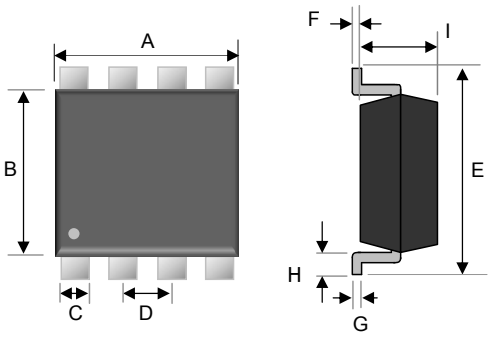
TAIWAN SEMICONDUCTOR

TESDM5V0A
Ultra Low Capacitance ESD Protection Array

Small Signal Diode



MSOP-08



Dimensions	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	2.90	3.10	0.114	0.122
B	2.90	3.10	0.114	0.122
C	0.22	0.38	0.009	0.015
D	0.65_{REF}		0.0256_{REF}	
E	4.75	5.05	0.187	0.199
F	--	0.25	--	0.010
G	0.13	0.23	0.005	0.009
H	0.40	0.66	0.016	0.026
I	0.75	0.95	0.030	0.037

Features

- ✧Meet IEC61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
- ✧Meet IEC61000-4-4 (EFT) rating. 40A (5/50ns)
- ✧Protects six high speed I/O lines
- ✧Low leakage, Low Operating and Clamping Voltage
- ✧Ultra low capacitance
- ✧Low working Voltage : 5V
- ✧Pb free version, RoHS compliant, and Halogen free

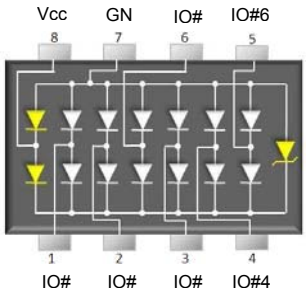
Mechanical Data

- ✧Case : MSOP-08 small outline plastic package
- ✧Terminal: Matte tin plated, lead free., solderable per MIL-STD-202, Method 208 guaranteed
- ✧High temperature soldering guaranteed: 260°C/10s
- ✧Molding Compound Flammability Rating: UL94V-0
- ✧Weight : 25mg (Appro.)
- ✧Marking Code : UC68M

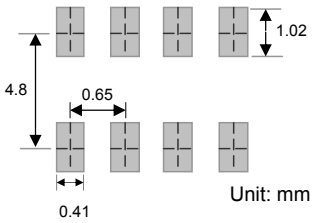
Ordering Information

Part No.	Package	Packing	Packing code	Marking
TESDM5V0A	MSOP-08	3K / 7" Reel	RMG	UC68M

Pin Configuration



Suggested PAD Layout



Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.

Maximum Ratings

Type Number	Symbol	Value	Units
Peak Pulse Power (tp=8/20μs waveform)	P_{PP}	200	W
Peak Pulse Current (tp = 8/20μs)	I_{PP}	6	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	±15 ± 8	KV
Junction Operation Temperature	T_J	150	°C
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to + 150	°C

Electrical Characteristics

Type Number		Symbol	Min	Max	Units
Reverse Stand-Off Voltage		V_{RWM}	-	5	V
Reverse Breakdown Voltag	I_R= 1mA	$V_{(BR)}$	6.5	-	V
Reverse Leakage Current	V_R= 5V	I_R	-	0.5	uA
Clamping Voltage (tp = 8/20us)	I_{PP}= 1A	Vc	-	9.8	V
	I_{PP}= 6A		-	15	
Junction Capacitance (Between I/O pins)	V_R=0V, f=1.0MHz	C_J	0.5 (Typ.)		pF

Notes: 1. The suggested land pattern dimensions have been provided for reference only, as actual pad layouts may vary depending on application.

