

# 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

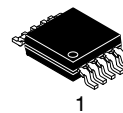
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

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



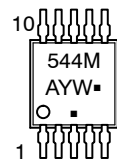
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Micro-10  
DM SUFFIX  
CASE 846B

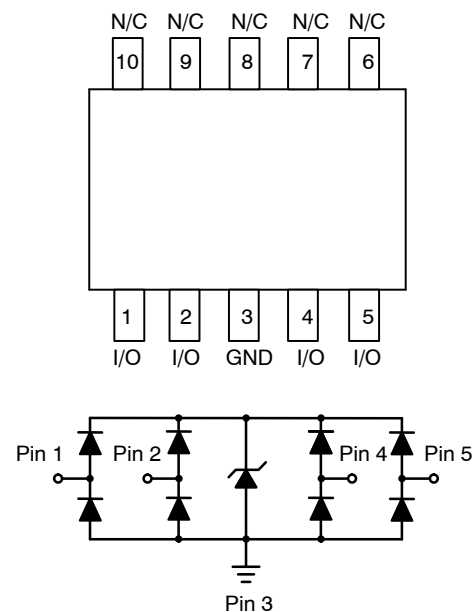
#### MARKING DIAGRAM



- 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

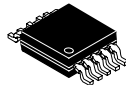
## ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ unless otherwise specified)

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	$\mu\text{A}$
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

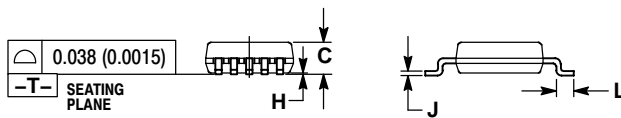
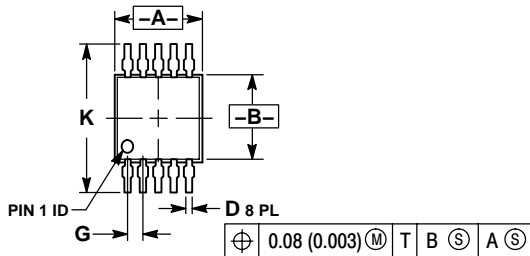
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SCALE 2:1

**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

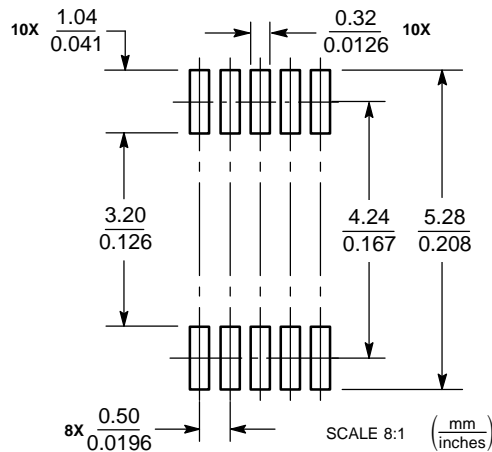
### GENERIC MARKING DIAGRAM\*



- 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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<b>STATUS:</b>	ON SEMICONDUCTOR STANDARD	
<b>NEW STANDARD:</b>		
<b>DESCRIPTION:</b>	Micro10	<b>PAGE 1 OF 2</b>



ISSUE	REVISION	DATE
O	RELEASED FOR PRODUCTION. REQ BY J. HOSKINS.	09 NOV 2000
A	DIM "D" WAS 0.25-0.4MM/0.10-0.016IN. ADDED NOTE 5. USED ON: WAS 10 LEAD TSSOP, PITCH 0.65 REQ BY J. HOSKINS.	13 NOV 2000
B	CHANGED "USED ON" WAS: 10 LEAD TSSOP, PITCH 0.50MM. REQ BY A. HAMID.	11 JUL 2001
C	CHANGED "D" DIMENSION MAX FROM 0.35 TO 0.30MM AND 0.014 TO 0.012IN. REQ BY D. TRUHITTE.	31 JUL 2003
D	ADDED FOOTPRINT INFORMATION. REQ. BY K. OPPEN.	07 DEC 2004

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