# ESD/Surge Protection Diode in DFN1610

## Features

- 800 Watts peak pulse power (Tp = 8/20µs)
- DFN1610 package
- Bidirectional configurations
- Solid-state silicon-avalanche technology
- Low clamping voltage
- Low leakage current
- Normal capacitance (Cj=20pF)
- Protection one data/power line to:
  IEC 61000-4-2 ±30kV contact ±30kV air
  IEC 61000-4-4 (EFT) 80A (5/50ns)
  IEC 61000-4-5 (Lightning) 8A (8/20 µs)
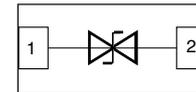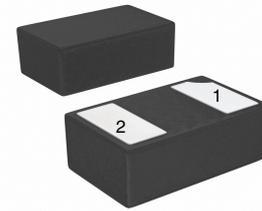
## Mechanical Data

- **Case:** DFN1610 (plastic package)
  Lead free; RoHS compliant; Halogen free
- **Molding Compound Flammability Rating:**
  UL 94 V-0
- **Terminals:** High temperature soldering guaranteed:
  260 °C/10 sec. at terminals

## Applications

- Charager Protection
- Parallel & Serial Port Protection
- Personal Digital Assistant (PDA)
- Microcontroller Input Protection
- Cellular Phones
- $I^2C$ Bus Protection

## Absolute Maximum Ratings

Ratings at 25 °C, ambient temperature unless otherwise specified

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Peak Pulse Power ($T_P$=8/20µS) | $P_{PP}$ | 800 | W |
| ESD contact/air discharge (IEC-61000-4-2) | $V_{ESD}$ | 30/30 | kV |
| Peak Pulse Current ($T_P$ = 8/20µS) | $I_{PP}$ | 8 | A |
| Junction Temperature | $T_J$ | -55 to +125 | ℃ |
| Storage temperature | $T_{STG}$ | -55 to +150 | ℃ |

## Electrical Characteristics

($T_A$ = 25 °C unless otherwise specified)

| Parameter | Symbol | Condition | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Reverse stand-off Voltage | $V_{RWM}$ | | | | 58 | V |
| Reverse Breakdown Voltage | $V_{BR}$ | $I_T$=1mA | 64.5 | | 71.5 | V |
| Reverse Leakage Current | $I_R$ | $V_R$=58V | | | 1 | uA |
| Clamping Voltage (IEC 61000-4-5) | $V_C$ | $I_{PP}$=8A | | 95 | | V |
| Junction Capacitance | $C_J$ | $V_R$=0V, f=1MHz | | 20 | | pF |

## Typical Characteristics ($T_{amb}$ = 25 °C unless otherwise specified)

### Fig.1 Peak Pulse Power Rating Curve



### Fig.2 Pulse Derating Curve



### Fig.3 Pulse Waveform-8/20μs



### Fig.4 Pulse Waveform-ESD(IEC61000-4-2)



## Package Dimensions



| DIMENSIONS | | | |
|---|---|---|---|
| SYMBOL | MILLIMETER | | |
| | MIN | NOM | MAX |
| A | 0.450 | 0.500 | 0.550 |
| A1 | 0.000 | 0.020 | 0.050 |
| b | 0.750 | 0.800 | 0.850 |
| c | 0.10 | 0.150 | 0.200 |
| D | 1.550 | 1.600 | 1.650 |
| e | 1.1BSC | | |
| E | 0.950 | 1.000 | 1.050 |
| L | 0.350 | 0.400 | 0.450 |
| L1 | 0.05REF | | |
| h | 0.150 | 0.200 | 0.250 |