Small Signal Diode

Rating and Characteristic Curves

FIG. 1 Admissible Power Dissipation Curve

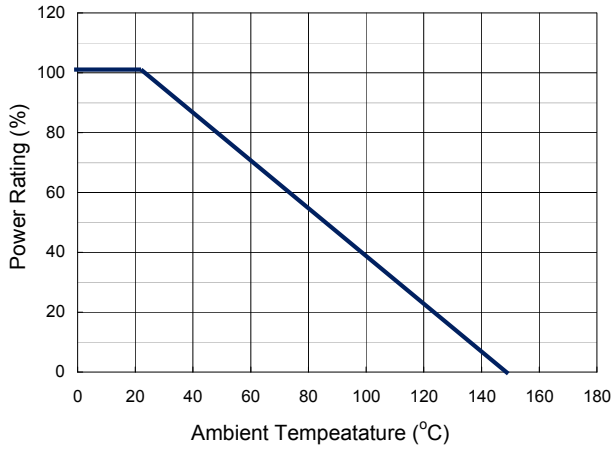


FIG. 2 Pulse Waveform

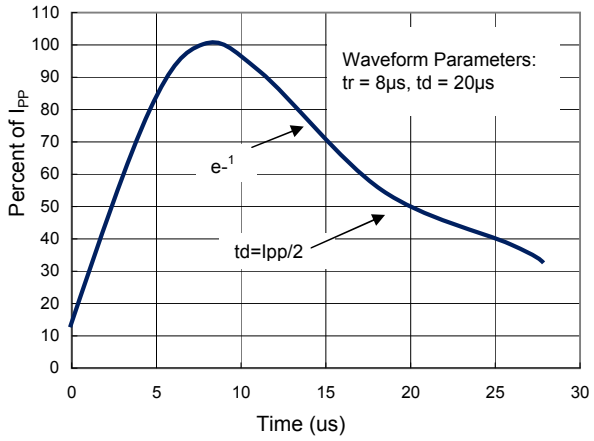


FIG. 3 Clamping Voltage vs. Peak Pulse Current

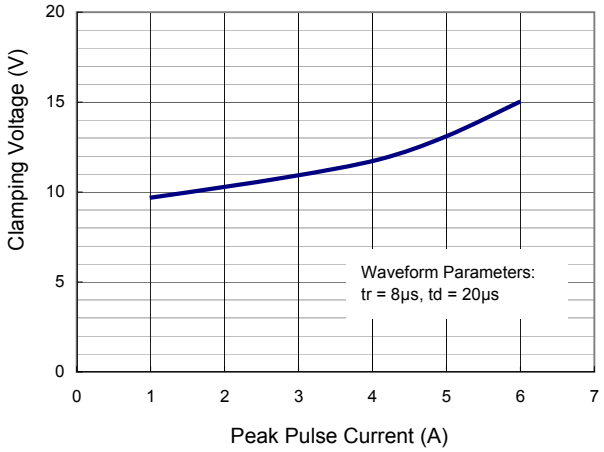
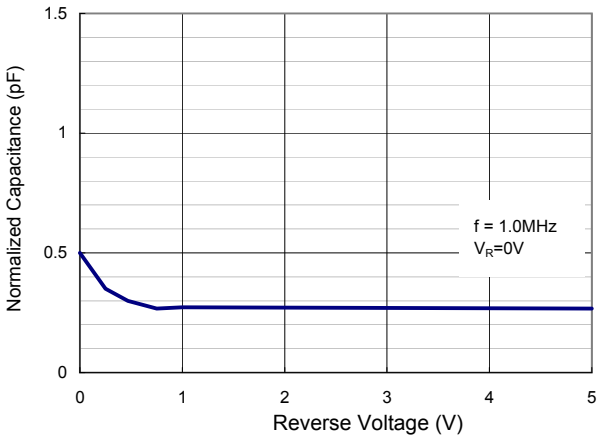


