  |           |              |       |
|--|-----------|--------------|-------|
| Rating                                   | Symbol    | Value        | Units |
| Peak Pulse Power ( $t_p = 8/20\mu s$ )   | $P_{PP}$  | 100          | W     |
| Peak Pulse Current ( $t_p = 8/20\mu s$ ) | $I_{PP}$  | 10           | A     |
| Operating Temperature                    | $T_J$     | -55 to + 125 | °C    |
| Storage Temperature                      | $T_{STG}$ | -55 to +150  | °C    |

### Electrical Parameters (T=25°C)

| 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

| DW05DMS-BH-E                      |           |  |         |         |         |          |
|-----------------------------------|-----------|--|---------|---------|---------|----------|
| Parameter                         | Symbol    | Conditions                                 | Minimum | Typical | Maximum | Units    |
| Reverse Stand-Off Voltage         | $V_{RWM}$ |  |         |         | 5       | V        |
| Reverse Breakdown Voltage         | $V_{BR}$  | $I_T=1mA$                                  | 5.6     |         |         | V        |
| Reverse Leakage Current           | $I_R$     | $V_{RWM}=5V, T=25^\circ C$                 |         |         | 100     | nA       |
| Clamping Voltage                  | $V_C$     | $I_{PP}=10A, t_p=8/20\mu s$                |         | 8       | 10      | V        |
| Dynamic Resistance <sup>1,2</sup> | $R_{DYN}$ | TLP=0.2/100ns                              |         | 0.2     |         | $\Omega$ |
| ESD Clamping Voltage <sup>1</sup> | $V_C$     | $I_{PP} = 4A,$<br>$t_p = 0.2/100ns$ (TLP)  |         | 5.9     |         | V        |
| ESD Clamping Voltage <sup>1</sup> | $V_C$     | $I_{PP} = 16A,$<br>$t_p = 0.2/100ns$ (TLP) |         | 7.7     |         | 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".