## Pad Dimensions



| Dimensions | Value (mm) |
|---|---|
| C | 1.225 |
| G | 0.60 |
| X | 1.09 |
| Y | 0.625 |
| Z | 1.90 |
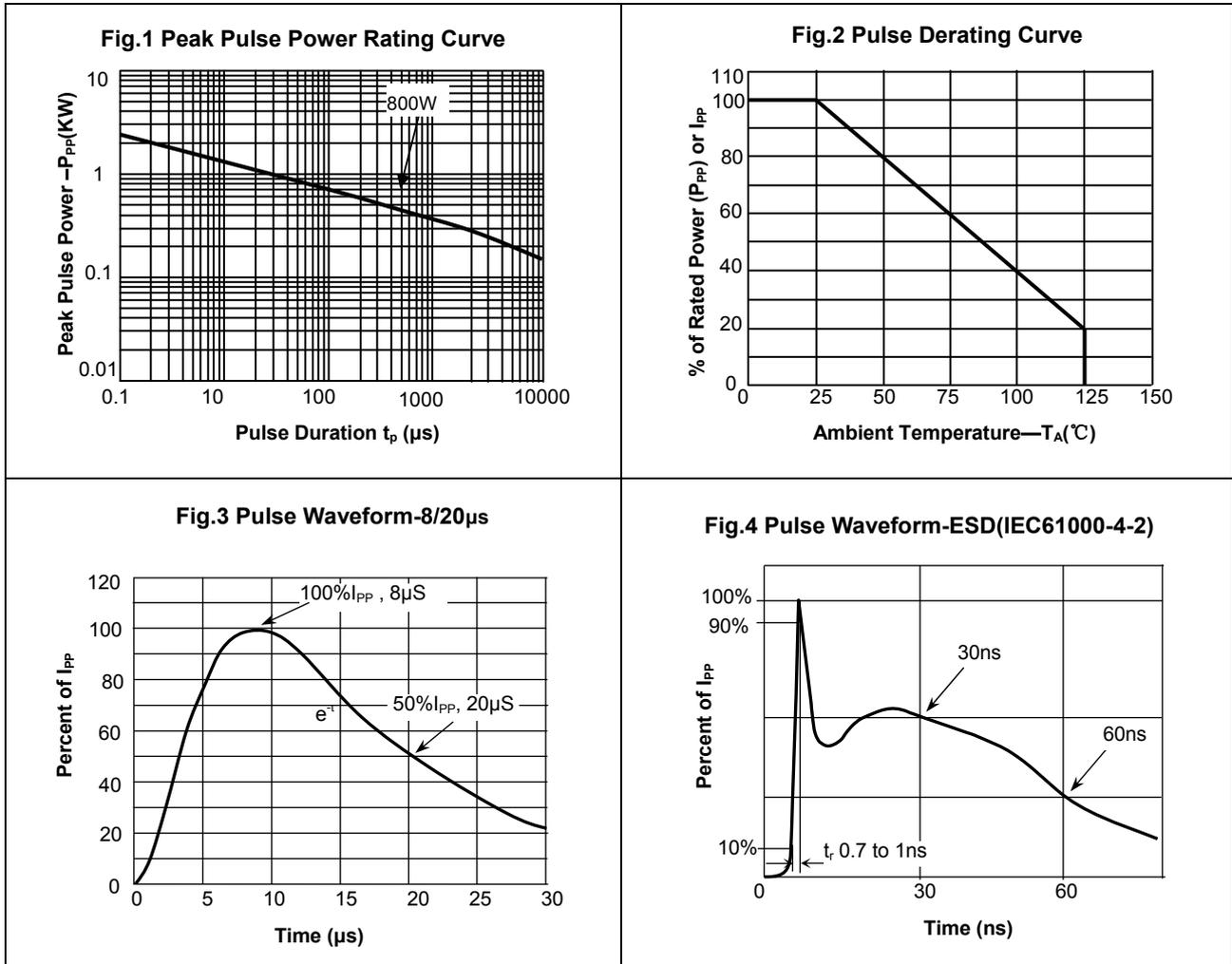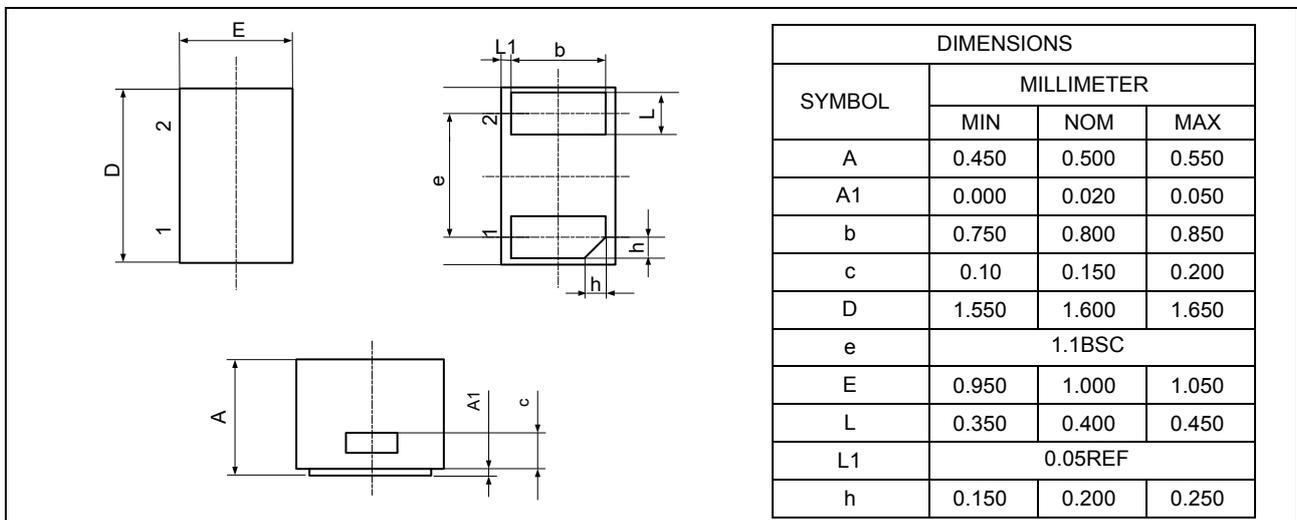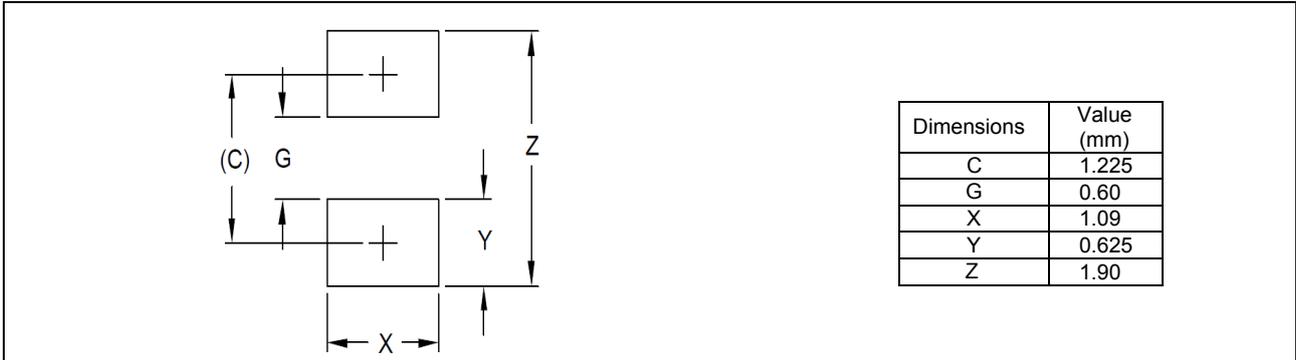
## Package Information



