

## FEATURES

- | 300 Watts Peak Pulse Power per Line (tp=8/20μs)
- | Package optimized for high-speed line
- | Protects one data or control line
- | Working voltage: 5V
- | Low Leakage Current
- | Low Clamping Voltage

## APPLICATIONS

- | USB 3.x
- | MHL 2.0
- | SATA/SAS
- | PCI Express
- | RF Antenna



DFN1006



Marking

## IEC COMPATIBILITY

- | IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact)
- | IEC61000-4-4 (EFT) 40A (5/50ns)

## APPROVALS

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



Schematic Symbol

## THERMAL CONSIDERATIONS

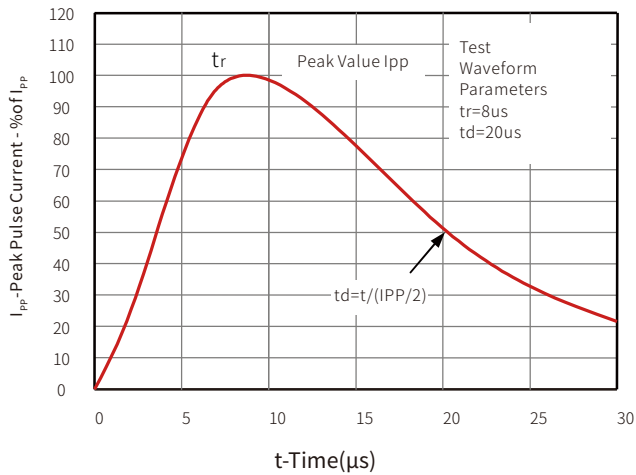
| Symbol           | Parameter                             | Value       | Unit  |
|------------------|---------------------------------------|-------------|-------|
| P <sub>pp</sub>  | Peak Pulse Power (tp=8/20μs waveform) | 300         | Watts |
| T <sub>J</sub>   | Operating Temperature Range           | -55 to +125 | °C    |
| T <sub>STG</sub> | Storage Temperature Range             | -55 to +150 | °C    |

## ELECTRICAL CHARACTERISTICS

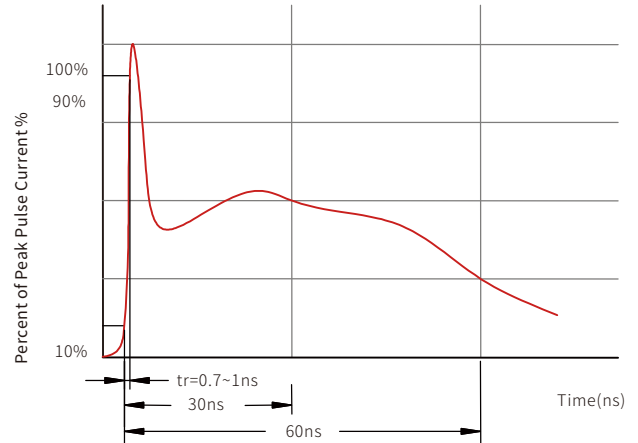
| Symbol             | Parameter                 | Condition                                       | Min. | Typ. | Max. | Unit |
|--------------------|---------------------------|-------------------------------------------------|------|------|------|------|
| V <sub>RWM</sub>   | Reverse Working Voltage   | Pin to Pin                                      |      |      | 5    | V    |
| V <sub>BR</sub>    | Reverse Breakdown Voltage | I <sub>T</sub> =1mA                             | 6.5  |      |      | V    |
| V <sub>H</sub>     | Holding Reverse Voltage   | I <sub>H</sub> =50mA                            | 5.5  |      |      | V    |
| I <sub>R</sub>     | Reverse Leakage Current   | V <sub>RWM</sub> =5V                            |      |      | 100  | nA   |
| V <sub>C</sub>     | Clamping Voltage          | I <sub>pp</sub> =1A, tp=8/20μs                  |      | 6.4  | 8.5  | V    |
| V <sub>C</sub>     | Clamping Voltage          | I <sub>pp</sub> =8A, tp=8/20μs                  |      | 10.5 | 12.5 | V    |
| V <sub>C</sub>     | Clamping Voltage          | I <sub>pp</sub> =15A, tp=8/20μs                 |      | 16   | 20   | V    |
| V <sub>CTLTP</sub> | TLP Clamping Voltage      | I <sub>TLP</sub> =16A, tp=100ns                 |      | 11.5 |      | V    |
| R <sub>DYN</sub>   | Dynamic Resistance        | I <sub>TLP</sub> = 4A to I <sub>TLP</sub> = 16A |      | 0.32 |      | Ω    |
| I <sub>PP</sub>    | Peak Pulse Current        | tp=8/20μs                                       |      |      | 15   | A    |
| C <sub>J</sub>     | Junction Capacitance      | V <sub>R</sub> =0V, f=1MHz                      |      | 0.2  | 0.3  | pF   |

