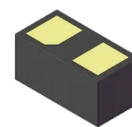


## FEATURES

- | 100W Peak Pulse Power per Line (tp=8/20μs)
- | Protects One bidirectional I/O line
- | Working voltages : 5 V
- | Low leakage current
- | Low clamping voltage

## APPLICATIONS

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



DFN0603



Marking

## IEC COMPATIBILITY

- | IEC61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
- | IEC61000-4-4 (EFT) 40A (5/50ns)

## APPROVALS

|      |                                    |
|------|------------------------------------|
| RoHS | Compliance with 2011/65/EU         |
| HF   | Compliance with IEC61249-2-21:2003 |



Schematic Symbol

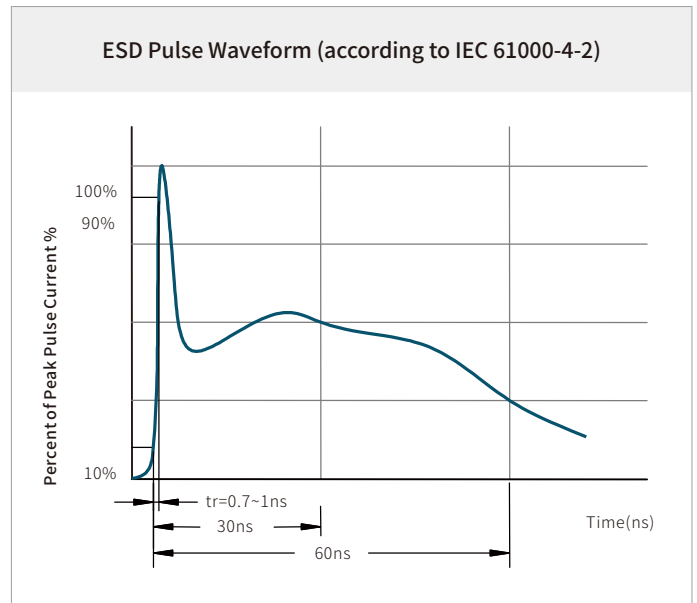
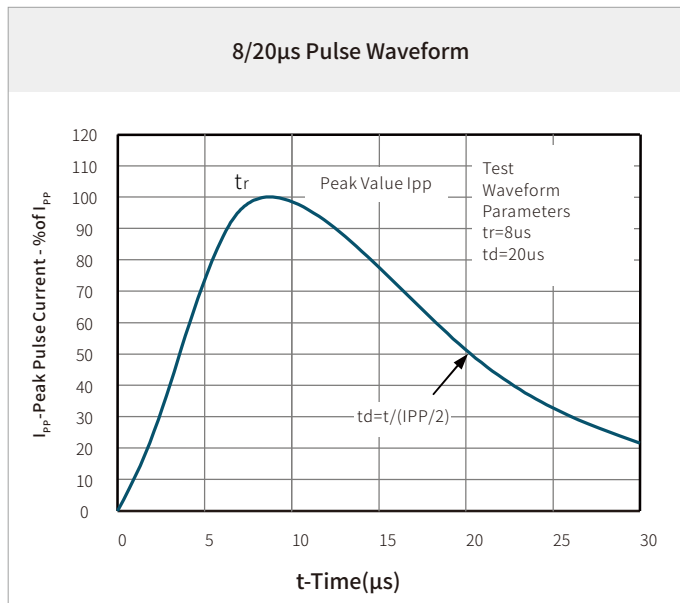
## THERMAL CONSIDERATIONS

| Symbol           | Parameter                             | Value       | Unit  |
|------------------|---------------------------------------|-------------|-------|
| P <sub>pp</sub>  | Peak Pulse Power (tp=8/20μs waveform) | 100         | Watts |
| T <sub>J</sub>   | Operating Temperature Range           | -55 to +150 | °C    |
| T <sub>STG</sub> | Storage Temperature Range             | -55 to +150 | °C    |

