# ESDN1201P1B

## 1-Line Bi-directional TVS Diode

## 1. Features

DFN1006-2L

- 2-pin lead-less package
- Junction capacitance (Max value: 40pF)
- Peak Pulse current (8/20µs) Max:35A
- IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact)
- Low clamping voltage
- Low leakage current
- Working voltages:12V
- RoHS Compliant

## 2. Mechanical Data

- Case:Molded Plastic,DFN1006-2L.
- Epoxy:UL 94V-0 rate flame retardant.
- Terminals:Plated Leads Solderable per MIL-STD-750, Method-2026.
- Marking:BF
- Marking:marked on body.

Bi-directional

## 3. Maximum Ratings

Electrical Characteristics Rating at 25℃ ambient temperature unless otherwise specified.

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Peak Pulse Power (tp=8/20µs waveform) | $P_{PP}$ | 1260 | W |
| Peak Pulse Current (8/20µs) | $I_{PP}$ | 35 | A |
| ESD per IEC 61000−4−2 (Air) | $V_{ESD}$ | ±30 | KV |
| ESD per IEC 61000−4−2 (Contact) | | ±30 | |
| Junction Temperature | $T_j$ | -55～＋125 | ℃ |
| Storage Temperature | $T_{stg}$ | -55～＋150 | ℃ |

## 4. Electrical Characteristics ($T_A$=25℃ unless otherwise noted)

| Characteristics | Symbol | Condition | Min | TYP | Max | Unit |
|---|---|---|---|---|---|---|
| Reverse Working Voltage | $V_{RWM}$ | | - | - | 12 | V |
| Reverse Breakdown Voltage | $V_{BR}$ | $I_R$ = 1mA | 13.3 | - | 16.5 | V |
| Reverse Leakage Current | $I_R$ | $V_R$ =12V | - | - | 0.2 | uA |
| Clamping voltage | $V_C$ | $I_{PP}$ = 1A,$T_P$=8/20us | - | - | 15.5 | V |
| Clamping voltage | $V_C$ | $I_{PP}$ = 15A,$T_P$=8/20us | - | - | 25 | V |
| Clamping voltage | $V_C$ | $I_{PP}$ = 35A,$T_P$=8/20us | - | - | 36 | V |
| Junction capacitance | $C_J$ | $V_R$ =0V,f =1MHz | - | 30 | 40 | pF |

## 5. Rating And Characteristic Curves

| FIG1：Power rating derating curve |
| :---: |



| FIG2：pulse Waveform |
| :---: |



Front time: Tf = 1.25 x Tr = 8us ± 20%
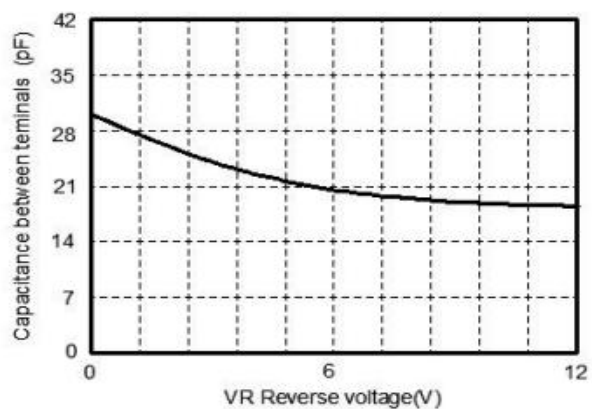Duration: Td = 1.18 x Tw = 20us ± 20%
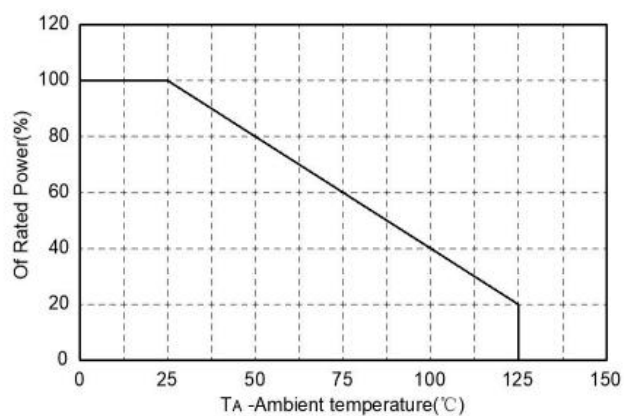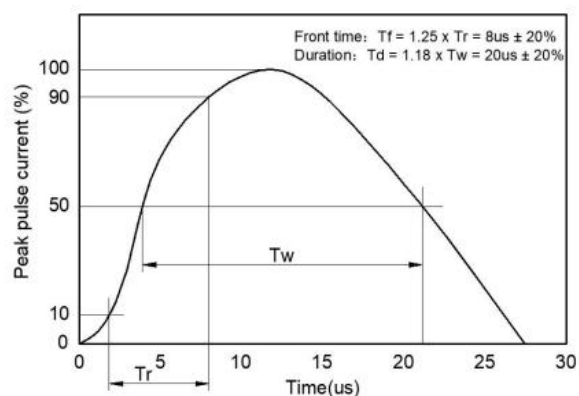
| FIG3：Capacitance between |
| :---: |



