



## Ultra Low Capacitance ESD Protection Array

### Features

Meet IEC61000-4-2 (ESD)  $\pm 15\text{kV}$  (air),  $\pm 8\text{kV}$  (contact)  
Meet IEC61000-4-4 (EFT) rating. 40A (5/50ns)  
Meet IEC61000-4-5 (Lightning) rating. 12A (8/20 $\mu\text{s}$ )  
Protects six high speed I/O lines  
Working Voltage : 5V,  
Typical capacitance : 0.3pF (I/O to I/O)  
Pb free version, RoHS compliant, and Halogen free

### Mechanical Data

Case : MSOP8 small outline plastic package  
Terminal: Matte tin plated., solderable per MIL-STD-202, Method 208  
Molding Compound Flammability Rating : UL 94V-O  
High temperature soldering guaranteed: 260°C/10second  
Weight : 25mg (approximately)

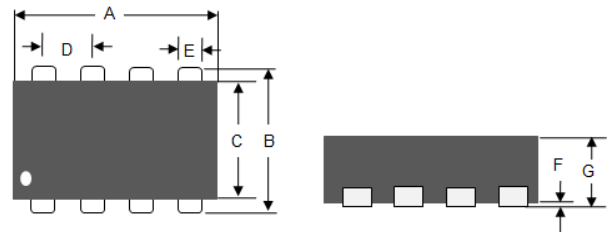
### Applications

High Definition Multi-Media Interface (HDMI)  
Notebooks, Desktops, and Servers  
PCI express, SATA, USB 2.0, DVI, Display port, USB 3.0 Super speed interface

### Ordering Information

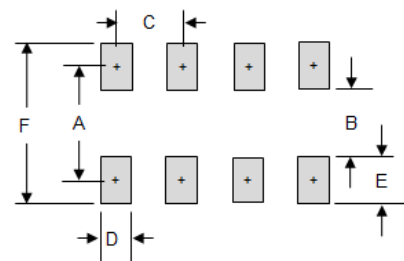
Package	Part No.	Packing	Marking	Configuration
MSOP8	RESDM85V0P	3K/7" Reel	UC68M	

### Outline Drawing MSOP8



Dimension	Unit (mm )		Unit (inch)	
	Min	Max	Min	Max
A	2.90	3.10	0.114	0.122
B	4.75	5.05	0.187	0.199
C	2.90	3.10	0.114	0.122
D	0.65 REF		0.0256 REF	
E	0.22	0.38	0.009	0.015
F	-	0.25	-	0.010
G	0.75	1.20	0.030	0.047

### Suggested Pad Lay out



Dim	A	B	C	D	E	F
Inch	0.189	0.149	0.023	0.016	0.040	0.229
mm	4.800	3.780	0.650	0.410	1.020	5.820

### Maximum Ratings and Electrical Characteristics

(Rating at 25°C ambient temperature unless otherwise specified)

#### Maximum Ratings

Parameter	Symbol	Value	Unit
Peak Pulse Power (tp=8/20 $\mu\text{s}$ waveform)	P <sub>PP</sub>	200	W
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V <sub>ESD</sub>	$\pm 16$ $\pm 8$	KV
Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 ~ 150	°C



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## Electrical Characteristics

Parameter		Symbol	Min	Max	Unit
Reverse Stand-Off Voltage		$V_{RWM}$	-	5	V
Reverse Breakdown Voltage	$I_R = 1\text{mA}$	$V_{(BR)}$	6.5	-	V
Reverse Leakage Current	$V_R = 5\text{V}$	$I_R$	-	0.5	$\mu\text{A}$
Clamping Voltage	$I_{PP} = 1\text{A}$	$V_C$	-	9.8	V
	$I_{PP} = 6\text{A}$		-	15	
Junction Capacitance	$V_R=0\text{V}$ $F=1\text{MHz}$	$C_J$	-	0.5	pF

