

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

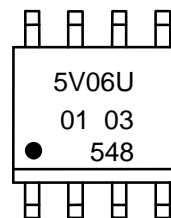
Mechanical Characteristics

- 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

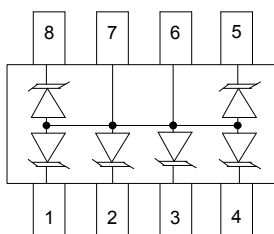
- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Digital Cameras
- Peripherals
- Audio Players
- Keypads, Side Keys, LCD Displays

Marking Information

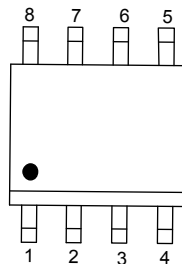


Dot indicates pin1
5V06U= device marking code

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	$^{\circ}\text{C}$

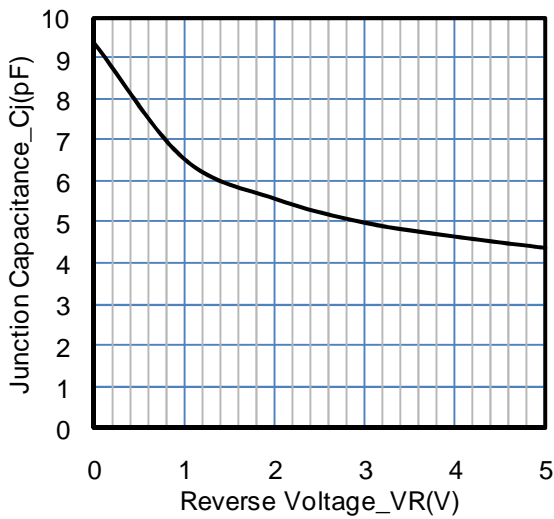
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

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

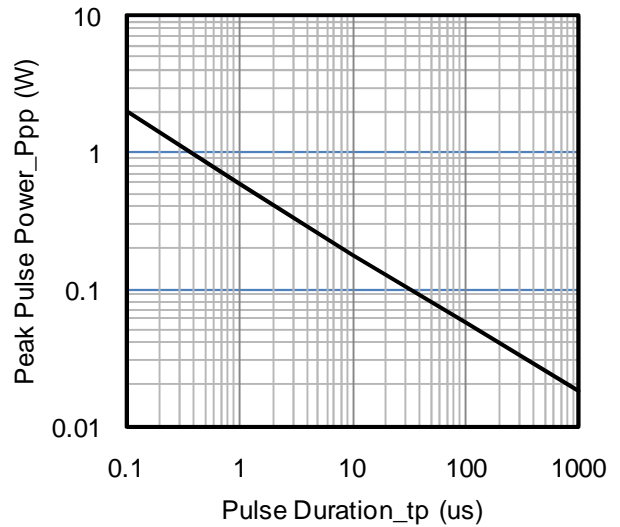
Note 1: I/O pins are 1, 2, 3, 4, 5 and 8.

GND pins are 6, 7.

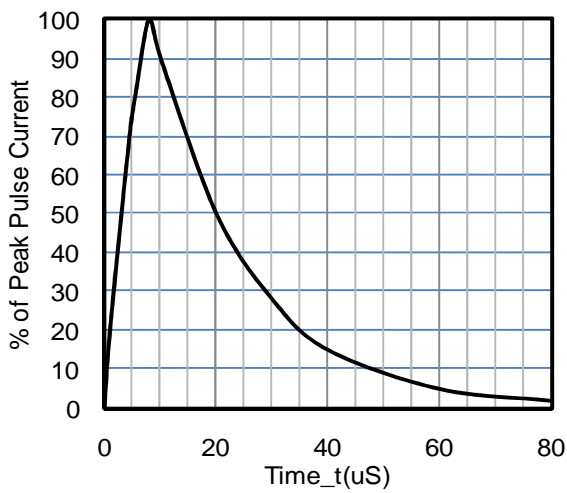
Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)



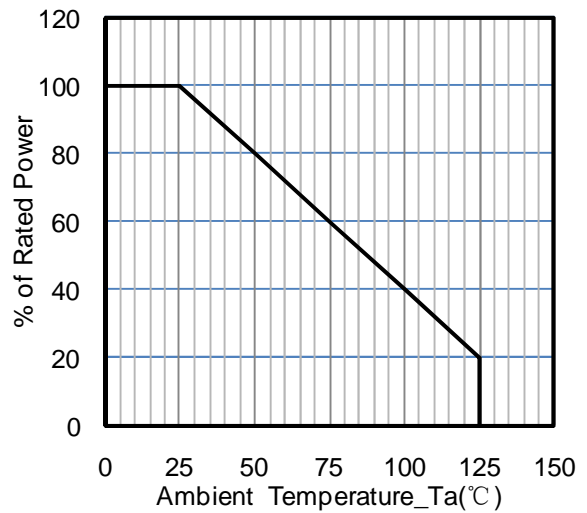
Junction Capacitance vs. Reverse Voltage



