

## FEATURES

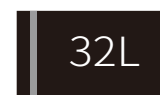
- 56W Peak Pulse Power per Line (tp=8/20μs)
- Protects two data lines
- Working voltages : 3.3 V
- Low leakage current
- Low clamping voltage

## APPLICATIONS

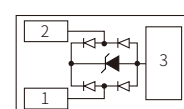
- Serial ATA
- Desktops, Servers and Notebooks
- PCI Express
- MDDI Ports
- USB Data Line Protection
- Display Ports
- Digital Visual Interfaces (DVI)



DFN1006-3L



Marking



Schematic Symbol

## IEC COMPATIBILITY

- IEC61000-4-2 (ESD) ±20kV (air), ±20kV (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)

## APPROVALS

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

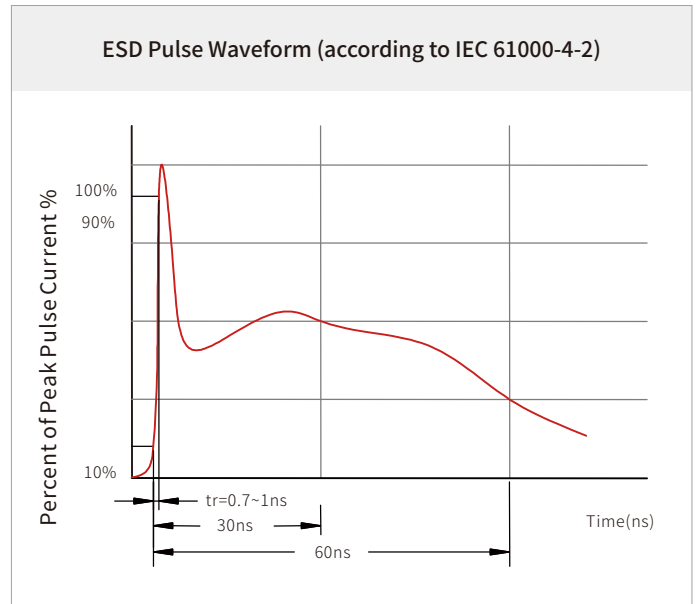
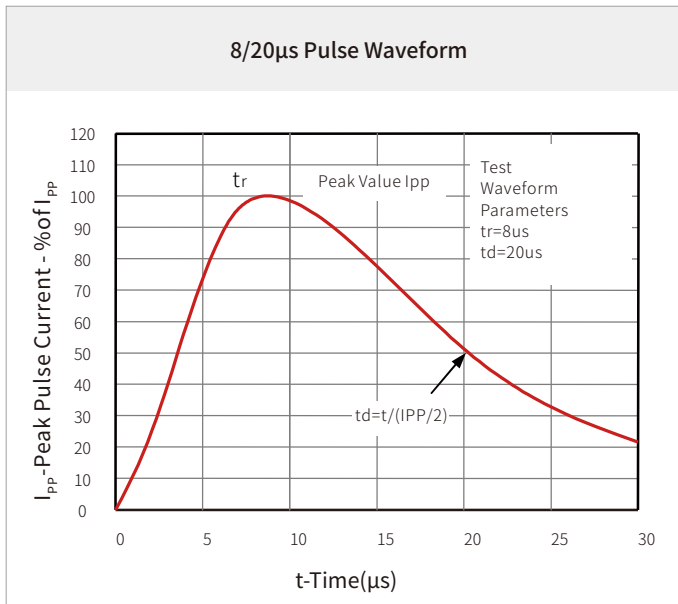
## THERMAL CONSIDERATIONS

| Symbol    | Parameter                             | Value       | Unit  |
|-----------|---------------------------------------|-------------|-------|
| $P_{pp}$  | Peak Pulse Power (tp=8/20μs waveform) | 56          | Watts |
| $T_J$     | Operating Temperature Range           | -55 to +125 | °C    |
| $T_{STG}$ | Storage Temperature Range             | -55 to +150 | °C    |

## ELECTRICAL CHARACTERISTICS

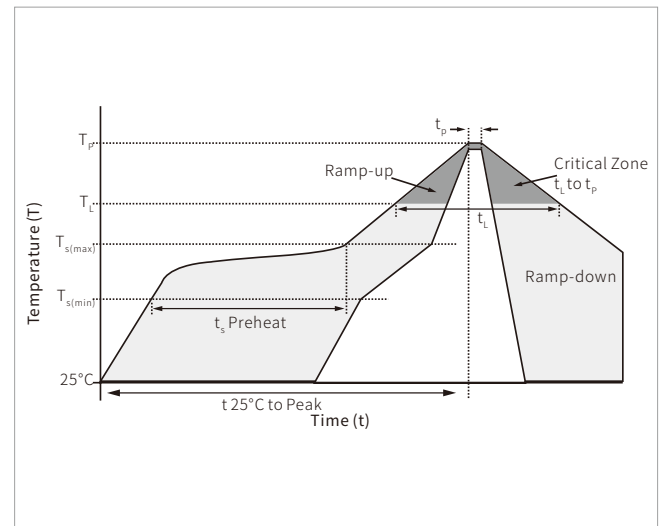
| Symbol    | Parameter                      | Condition                           | Min. | Typ. | Max. | Unit |
|-----------|--------------------------------|-------------------------------------|------|------|------|------|
| $V_{RWM}$ | Reverse Stand-off Voltage      |                                     |      |      | 3.3  | V    |
| $V_{BR}$  | Reverse Breakdown Voltage      | $I_T=1mA$                           | 4.2  |      |      | V    |
| $I_R$     | Reverse Leakage Current        | $V_{RWM}=3.3V$                      |      |      | 100  | nA   |
| $V_C$     | Clamping Voltage               | $I_{pp}=1A, tp=8/20\mu s$           |      |      | 10   | V    |
| $V_C$     | Clamping Voltage               | $I_{pp}=4A, tp=8/20\mu s$           |      |      | 14   | V    |
| $I_{PP}$  | Peak Pulse Current             | $tp=8/20\mu s$                      |      |      | 4    | A    |
| $V_F$     | Forward Voltage                | $I_F=10mA$<br>$I/O$ and GND         |      |      | 1.2  | V    |
| $C_J$     | Off State Junction Capacitance | $V_R=0V, f=1MHz$<br>$I/O$ and GND   |      | 0.4  | 0.6  | pF   |
| $C_J$     | Off State Junction Capacitance | $V_R=0V, f=1MHz$<br>$I/O$ and $I/O$ |      | 0.2  | 0.3  | pF   |