## Rating and Characteristic Curves

Fig 1 Non- Repetitive Peak Pulse Power vs. Pulse Time

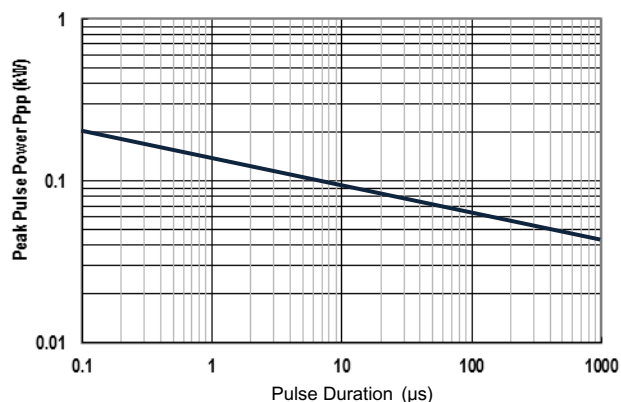


Fig 2 Clamping Voltage vs. Peak Pulse Current

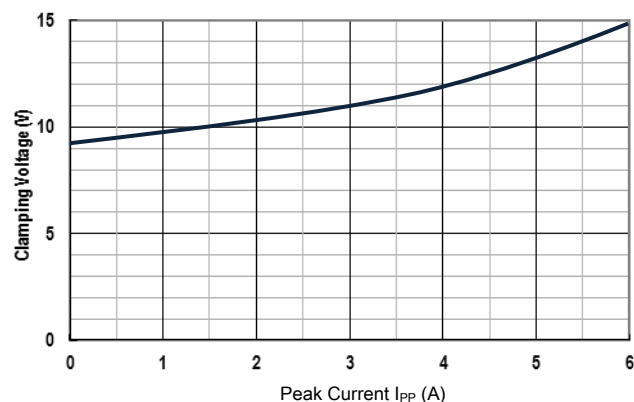


Fig 3 Admissible Power Dissipation Curve

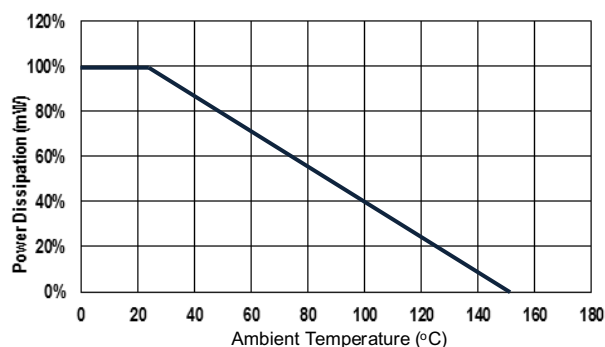


Fig 4 Typical Junction Capacitance

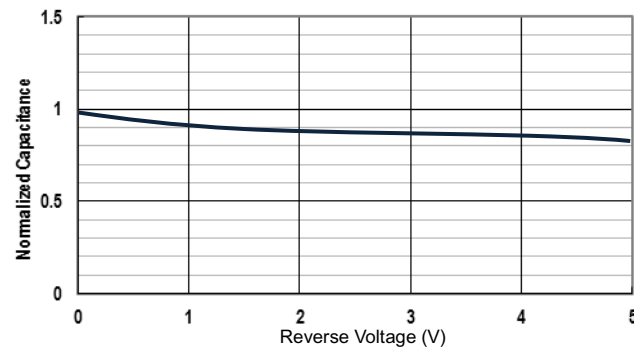


Fig 5 Pulse Waveform

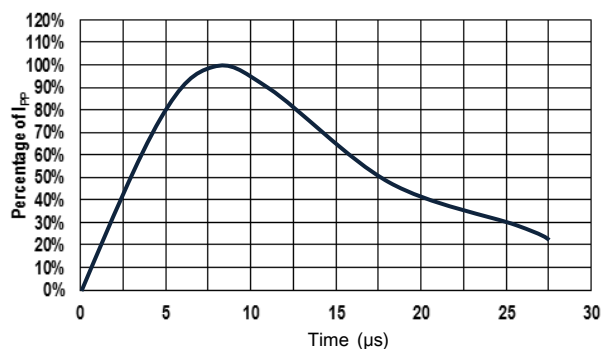
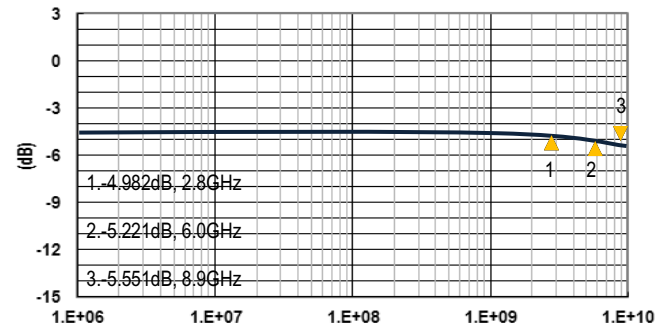


Fig 6 Insertion Loss





## Applications Information

Designed for protection of high-speed interfaces such as USB3.0, HDMI

Ultra low capacitance between the pairs while being rated to handle  $> \pm 8\text{kV}$  ESD contact discharges and  $> \pm 15\text{kV}$  air discharge

RESDM85V0P is the ultralow capacitance ESD protection array designed to protect high speed data interfaces.