## ELECTRICAL CHARACTERISTICS

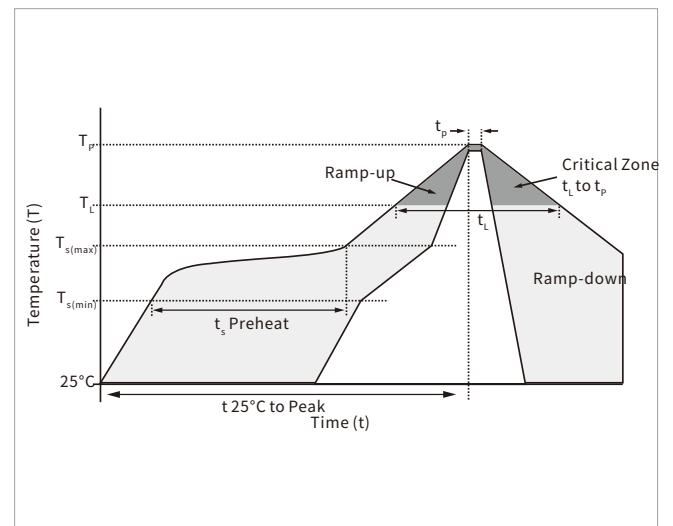
| Symbol           | Parameter                      | Condition                        | Min. | Typ. | Max. | Unit |
|------------------|--------------------------------|----------------------------------|------|------|------|------|
| V <sub>RWM</sub> | Reverse Stand-off Voltage      |                                  |      |      | 5    | V    |
| V <sub>BR</sub>  | Reverse Breakdown Voltage      | I <sub>T</sub> =1mA              | 5.6  |      |      | V    |
| I <sub>R</sub>   | Reverse Leakage Current        | V <sub>RWM</sub> =5V             |      |      | 0.5  | μA   |
| V <sub>C</sub>   | Clamping Voltage (Tp=8/20us)   | I <sub>pp</sub> =1A, tp=8/20us   |      |      | 9.8  | V    |
| V <sub>C</sub>   | Clamping Voltage (Tp=8/20us)   | I <sub>pp</sub> =5.5A, tp=8/20us |      |      | 12.5 | V    |
| I <sub>pp</sub>  | Peak Pulse Current (Tp=8/20us) | tp=8/20us                        |      |      | 5.5  | A    |
| C <sub>J</sub>   | Off State Junction Capacitance | V <sub>R</sub> =0V, f=1MHz       |      | 15   |      | pF   |

