Absolute Maximum Ratings

Rating	Symbol	Value	Units
Peak Pulse Power (tp = 8/20µs)	P_{PK}	220	W
Peak Pulse Current (tp = 8/20µs)	I_{PP}	12	A
ESD per IEC 61000-4-2 (Air)(1) ESD per IEC 61000-4-2 (Contact)(1)	V_{ESD}	>25 >15	kV
Soldering Temperature	T_L	260 (10 seconds)	°C
Operating Temperature	T_J	-55to +125	°C
Storage Temperature	T_{STG}	-55 to +150	°C

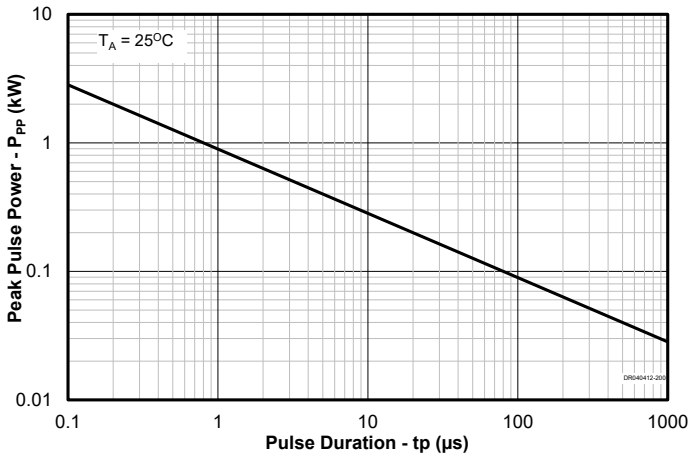
Electrical Characteristics (T=25°C unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-Off Voltage	V_{RWM}				3.3	V
Punch-Through Voltage	V_{PT}	I_{PT} = 2µA	3.5			V
Snap-Back Voltage	V_{SB}	I_{SB} = 50mA	2.8			V
Reverse Leakage Current	I_R	V_{RWM} = 3.3V, T = 25°C		0.05	0.5	µA
Clamping Voltage	V_C	I_{PP} = 1A, tp = 8/20µs Any I/O to GND			4.5	V
		I_{PP} = 5A, tp = 8/20µs Any I/O to GND			6.8	
		I_{PP} = 12A, tp = 8/20µs Any I/O to GND			8.7	
Steering Diode Forward Voltage (Reverse Clamping Voltage)	V_F	I_{PP} = 1A, tp = 8/20µs Any I/O to GND			1.7	V
Junction Capacitance	C_J	Each I/O pin and Ground V_R = 0V, f = 1MHz		35	40	pF

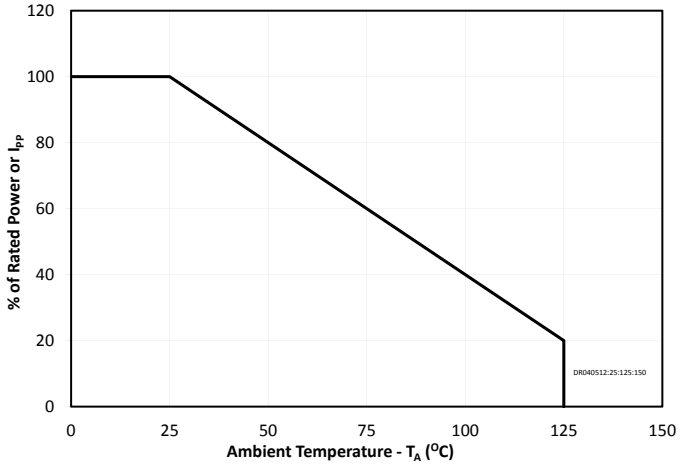
Notes:
(1): ESD Gun return path to Ground Reference Plane (GRP)

Typical Characteristics

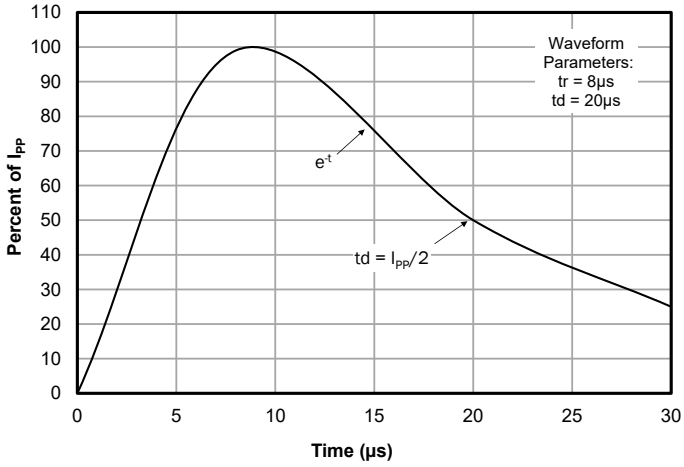
Non-Repetitive Peak Pulse Power vs. Pulse Time



