# ESD224DQAR-TP

## 4-Lines Bi-directional Channels ESD protection

WWW.TECHPUBLIC.COM

## Features

- 4 Bi-directional Channels ESD protection
- Typically Used at High Speed Ports
- Low operating voltage: 3.6V
- Low Channel Input Capacitance of 0.3pF(Typ)
  Typical for I/Os (Typ)
- –IEC 61000-4-2 (ESD) immunity test
  Air discharge: ±30kV
  Contact discharge: ±30kV

–IEC61000-4-4 (EFT) 40A (5/50ns)

- Totally Lead-Free & Fully RoHS Compliant
- Halogen and Antimony Free. “Green” Device

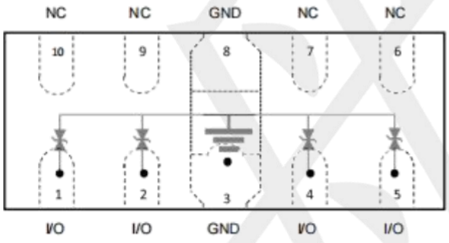
## Mechanical Characteristics

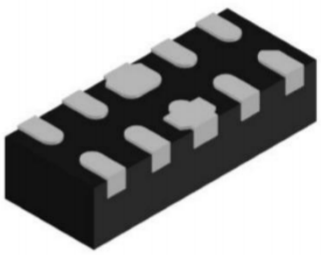
- Package: DFN2510-10L
- Lead Finish: Matte Tin
- Case Material: “Green” Molding Compound
- Terminal Connections: See Diagram Below
- -IEC 61000-4-2 (ESD) immunity test

## Applications

- USB 3.1 & 3.2 and MDDI ports
- PCI express and Serial SATA
- Ports Notebook Computers
- Tablets

## Dimensions and Pin Configuration



**DFN2510-10L**

## Absolute Maximum Ratings(Tamb=25°C unless otherwise specified)

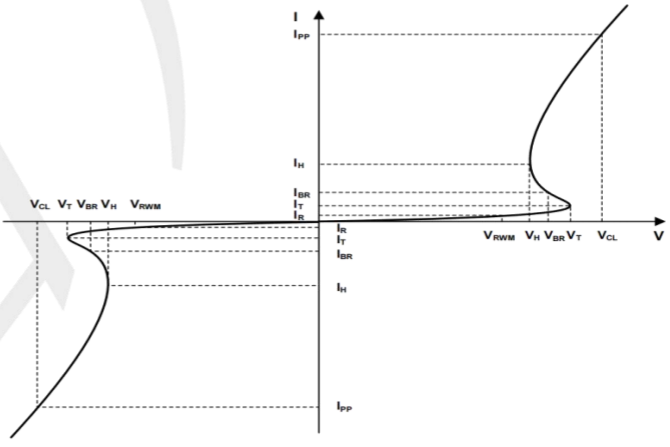
| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Peak Pulse Power (8/20μs) | Ppp | 55 | W |
| IEC 61000−4−2 Spec Current at 60 ns (A) | Ipp | 5.5 | A |
| ESD per IEC 61000−4−2 (Air)<br>ESD per IEC 61000−4−2 (Contact) | VESD | ±30<br>±30 | KV |
| Operating Temperature Range | TJ | −55 to +125 | °C |
| Storage Temperature Range | Tstg | −55 to +150 | °C |

## Electrical Characteristics (TA=25°C unless otherwise specified)

| Parameter | Symbol | Min | Typ | Max | Unit | Test Condition |
|---|---|---|---|---|---|---|
| Reverse Working Voltage | VRWM | -- | -- | 3.6 | V | |
| Breakdown Voltage | VBR | 5.8 | -- | 9.5 | V | IT= 1mA |
| Reverse Leakage Current | IR | -- | -- | 200 | nA | VRWM=3.6V |
| Clamping Voltage | VC | -- | 5.8 | 7.5 | V | Ipp=1A(8x 20us pulse) |
| Clamping Voltage | VC | -- | 8.0 | 10 | V | Ipp=5.5A(8x 20us pulse) |
| Junction Capacitance | CJ | -- | 0.3 | 0.4 | pF | VR = 0V, f = 1MHz,<br>Any vO pin to GND |
| Junction Capacitance | CJ | -- | 0.15 | -- | pF | VR = 0V, f = 1MHz,<br>Between any I/O pin |

**Electrical Characteristics**

| Symbol | Parameter |
|---|---|
| $V_{BR}$ | Reverse Breakdown Voltage |
| $I_{BR}$ | Reverse Breakdown Current |
| $V_{RWM}$ | Reverse Stand-off Voltage |
| $I_R$ | Reverse Leakage Current |
| $V_H$ | Holding Voltage |
| $I_H$ | Holding Current |
| $V_T$ | Trigger Voltage |
| $I_T$ | Trigger Current |
| $I_{PP}$ | Peak Pulse Current |
| $V_{CL}$ | Clamping Voltage |



