

6-Line Low Capacitance TVS Diode Array

Description

The ESD0506M8 is a low capacitance TVS array, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive high-speed data lines. The ESD0506M8 has low capacitance with a typical value at 8pF, and complies with the IEC 61000-4-2 (ESD) standard with $\pm 15\text{kV}$ air and $\pm 8\text{kV}$ contact discharge. It is assembled into a 8-pin lead-free SO-8 package. The combination of small size, low capacitance and high level of ESD protection makes it ideal for cellular, notebooks, desktops, and other portable application.

Features

- Low capacitance: 8pF typical (I/O to GND)
- Ultra low leakage: nA level
- Low operating voltage: 5V
- Low clamping voltage
- Up to 6 lines protects
- JEDEC TTSOP-8 package
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
Air discharge: $\pm 15\text{kV}$
Contact discharge: $\pm 8\text{kV}$
 - IEC61000-4-4 (EFT) 40A (5/50ns)
- RoHS Compliant

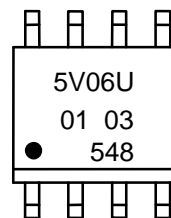
Mechanical Characteristics

- Package: TSSOP-8
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram Below
- Marking Information: See Below

Applications

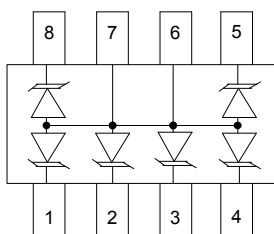
- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Digital Cameras
- Peripherals
- Audio Players
- Keypads, Side Keys, LCD Displays

Marking Information

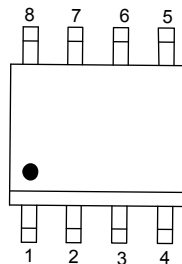


Dot indicates pin1
5V06U= device marking code

Dimensions and Pin Configuration



Circuit Schematic



Pin Schematic

Ordering Information

| Part Number | Packaging | Reel Size |
|-------------|------------------|-----------|
| ESD0506M8 | 2500/Tape & Reel | 13 inch |

Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

| Parameter | Symbol | Value | Unit |
|--|------------------|-------------|--------------------|
| Peak Pulse Power (8/20 μs) | Ppk | 25 | W |
| Peak Pulse Current (8/20 μs) | I _{PP} | 2 | A |
| ESD per IEC 61000-4-2 (Air) | V _{ESD} | ± 15 | kV |
| ESD per IEC 61000-4-2 (Contact) | | ± 8 | |
| Operating Temperature Range | T _J | -55 to +125 | $^{\circ}\text{C}$ |
| Storage Temperature Range | T _{stg} | -55 to +150 | $^{\circ}\text{C}$ |

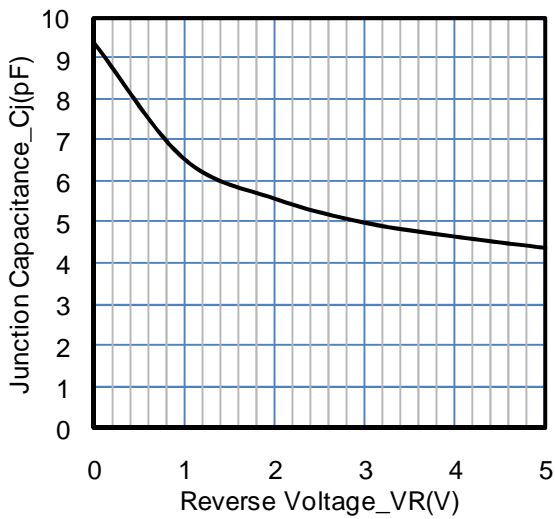
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

| Parameter | Symbol | Min | Typ | Max | Unit | Test Condition |
|-------------------------|------------------|-----|-----|------|---------------|---|
| Reverse Working Voltage | V _{RWM} | | | 5 | V | |
| Breakdown Voltage | V _{BR} | 6 | | | V | I _T = 1mA, any I/O to GND |
| Reverse Leakage Current | I _R | | | 0.1 | μA | V _{RWM} = 5V |
| Clamping Voltage | V _C | | | 10.5 | V | I _{PP} = 1A (8 x 20 μs pulse) |
| Clamping Voltage | V _C | | | 12.5 | V | I _{PP} = 2A (8 x 20 μs pulse) |
| Junction Capacitance | C _J | | | 8 | pF | V _R = 0V, f = 1MHz, any I/O to GND |

