

ESDR0544M

Transient Voltage Suppressors

Low Capacitance ESD Protection for High Speed Data

The ESDR0544M transient voltage suppressor is designed to protect high speed data lines from ESD. Ultra-low capacitance and low ESD clamping voltage make this device an ideal solution for protecting voltage sensitive high speed data lines. The flow-through style package allows for easy PCB layout and matched trace lengths necessary to maintain consistent impedance between high speed differential lines such as HDMI.

Features

- Low Capacitance (0.9 pF Max Between I/O Lines and Ground)
- ESD Rating of Class 3B (Exceeding 8 kV) per Human Body model and Class C (Exceeding 400 V) per Machine Model
- Protection for the Following IEC Standards:
IEC 61000-4-2 (8 kV Contact)
- UL Flammability Rating of 94 V-0
- This is a Pb-Free Device

Typical Applications

- HDMI
- DVI
- Display Port
- MDDI
- eSATA

MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|--|-----------|-------------|------|
| Operating Junction Temperature Range | T_J | -55 to +125 | °C |
| Storage Temperature Range | T_{stg} | -55 to +150 | °C |
| Lead Solder Temperature – Maximum (10 Seconds) | T_L | 260 | °C |
| IEC 61000-4-2 Contact (ESD) | ESD | 8.0 | kV |

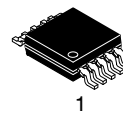
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

See Application Note AND8308/D for further description of survivability specs.



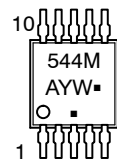
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Micro-10
DM SUFFIX
CASE 846B

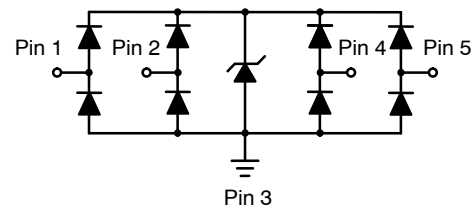
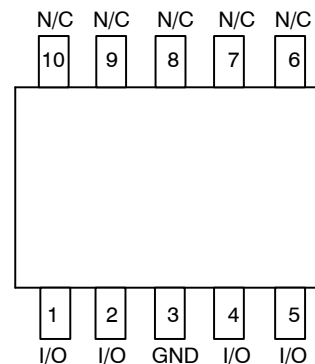
MARKING DIAGRAM



- A = Assembly Location
- Y = Year
- W = Work Week
- = Pb-Free Package

(Note: Microdot may be in either location)

PIN CONFIGURATION AND SCHEMATIC



ORDERING INFORMATION

| Device | Package | Shipping |
|----------------|--------------------|--------------------|
| ESDR0544MDMR4G | Micro-10 (Pb-Free) | 1000 / Tape & Reel |

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

ESDR0544M

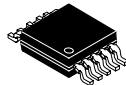
ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise specified)

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|-------------------------|-----------|--|-----|-----|-----|---------------|
| Reverse Working Voltage | V_{RWM} | (Note 1) | | | 5.0 | V |
| Breakdown Voltage | V_{BR} | $I_T = 1 \text{ mA}$, (Note 2) | 6.0 | | | V |
| Reverse Leakage Current | I_R | $V_{RWM} = 5 \text{ V}$ | | | 1.0 | μA |
| Junction Capacitance | C_J | $V_R = 0 \text{ V}$, $f = 1 \text{ MHz}$ between I/O Pins and GND | | 0.7 | 0.9 | pF |
| Junction Capacitance | C_J | $V_R = 0 \text{ V}$, $f = 1 \text{ MHz}$ between I/O Pins | | 0.3 | 0.7 | pF |

1. TVS devices are normally selected according to the working peak reverse voltage (V_{RWM}), which should be equal or greater than the DC or continuous peak operating voltage level.
2. V_{BR} is measured at pulse test current I_T .

MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS

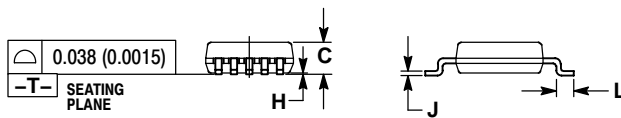
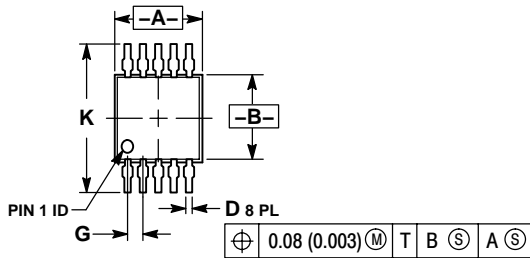
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SCALE 2:1

Micro10
CASE 846B-03
ISSUE D

DATE 07 DEC 2004



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DIMENSION "A" DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS. MOLD FLASH, PROTRUSIONS OR GATE BURRS SHALL NOT EXCEED 0.15 (0.006) PER SIDE.
4. DIMENSION "B" DOES NOT INCLUDE INTERLEAD FLASH OR PROTRUSION. INTERLEAD FLASH OR PROTRUSION SHALL NOT EXCEED 0.25 (0.010) PER SIDE.
5. 846B-01 OBSOLETE. NEW STANDARD 846B-02

| DIM | MILLIMETERS | | INCHES | |
|-----|-------------|------|-----------|-------|
| | MIN | MAX | MIN | MAX |
| A | 2.90 | 3.10 | 0.114 | 0.122 |
| B | 2.90 | 3.10 | 0.114 | 0.122 |
| C | 0.95 | 1.10 | 0.037 | 0.043 |
| D | 0.20 | 0.30 | 0.008 | 0.012 |
| G | 0.50 BSC | | 0.020 BSC | |
| H | 0.05 | 0.15 | 0.002 | 0.006 |
| J | 0.10 | 0.21 | 0.004 | 0.008 |
| K | 4.75 | 5.05 | 0.187 | 0.199 |
| L | 0.40 | 0.70 | 0.016 | 0.028 |

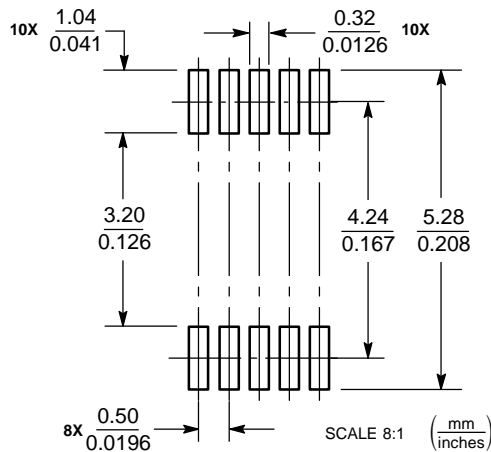
GENERIC MARKING DIAGRAM*



- xxxx = Device Code
- A = Assembly Location
- Y = Year
- W = Work Week
- = Pb-Free Package

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "■", may or may not be present.

SOLDERING FOOTPRINT



Micro10

| | | |
|-------------------------|----------------------------------|--|
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| STATUS: | ON SEMICONDUCTOR STANDARD | |
| NEW STANDARD: | | |
| DESCRIPTION: | Micro10 | PAGE 1 OF 2 |

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