

### DESCRIPTION

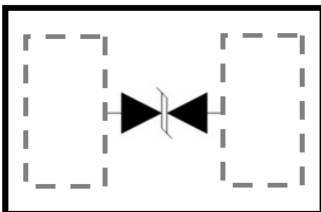
ESD2401QC is a low-capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for data, control or power lines. With maximum capacitance of 17pF only, ESD2401QC is designed to protect parasitic-sensitive systems against over-voltage and over-current transient events. It complies with IEC 61000-4-2 (ESD), Level 4 ( $\pm 15\text{kV}$  air,  $\pm 8\text{kV}$  contact discharge), very fast charged device model (CDM) ESD and cable discharge event (CDE), etc.

ESD2401QC uses ultra-small DFN1006 package. Each ESD2401QC device can protect one data line. It offers system designers flexibility to protect single data line where space is a premium concern.

### ORDERING INFORMAT

- ◇ Device: ESD2401QC
- ◇ Package: DFN1006
- ◇ Marking: DH
- ◇ Material: Halogen free
- ◇ Packing: Tape & Reel
- ◇ Quantity per reel: 10,000pcs

### PIN CONFIGURATION



### FEATURES

- ◇ IEC61000-4-2 (ESD)  $\pm 15\text{kV}$  (air),  $\pm 8\text{kV}$  (contact)
- ◇ IEC61000-4-4 (EFT) 40A (5/50ns)
- ◇ IEC61000-4-5 (Lighting) 3A (8/20 $\mu\text{s}$ )
- ◇ 200 Watts Peak Pulse Power per (tp=8/20 $\mu\text{s}$ )
- ◇ Working voltages : 24V
- ◇ Low clamping voltage
- ◇ Low leakage current

### MACHANICAL DATA

- ◇ DFN1006 package
- ◇ Flammability Rating: UL 94V-0
- ◇ Packaging: Tape and Reel
- ◇ Reel size: 7 inch

### APPLICATIONS

- ◇ Serial and Parallel Ports
- ◇ Notebooks, Desktops, Servers
- ◇ Projection TV
- ◇ Cellular handsets and accessories
- ◇ Portable instrumentation
- ◇ Peripherals

### PACKAGE OUTLINE



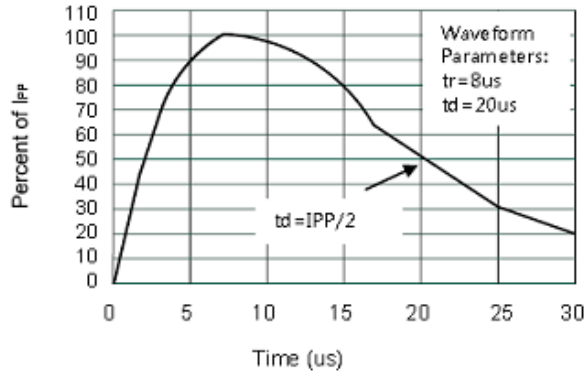
## ABSOLUTE MAXIMUM RATING

| Symbol    | Parameter  | Value                | Units        |
|-----------|--|----------------------|--------------|
| $V_{ESD}$ | ESD per IEC 61000-4-2 (Air)<br>ESD per IEC 61000-4-2 (Contact) | $\pm 30$<br>$\pm 20$ | kV           |
| $P_{PP}$  | Peak Pulse Power (8/20 $\mu$ s)                                | 200                  | W            |
| $T_{OPT}$ | Operating Temperature  | -55/+150             | $^{\circ}$ C |
| $T_{STG}$ | Storage Temperature  | -55/+150             | $^{\circ}$ C |
| $T_L$     | Lead Soldering Temperature                                     | 260 (10 sec.)        | $^{\circ}$ C |