Unit：mm
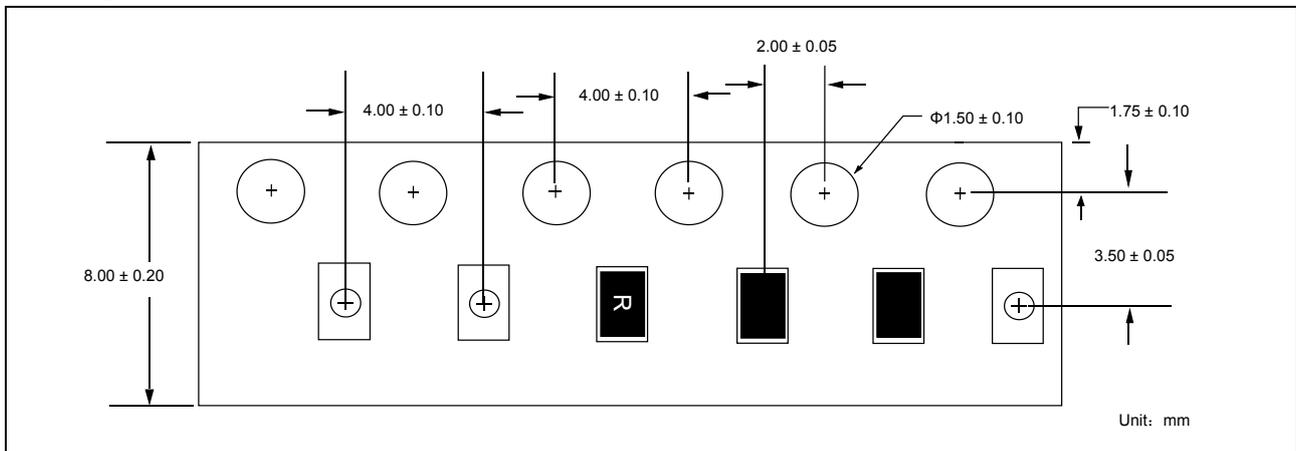
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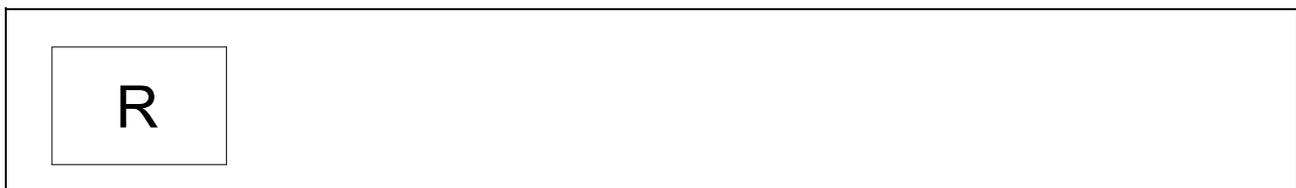


## Ordering information

| Order code | Package | Packaging option | Base quantity | Weight | Packaging specification |
|---|---|---|---|---|---|
| TESD16 10NC58VB | DFN1610 | Tape and reel | 3000pcs / reel | 3.5mg | EIA STD RS-481 |