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## Typical Characteristics

Figure 1: Peak Pulse Power Vs Pulse Time

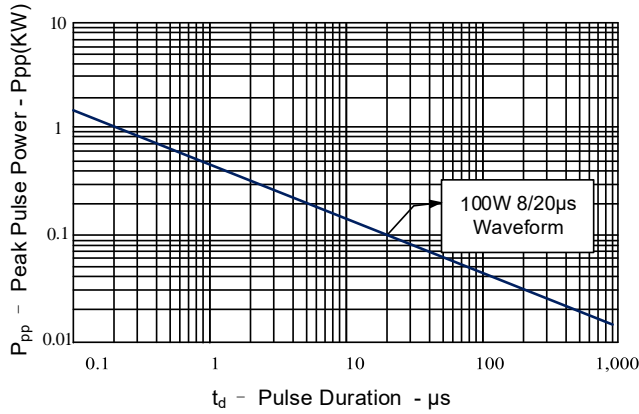


Figure 2: Power Derating Curve

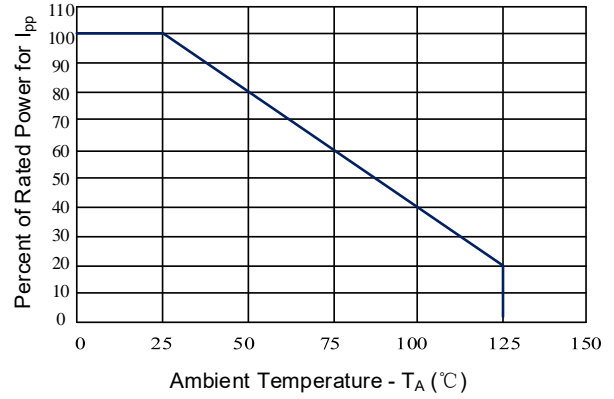


Figure 3: Clamping Voltage vs. Peak Pulse Current

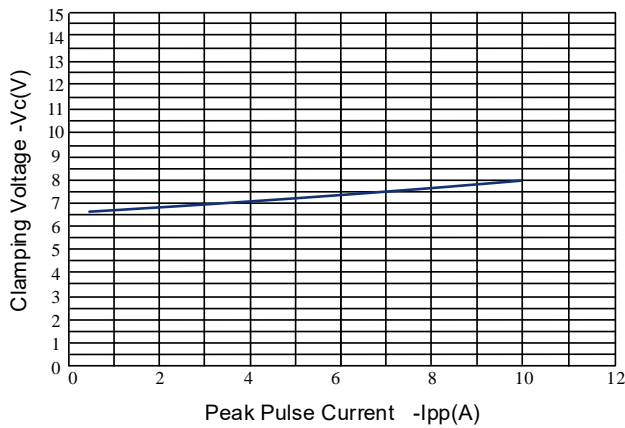


Figure 4: Normalized Junction Capacitance vs. Reverse Voltage

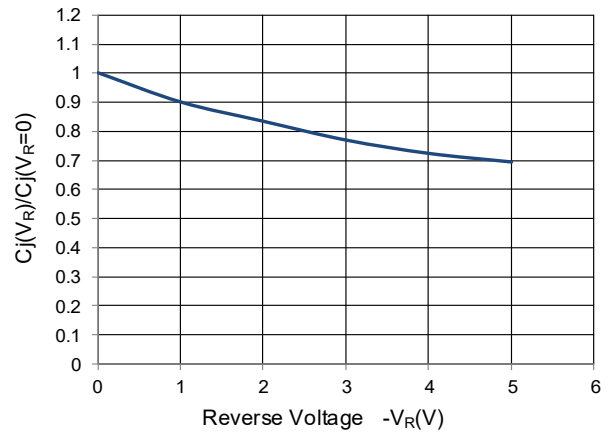


Figure 5: TLP Positive I-V Curve

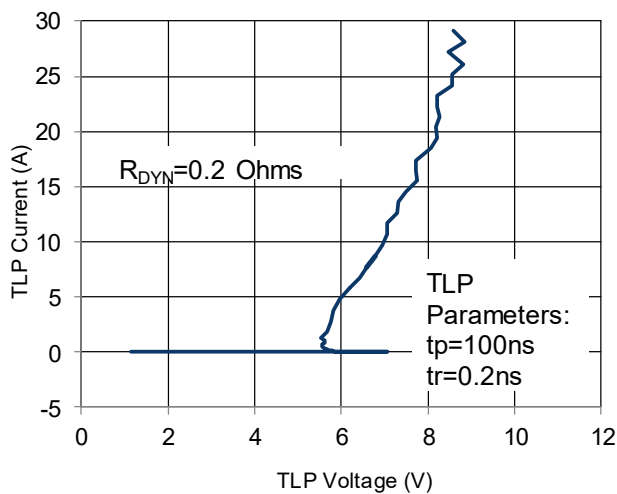
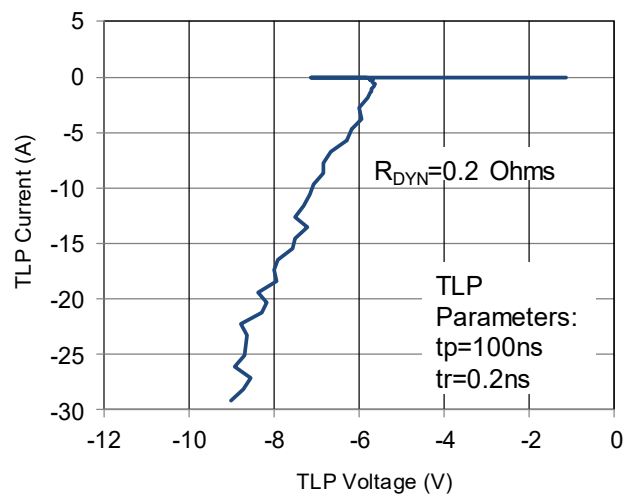