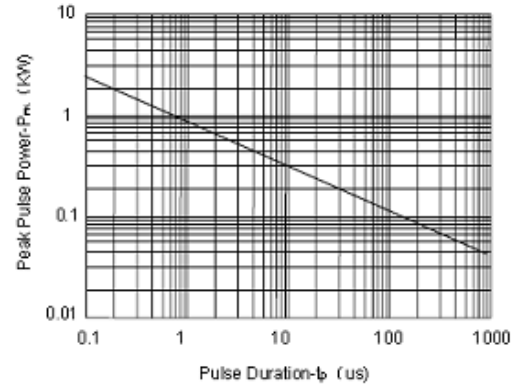
## ELECTRICAL CHARACTERISTICS ( $T_{amb}=25^{\circ}$ C)

| Symbol    | Parameter                 | Test Condition                 | Min | Typ | Max | Units   |
|-----------|---------------------------|--------------------------------|-----|-----|-----|---------|
| $V_{RWM}$ | Reverse Working Voltage   |                                |     |     | 24  | V       |
| $V_{BR}$  | Reverse Breakdown Voltage | $I_T = 1mA$                    | 26  |     | 32  | V       |
| $I_R$     | Reverse Leakage Current   | $V_{RWM} = 24V$                |     |     | 1   | $\mu$ A |
| $V_{C1}$  | Clamping Voltage 1        | $I_{PP} = 1A, t_p = 8/20\mu s$ |     |     | 36  | V       |
| $V_{C2}$  | Clamping Voltage 2        | $I_{PP} = 3A, t_p = 8/20\mu s$ |     |     | 50  | V       |
| $C_J$     | Junction Capacitance      | $V_R = 0V, f = 1MHz$           |     | 13  | 17  | pF      |

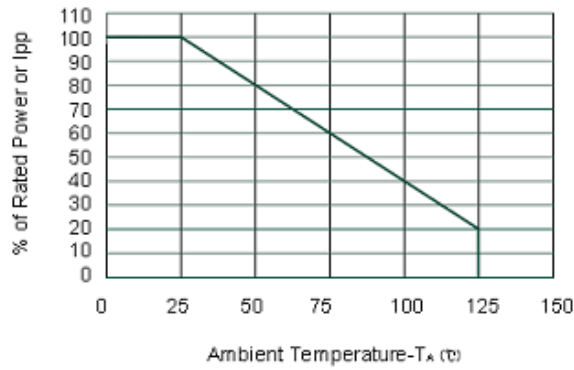
## ELECTRICAL CHARACTERISTICS CURVE



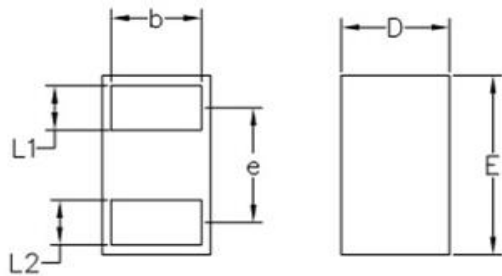
Pulse Waveform



Non-Repetitive Peak Pulse Power vs. Pulse Time

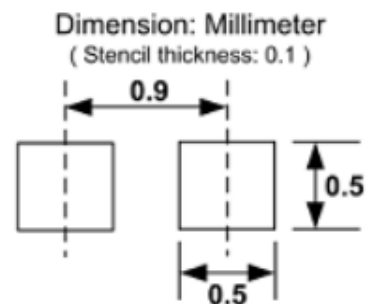


## DFN1006 PACKAGE OUTLINE DIMENSIONS



NOTE: ALL DIMENSIONS IN MM

|    | MIN  | NOM     | MAX  |
|----|------|---------|------|
| D  | 0.55 | 0.60    | 0.65 |
| E  | 0.95 | 1.00    | 1.05 |
| L1 | 0.20 | 0.25    | 0.30 |
| L2 | 0.20 | 0.25    | 0.30 |
| A  | 0.45 | 0.50    | 0.55 |
| b  | 0.45 | 0.50    | 0.55 |
| e  |      | 0.64BSC |      |



Soldering Footprint