| FIG4: Clamping Voltage vs. Peak Pulse Current |
| :---: |
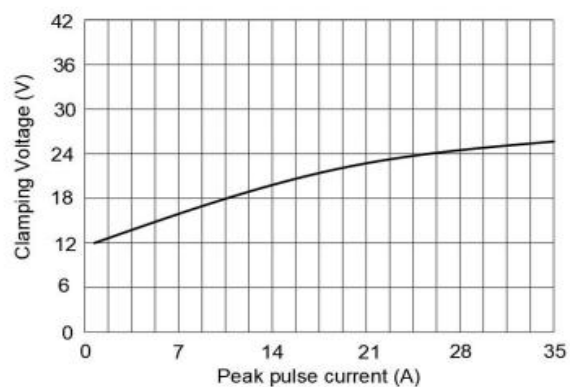
## 6. Soldering Parameters
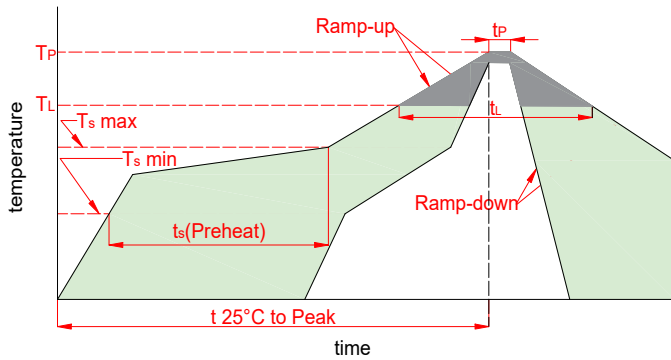


| Reflow Condition | | Lead-free |
|---|---|---|
| Pre Heat | Temp. min(T$_s$(min)) | 150℃ |
| | Temp. max(T$_s$(min)) | 200℃ |
| | Time(min to max)(t$_s$) | 60~120s |
| Aver. ramp up rate(Liquidus Temp.)(T$_L$)to peak | | 3℃/s max |
| T$_S$(max) to T$_L$-Ramp-up Rate | | 3℃/s max |
| Reflow | Temp.(T$_L$)(Liquidus) | 217℃ |
| | Temp.(t$_L$)(Liquidus) | 60~150s |
| Peak Temp.(T$_P$) | | 260$^{+0/-5}$℃ |
| Time within actual peak Temp.(t$_p$) | | 30s max |
| Ramp-down Rate | | 6℃/s max |
| Time 25℃ to peak Tempe.(T$_p$) | | 8 minutes max |
| Do not exceed | | 260℃ |

## 7. Dimensions
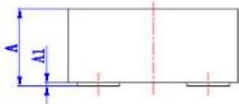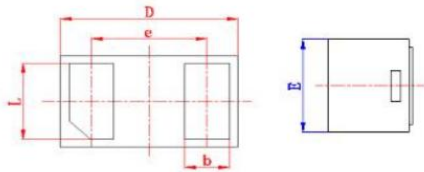


Mounting PAD Layout
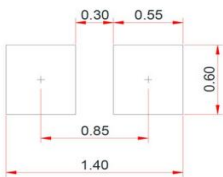


| Symbol | Inches | | Millimeters | |
|---|---|---|---|---|
| | Min | Max | Min | Max |
| A | 0.016 | 0.020 | 0.40 | 0.52 |
| A1 | 0.000 | 0.002 | 0.00 | 0.05 |
| D | 0.035 | 0.043 | 0.90 | 1.10 |
| E | 0.022 | 0.026 | 0.55 | 0.65 |
| e | 0.026 | | 0.65 | |
| b | 0.007 | 0.013 | 0.18 | 0.32 |
| L | 0.013 | 0.022 | 0.34 | 0.55 |

## 8. Part Numbering System          Part Marking System

Cathode Band



## 9. Package Information

| Package | Part Number | Marking Code | Quantity(pcs) |
|---|---|---|---|
| DFN1006-2L | ESDN1201P1B | BF | 10000 |

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