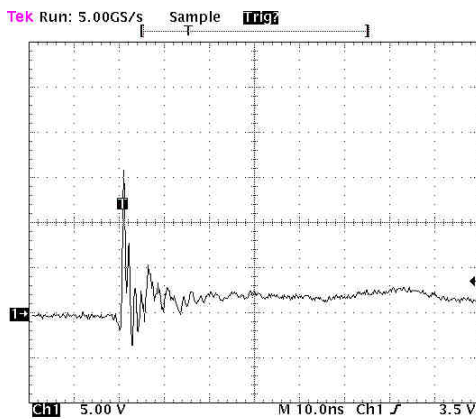
Peak Pulse Power vs. Pulse Time



8 X 20uS Pulse Waveform



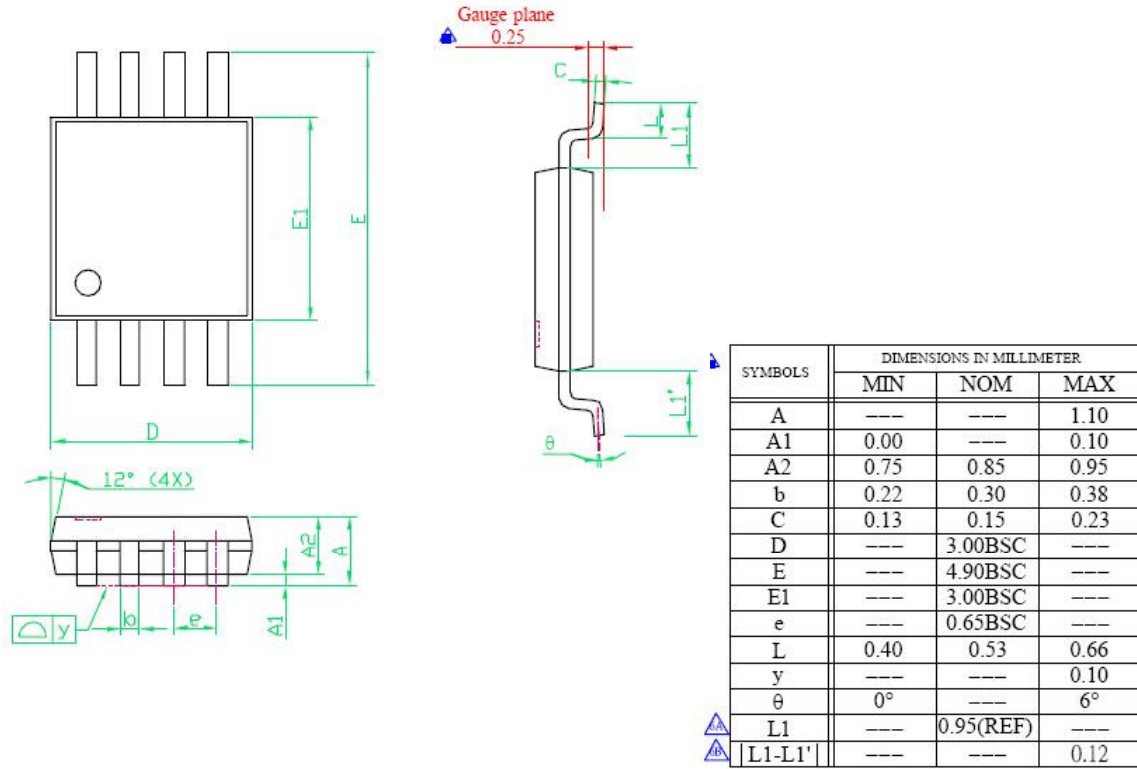
Power Derating Curve



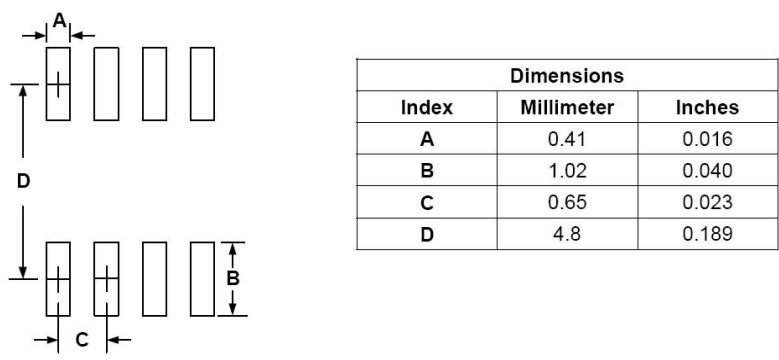
ESD Clamping Voltage

8 kV Contact per IEC61000-4-2

TSSOP-8 Package Outline Drawing



*** SOLDERING FOOTPRINT**



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