## CHARACTERISTIC CURVES

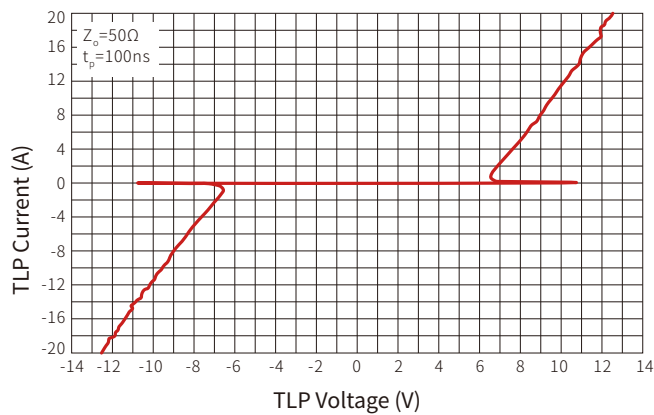
8/20 $\mu$ s Pulse Waveform



ESD Pulse Waveform (according to IEC 61000-4-2)

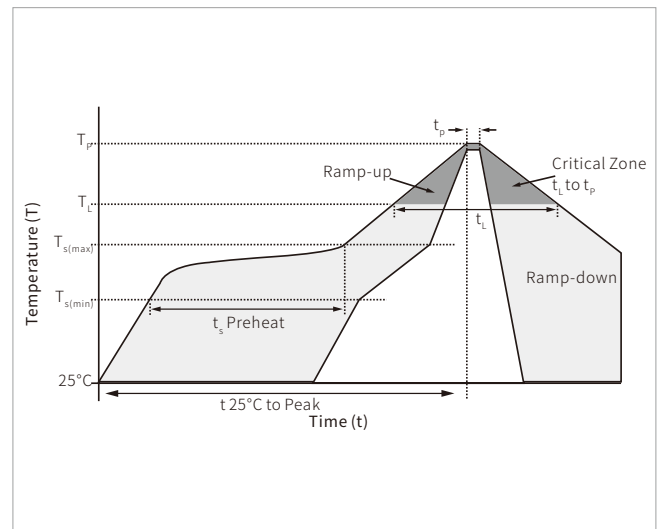


Transmission Line Pulsing (TLP) Measurement

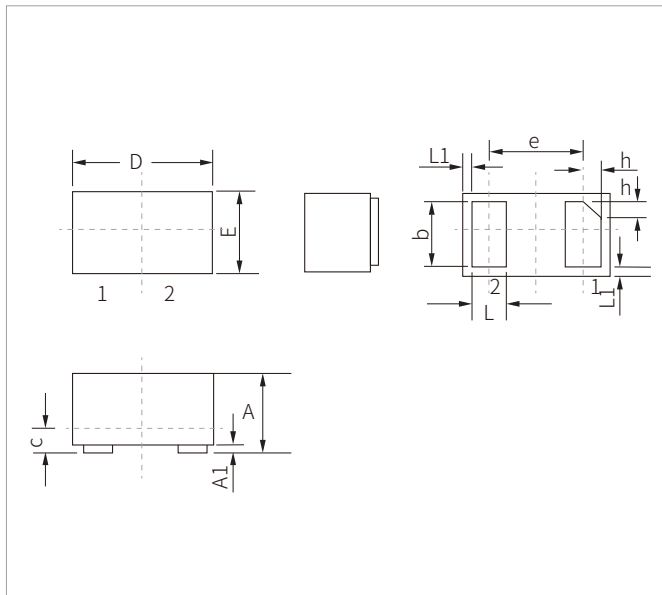


## SOLDERING PARAMETERS

| 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              |

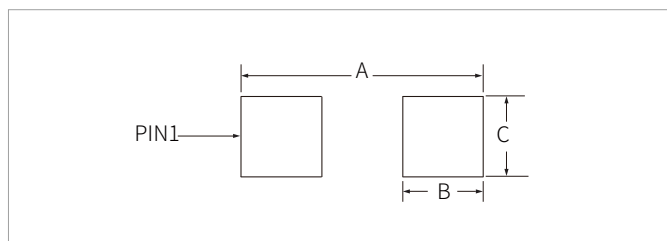


## DFN1006 PACKAGE INFORMATION



| Ref. | Millimeters |      | Inches   |       |
|------|-------------|------|----------|-------|
|      | Min.        | Max. | Min.     | Max.  |
| A    | 0.40        | 0.60 | 0.016    | 0.024 |
| A1   | 0           | 0.05 | 0        | 0.002 |
| b    | 0.40        | 0.55 | 0.016    | 0.022 |
| c    | 0.12        | 0.18 | 0.005    | 0.007 |
| D    | 0.90        | 1.10 | 0.035    | 0.043 |
| e    | 0.65BSC     |      | 0.026BSC |       |
| E    | 0.55        | 0.75 | 0.022    | 0.030 |
| L    | 0.20        | 0.35 | 0.008    | 0.014 |
| L1   | 0.05REF     |      | 0.002REF |       |
| h    | 0.07        | 0.17 | 0.003    | 0.007 |

## RECOMMENDED PAD LAYOUT DIMENSIONS



| Ref. | Millimeters | Inches |
|------|-------------|--------|
| A    | 1.20        | 0.047  |
| B    | 0.47        | 0.019  |
| C    | 0.60        | 0.024  |

## ORDERING INFORMATION

| Part Number      | Component Package | QTY/Reel | Reel Size |
|------------------|-------------------|----------|-----------|
| SE10F30B5.0UA-SP | DFN1006           | 10000PCS | 7"        |

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