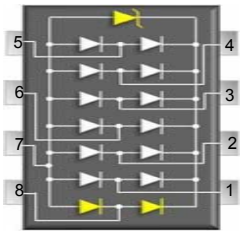
FIG. 4 Typical Junction Capacitance



Small Signal Diode

Application Information

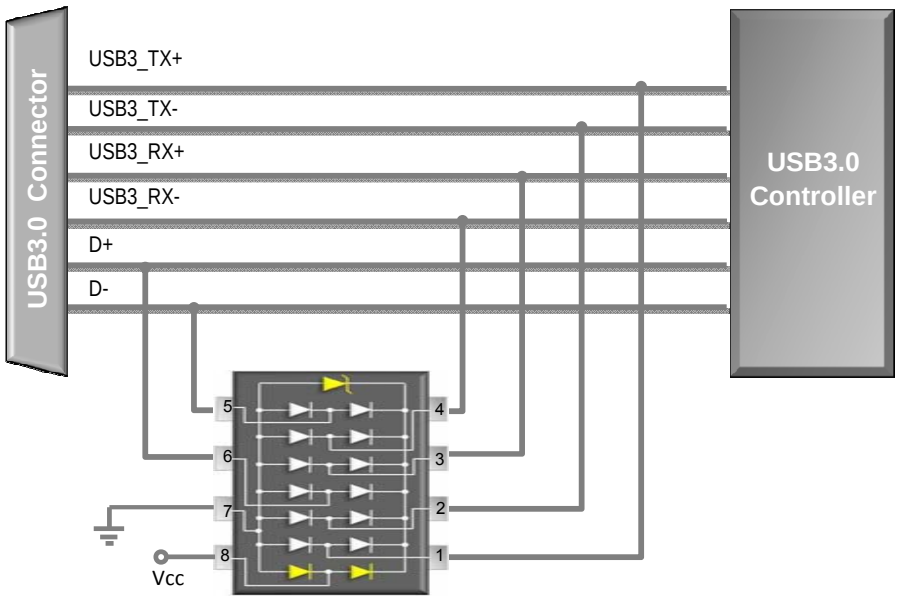
✧Applications for Microprocess based equipment
✧ IEEE1394 Firewire Ports
✧ATM Interfaces
✧High Definition Multi-Media Interface (HDMI)
✧Digital Video Interface (DVI)
✧Video Graphs Cards
✧Designed for protection of high-speed interfaces such as USB3.0
✧Ultra low capacitance between the pairs while being rated to handle >±8kV ESD contact discharges and >±15kV air discharge
✧TESDM5V0A is ultra low 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).



Pin	Definition
1, 2, 3, 4, 5, 6	I/O Lines
7	Ground
8	Vcc

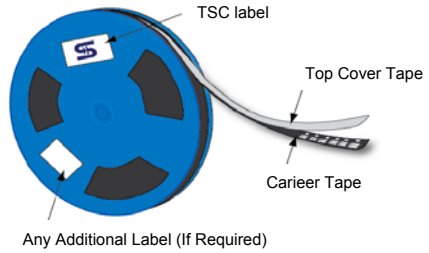
Typical Application

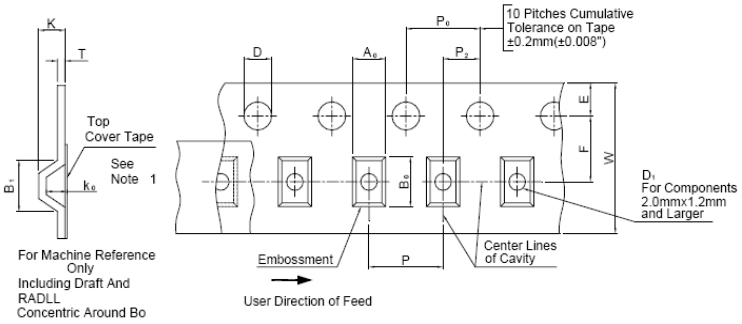
Schematic Diagram for USB3.0 Protection



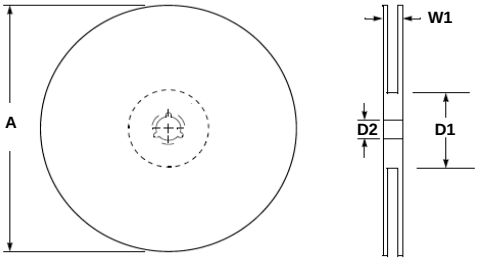
Small Signal Diode

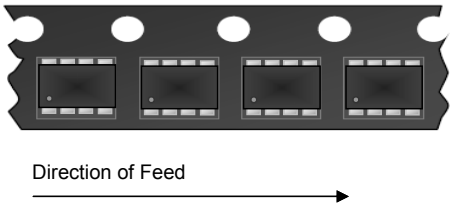
Carrier & Reel specification





Item	Symbol	Dimension(mm)
Carrier depth	K	1.22 Max.
Sprocket hole	D	1.50 +0.10
Reel outside diameter	A	180 ± 1
Reel inner diameter	D1	50 Min.
Feed hole width	D2	13.0 ± 0.5
Sprocke hole position	E	1.75 ±0.10
Sprocke hole pitch	P0	4.00 ±0.10
Embossment center	P1	2.00 ±0.10
Overall tape thickness	T	0.6 Max.
Tape width	W	8.30 Max.
Reel width	W1	14.4 Max.





Note 1: A0, B0, and K0 are determined by component size. The clearance between the components and the cavity must be within 0.05 mm min. to 0.5 mm max. The component cannot rote more than 10 ^{o} within the determined cavity.

Note 2: If B1 exceeds 4.2 mm(0.165") for 8 mm embossed tape, the tape may not feed through all tape feeders.