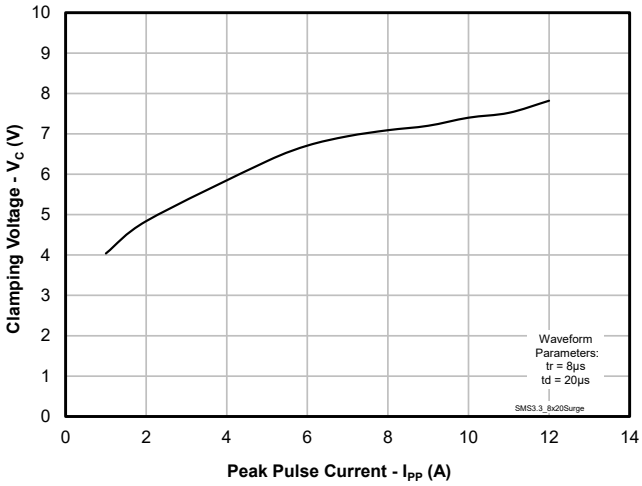
Power Derating Curve



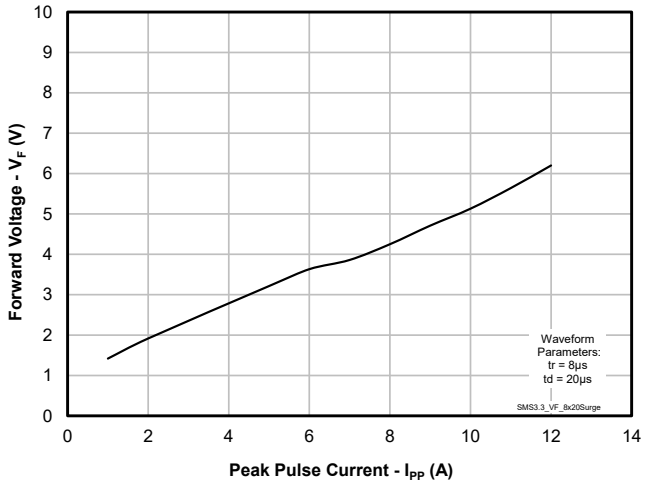
Pulse Waveform



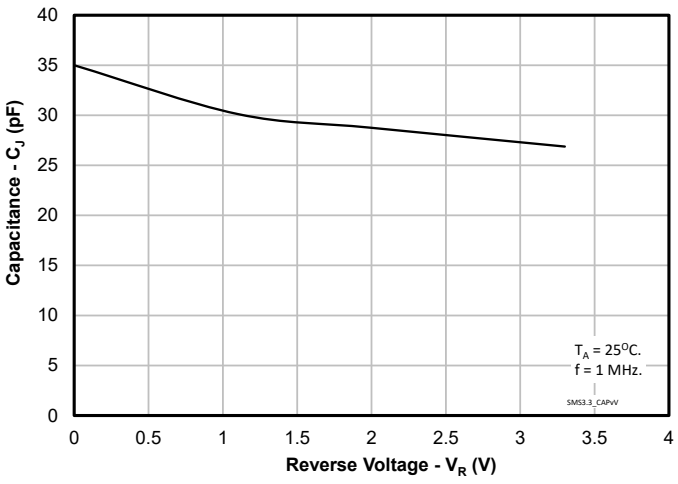
Clamping Voltage vs. Peak Pulse Current (8/20µs Pulse)



Forward Voltage vs. Peak Pulse Current (8/20µs Pulse)