## CHARACTERISTIC CURVES

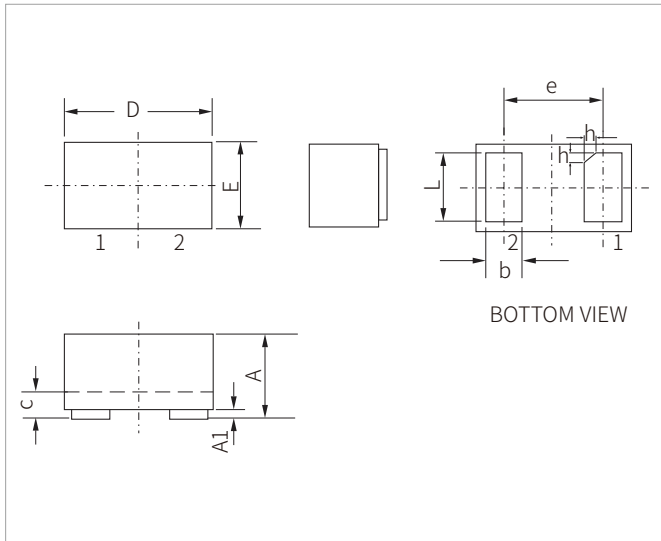


## SOLDERING PARAMETERS

| Reflow Condition                                       |                                  | Lead-free assembly |
|--------------------------------------------------------|----------------------------------|--------------------|
| Pre Heat                                               | Temperature Max ( $T_{s(min)}$ ) | 150°C              |
|                                                        | Temperature Max ( $T_{s(max)}$ ) | 200°C              |
|                                                        | Time (min to max) ( $t_s$ )      | 60 – 180 secs      |
| Average ramp up rate (Liquidus Temp ( $T_L$ ) to peak) |                                  | 3°C/second max     |
| $T_{s(max)}$ to $T_L$ - Ramp-up Rate                   |                                  | 3°C/second max     |
| Reflow                                                 | Temperature ( $T_L$ ) (Liquidus) | 217°C              |
|                                                        | Time (min to max) ( $t_L$ )      | 60 – 150 seconds   |
| Peak Temperature ( $T_p$ )                             |                                  | 260°C              |
| Time within 5°C of actual peak Temperature ( $t_p$ )   |                                  | 20 – 40 seconds    |
| Ramp-down Rate                                         |                                  | 6°C/second max     |
| Time 25°C to peak Temperature ( $T_p$ )                |                                  | 8 minutes max.     |
| Do not exceed                                          |                                  | 260°C              |

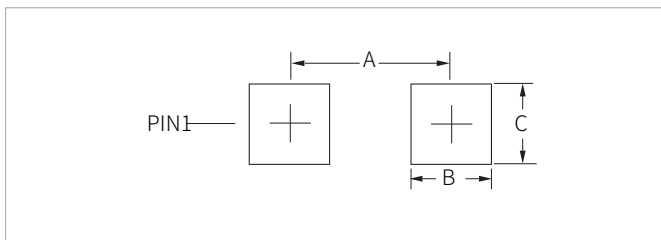


## DFN0603 PACKAGE INFORMATION



| Ref. | Millimeters |      |      | Inches   |       |       |
|------|-------------|------|------|----------|-------|-------|
|      | Min.        | Nom. | Max. | Min.     | Nom.  | Max.  |
| A    | 0.28        | 0.30 | 0.36 | 0.011    | 0.012 | 0.014 |
| A1   | 0           | 0    | 0.05 | 0        | 0     | 0.002 |
| b    | 0.13        | 0.18 | 0.24 | 0.005    | 0.007 | 0.009 |
| c    | 0.05        | -    | 0.15 | 0.002    | -     | 0.006 |
| D    | 0.55        | 0.60 | 0.70 | 0.022    | 0.024 | 0.028 |
| e    | 0.35BSC     |      |      | 0.014BSC |       |       |
| E    | 0.25        | 0.30 | 0.35 | 0.010    | 0.012 | 0.014 |
| L    | 0.20        | 0.25 | 0.30 | 0.008    | 0.010 | 0.012 |
| h    | 0           | -    | 0.10 | 0        | -     | 0.004 |

## RECOMMENDED PAD LAYOUT DIMENSIONS



| Ref. | Millimeters | Inches |
|------|-------------|--------|
| A    | 0.38        | 0.015  |
| B    | 0.23        | 0.009  |
| C    | 0.30        | 0.012  |

## ORDERING INFORMATION

| Part Number | Component Package | QTY/Reel | Reel Size |
|-------------|-------------------|----------|-----------|
| ESD5451XZ   | DFN0603           | 15000PCS | 7"        |

To find your local partner within Semiwell' s website : [www.semiwell.com](http://www.semiwell.com)

© 2023 Semiwell Microelectronics Co.,Ltd.

The content of this document has been carefully checked and understood. However, neither Semiwell nor its subsidiaries assume any liability whatsoever for any errors or inaccuracies of this document and the consequences thereof. Published specifications are subject to change without notice. Product suitability for any area of application must ultimately be determined by the customer. In all cases, products must never be operated outside their published specifications. Semiwell does not guarantee the availability of all published products. This disclaimer shall be governed by substantive Chinese law and resulting disputes shall be settled by the courts at the place of business of Semiwell. Latest publications and a complete disclaimer can be downloaded from the Semiwell website. All trademarks recognized.