## Characteristic Curves

**Fig1. 8/20μs Pulse Waveform**

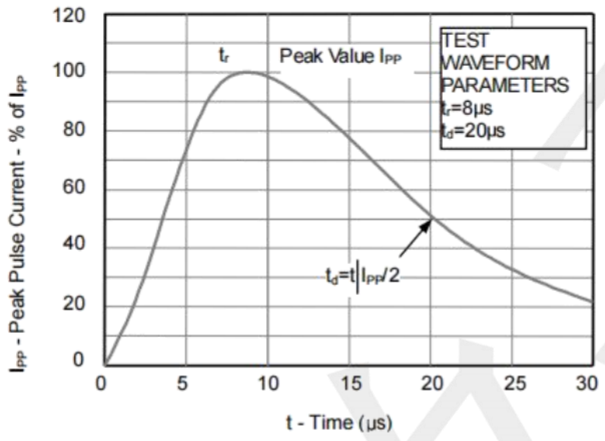



**Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)**

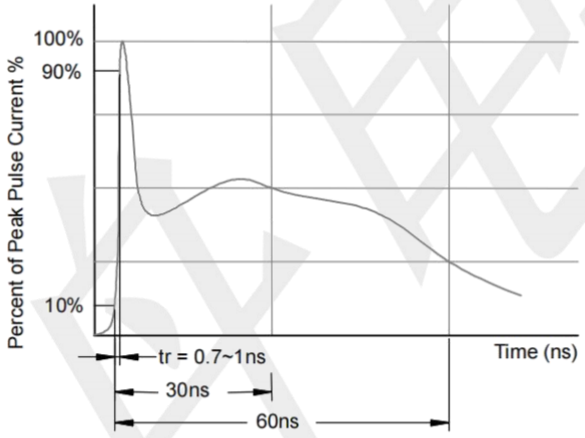
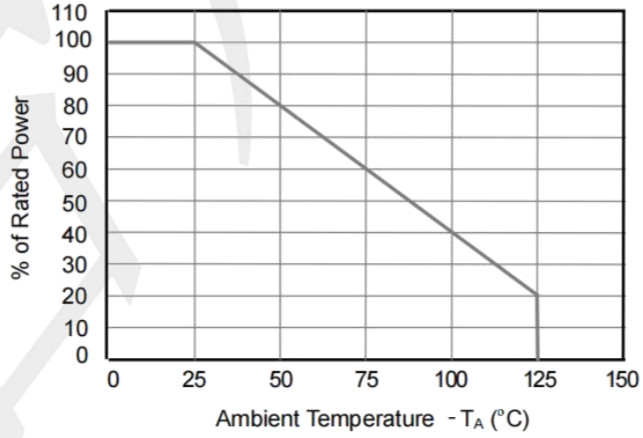
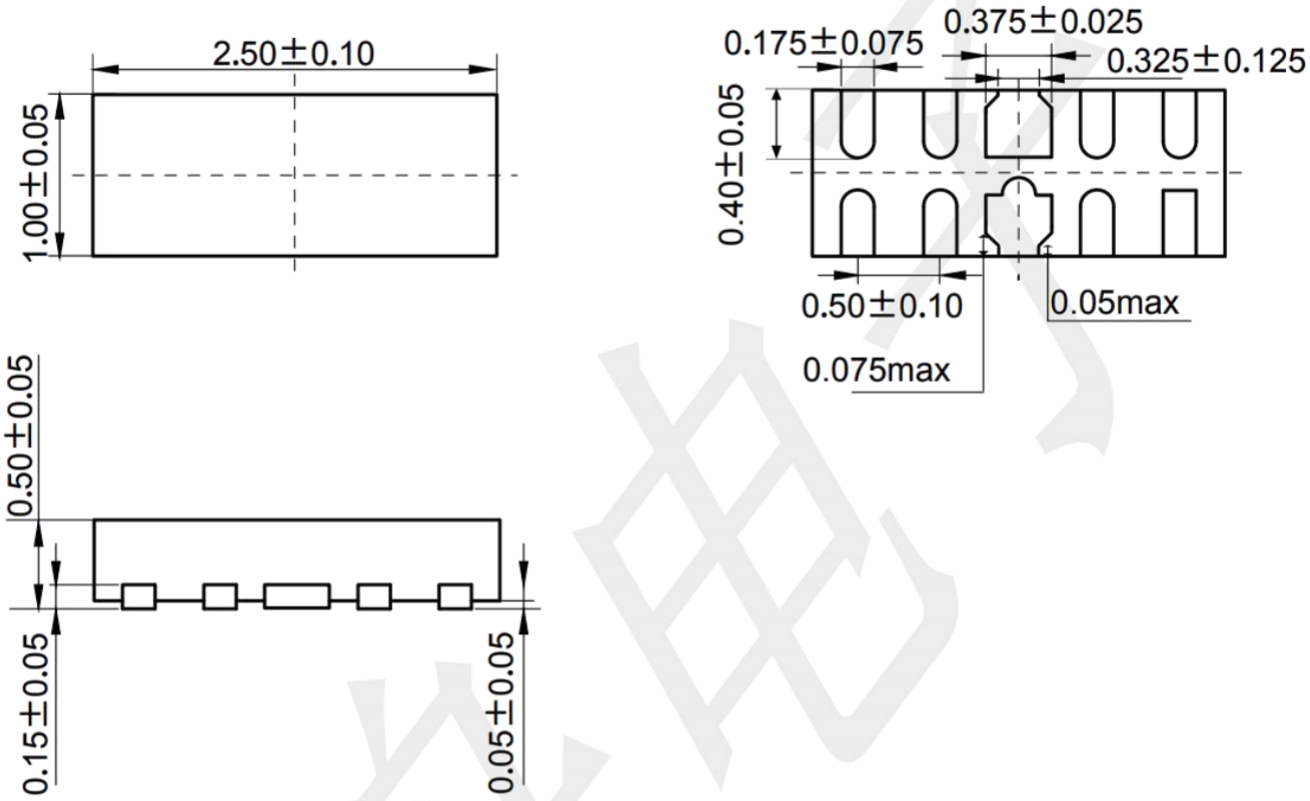