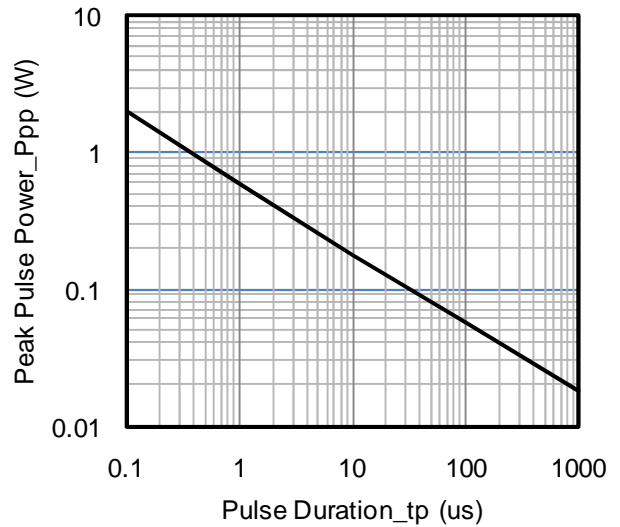
Note 1: I/O pins are 1, 2, 3, 4, 5 and 8.

GND pins are 6, 7.

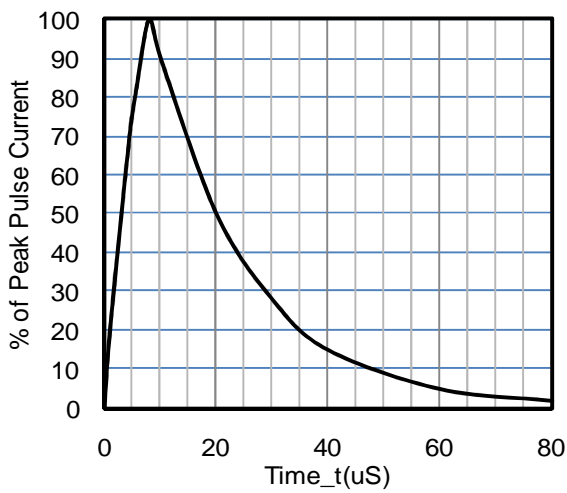
Typical Performance Characteristics (T_A=25°C unless otherwise Specified)



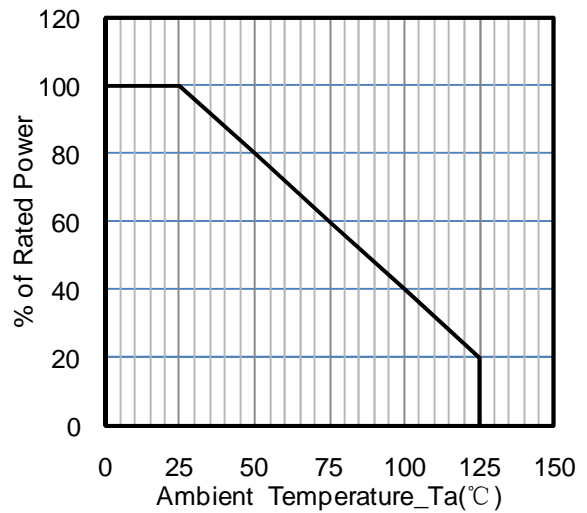
Junction Capacitance vs. Reverse Voltage