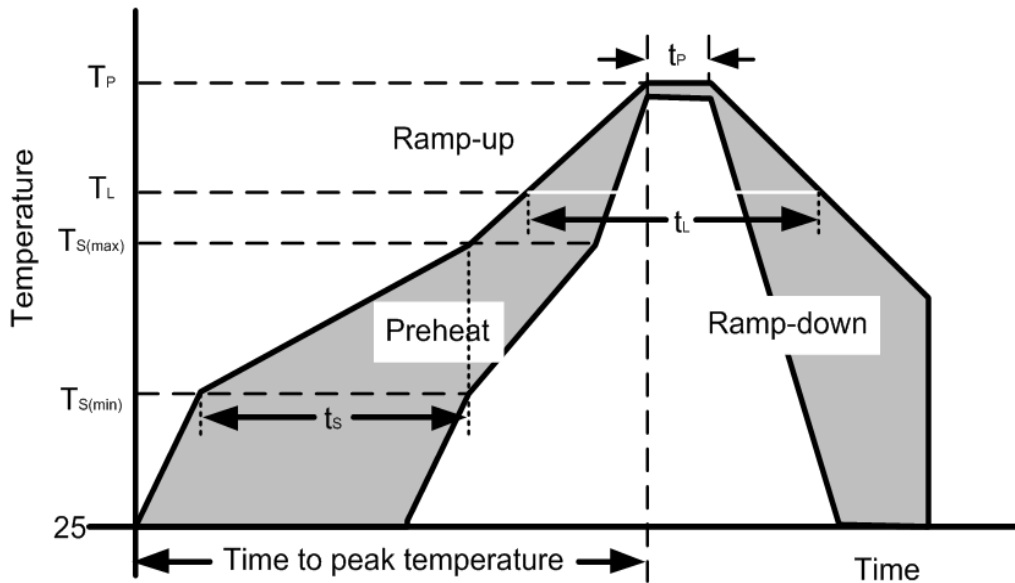
Figure 6: TLP Negative I-V Curve



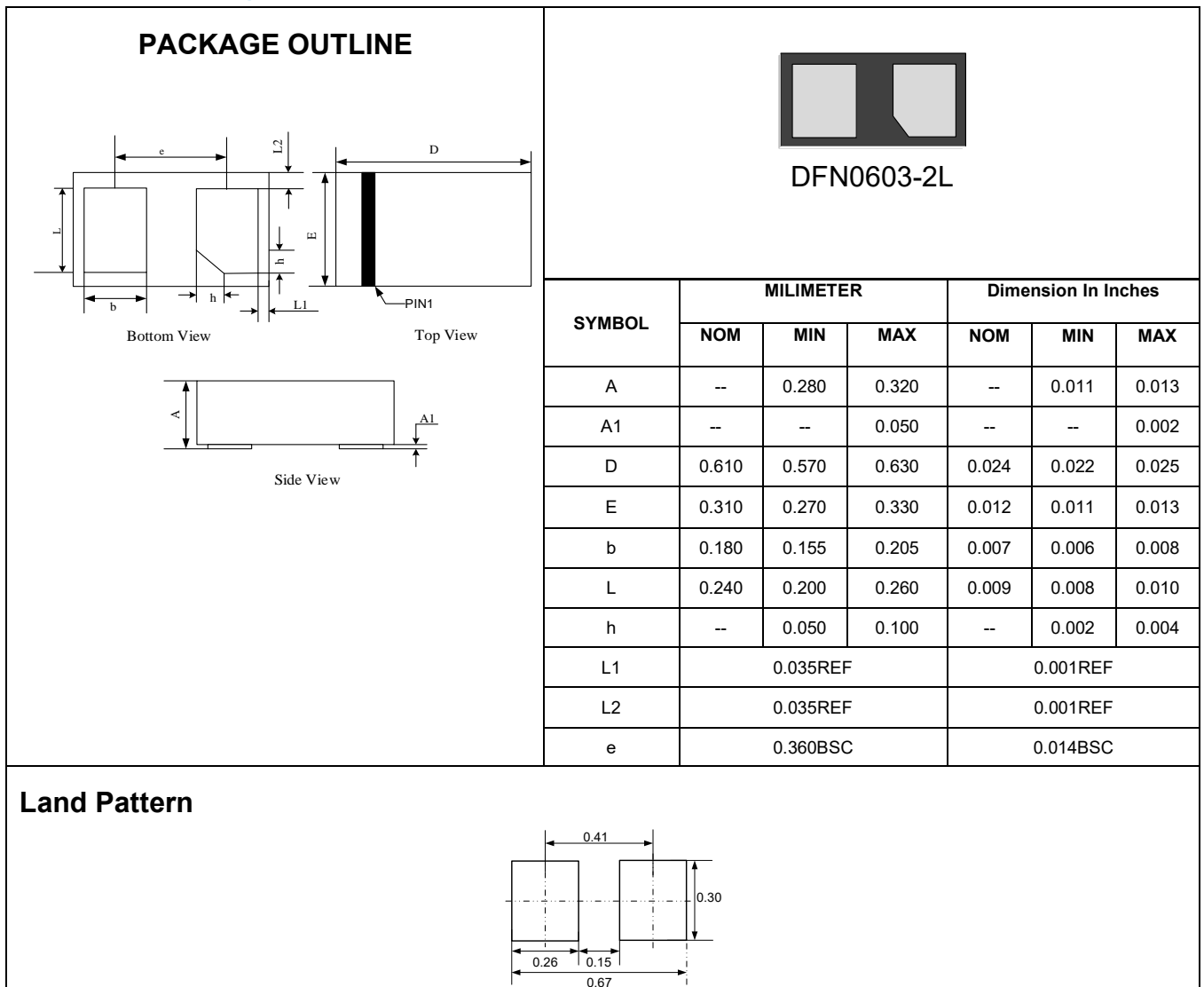


## Soldering Parameters


| 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) ( $t_s$ )      | 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 °C        |
| 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



## Marking Codes

| Part Number  | Marking Code  |
|--------------|---|
| DW05DMS-BH-E |  <p>PIN 1<br/>A ≡<br/>M</p> <p>A = Specific Device Code<br/>M = Month Code</p> |

## Package Information

Qty: 15k/Reel