**Fig3. Power Derating Curve**

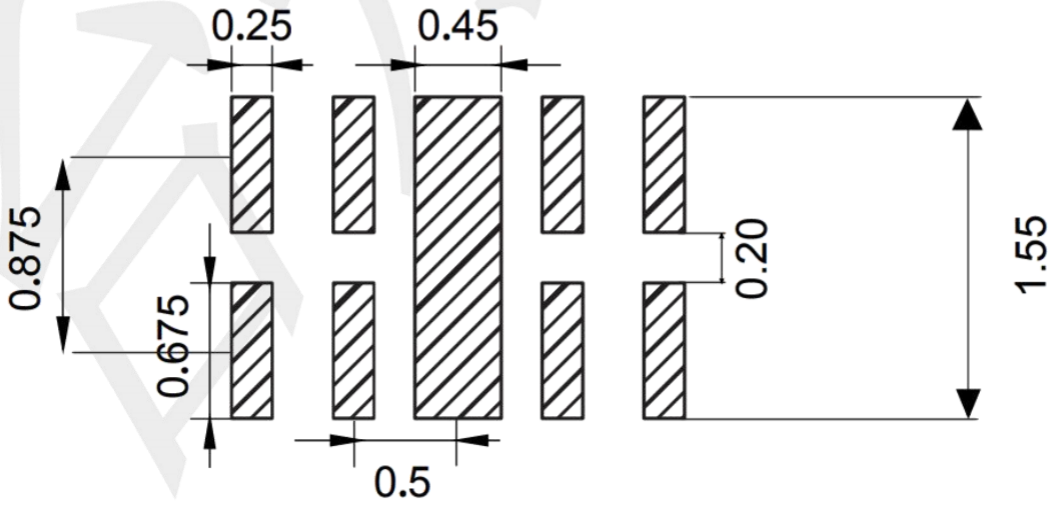


## Package Outline Dimensions (unit: mm)

### DFN2510-10L




## Mounting Pad Layout (unit: mm)



# Unikeyic Electronics

Global Electronic Components Distributor

Click to view pricing, inventory, delivery, and lifecycle information:

## TECH PUBLIC:

TPESD0402G08V BSN20W DMP6350S FDC6301N-TP TPFMMT493 TPS7B6950DBVR-TP TPSPX3819M5-L-3-3 FDMS7670AS-TP IRFR2405TRPBF-TP LTH7 QM3003J-TP TPAPX809S-31SA TPB1A30-123 TPZXMP3A13FTA TPADM809LAKSZ TPESD0504S6-A TPS3809L30DBVR-TP TPWSB5557Z TPD1213A-02SM TPESD5311N TPZVN3320FTA TPB05A40-323 TPDMG6602SVT DDTA143ZCA ESD5B5.0ST1G-P SN7002W TPGC12C-1 BV15C SI3932DV TPADM809SAKSZ