This series has been specifically designed to protect sensitive components which are connected to high-speed data and transmission lines from overvoltage caused by ESD, CDE (Cable Discharge Events), and EFT (electrical fast transients)

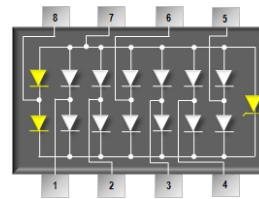
The combination of small size, low capacitance, and high level of ESD protection makes them a flexible solution for applications of high speed interface, ex USB3.0, HDMI, DisplayPort, MDDI, and eSATA interfaces.

## Circuit Board Layout Recommendations

The six protected data lines are connected to the ESD protection pins (pin1, 2, 3, 4, 5, 6)

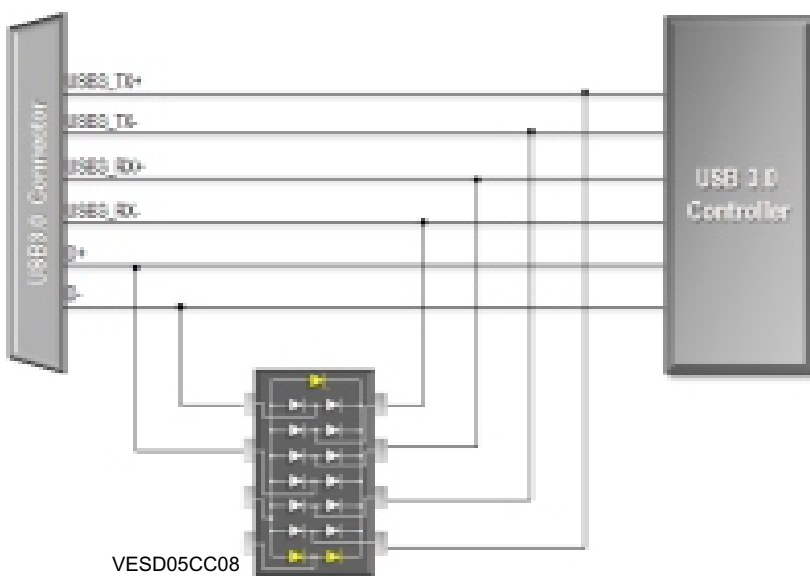
The ground pin (pin7) is a negative reference. This pin should be directly connected to the GND of PCB

The power pin (pin 8) is a positive reference pin. This pin should directly connect to the VDD of PCB



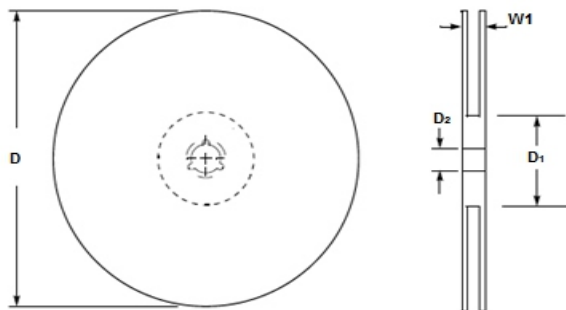
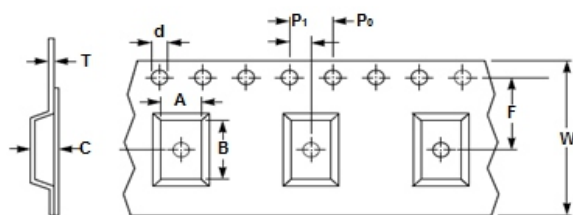
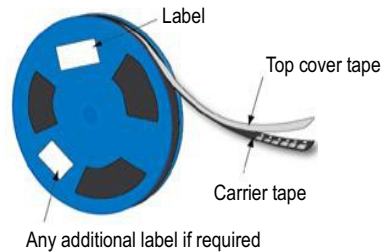
Handwritten text: Hnd]WU'5 dd`]WU]cb'l G6' '\$DfchWU]cb'Z:f' Gi dYf'GdYYX'8 ]ZYfYbh]U'g][ bUg'

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## Tape & Reel specification



Item	Symbol	Dimension (mm)
Carrier width	A	$5.30 \pm 0.10$
Carrier length	B	$3.30 \pm 0.10$
Carrier depth	C	$1.30 \pm 0.10$
Sprocket hole	d	$1.50 \pm 0.1$
Reel outside diameter	D	$178 \pm 1$
Reel inner diameter	D1	$54.4 \pm 0.40$
Feed hole width	D2	$13.0 \pm 0.20$
Sprocket hole position	E	$1.75 \pm 0.10$
Punch hole position	F	$3.50 \pm 0.05$
Punch hole pitch	P	$4.00 \pm 0.10$
Sprocket hole pitch	P0	$4.00 \pm 0.10$
Embossment center	P1	$2.00 \pm 0.05$
Overall tape thickness	T	$0.58 \pm 0.02$
Tape width	W	$8.10 \pm 0.20$
Reel width	W1	$14.0 \pm 0.20$