## CHARACTERISTIC CURVES

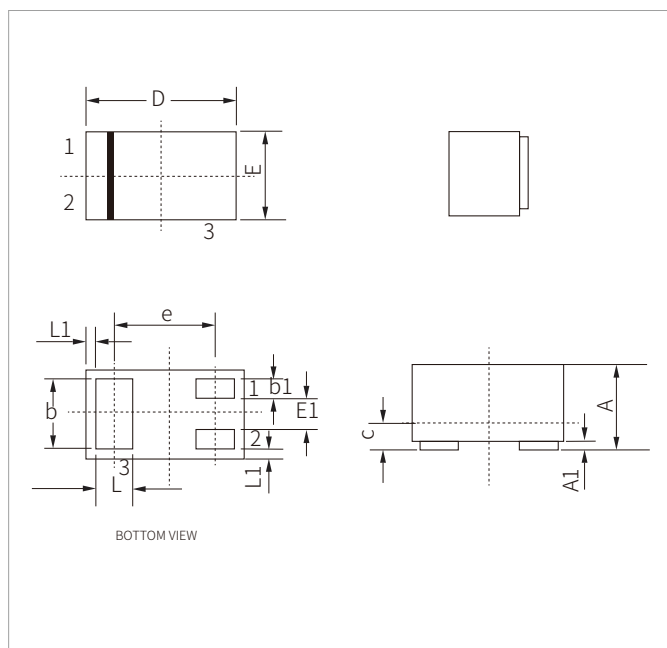


## SOLDERING PARAMETERS

| 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              |

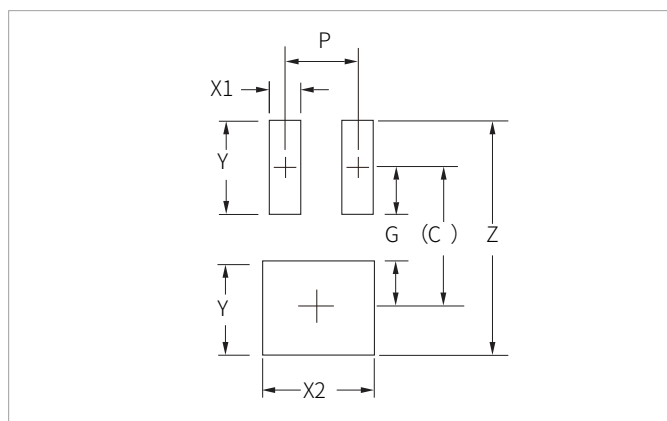


## DFN1006-3L PACKAGE INFORMATION



| Ref. | Millimeters |      | Inches   |       |
|------|-------------|------|----------|-------|
|      | Min.        | Max. | Min.     | Max.  |
| A    | 0.35        | 0.60 | 0.014    | 0.024 |
| A1   | 0           | 0.05 | 0        | 0.002 |
| b    | 0.45        | 0.55 | 0.018    | 0.022 |
| b1   | 0.10        | 0.20 | 0.004    | 0.008 |
| c    | 0.12        | 0.18 | 0.005    | 0.007 |
| D    | 0.95        | 1.05 | 0.037    | 0.041 |
| e    | 0.65BSC     |      | 0.026BSC |       |
| E    | 0.55        | 0.70 | 0.022    | 0.027 |
| E1   | 0.20        | 0.30 | 0.008    | 0.014 |
| L    | 0.20        | 0.30 | 0.008    | 0.012 |
| L1   | 0.05REF     |      | 0.002REF |       |

## RECOMMENDED PAD LAYOUT DIMENSIONS



| Ref. | Millimeters | Inches  |
|------|-------------|---------|
| C    | (0.85)      | (0.033) |
| P    | 0.40        | 0.016   |
| G    | 0.30        | 0.012   |
| X1   | 0.20        | 0.008   |
| X2   | 0.60        | 0.024   |
| Y    | 0.55        | 0.022   |
| Z    | 1.40        | 0.055   |

## ORDERING INFORMATION

| Part Number     | Component Package | QTY/Reel | Reel Size |
|-----------------|-------------------|----------|-----------|
| SE10P3F06U3.3MA | DFN1006-3L        | 10000PCS | 7"        |

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