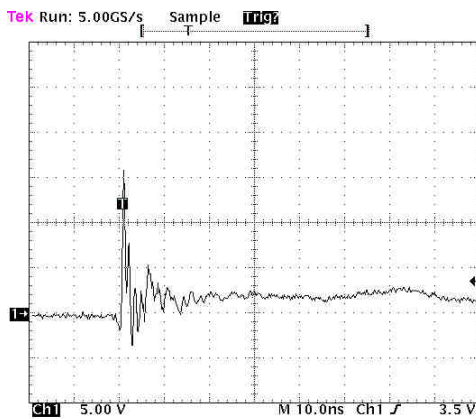
Peak Pulse Power vs. Pulse Time



8 X 20uS Pulse Waveform



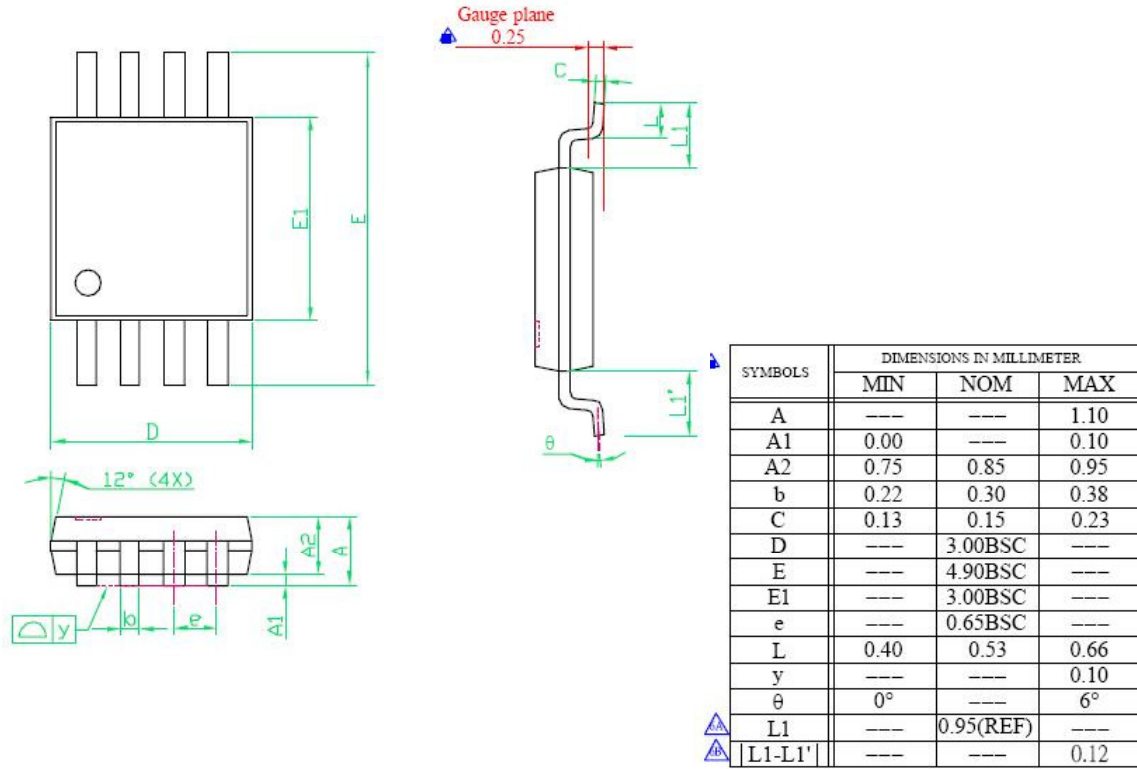
Power Derating Curve



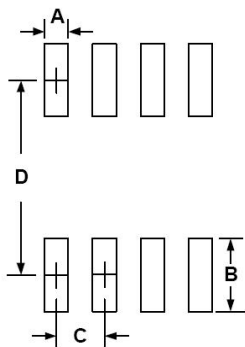
ESD Clamping Voltage

8 kV Contact per IEC61000-4-2

TSSOP-8 Package Outline Drawing



*** SOLDERING FOOTPRINT**



| Dimensions | | |
|------------|------------|--------|
| Index | Millimeter | Inches |
| A | 0.41 | 0.016 |
| B | 1.02 | 0.040 |
| C | 0.65 | 0.023 |
| D | 4.8 | 0.189 |

Contact Information

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