Capacitance vs. Reverse Voltage



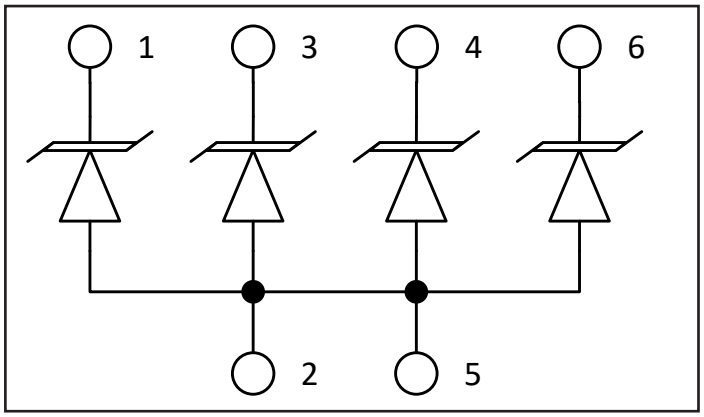
Application Information

Device Connection for Protection of Four Data Lines

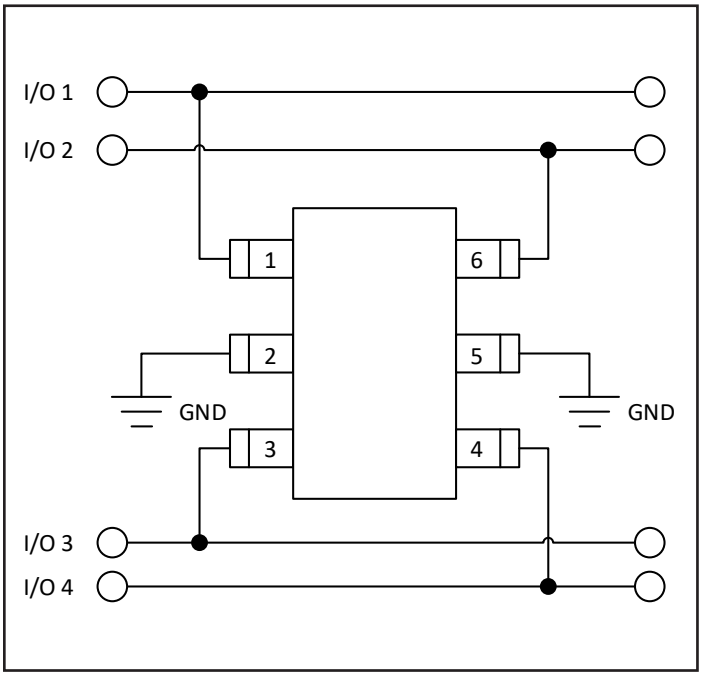
The SMS3.3 is designed to protect up to four unidirectional data lines. The device is connected as follows:

1. Unidirectional protection of four I/O lines is achieved by connecting pins 1, 3, 4 and 6 to the data lines. Pin 2 and 5 are connected to ground. The ground connections should be made directly to the ground plane for best results. The path length is kept as short as possible to reduce the effects of parasitic inductance in the board traces.

SMS3.3 Circuit Diagram



Protection of Four Unidirectional Lines



Circuit Board Layout Recommendations for suppression of ESD

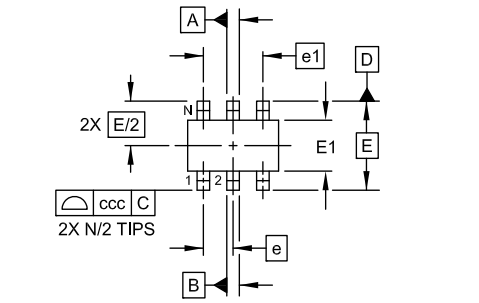
Good circuit board layout is critical for the suppression of ESD induced transients. The following guidelines are recommended:

- Place the TVS near the input terminals or connectors to restrict transient coupling.
- Minimize the path length between the TVS and the protected line.
- Minimize all conductive loops including power and ground loops.
- The ESD transient return path to ground should be kept as short as possible.
- Never run critical signals near board edges.
- Use ground planes whenever possible.

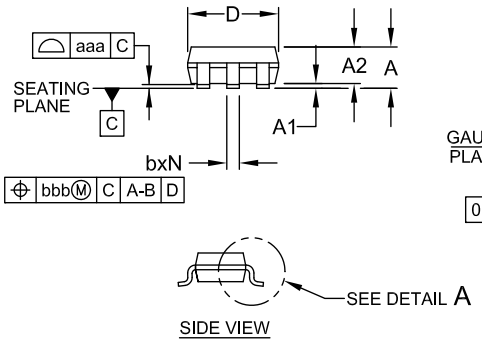
Matte Tin Lead Finish

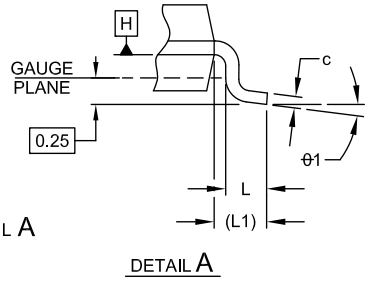
Matte tin has become the industry standard lead-free replacement for SnPb lead finishes. A matte tin finish is composed of 100% tin solder with large grains. Since the solder volume on the leads is small compared to the solder paste volume that is placed on the land pattern of the PCB, the reflow profile will be determined by the requirements of the solder paste. Therefore, these devices are compatible with both lead-free and SnPb assembly techniques. In addition, unlike other lead-free compositions, matte tin does not have any added alloys that can cause degradation of the solder joint.

Outline Drawing - SOT23-6L



DIMENSIONS			
DIM	MILLIMETERS		
	MIN	NOM	MAX
A	0.90	-	1.45
A1	0.00	-	0.15
A2	0.90	1.15	1.30
b	0.25	-	0.50
c	0.08	-	0.22
D	2.80	2.90	3.10
E1	1.50	1.60	1.75
E	2.80 BSC		
e	0.95 BSC		
e1	1.90 BSC		
L	0.30	0.45	0.60
L1	(0.60)		
N	6		
θ1	0°	-	10°
aaa	0.10		
bbb	0.20		
ccc	0.20		

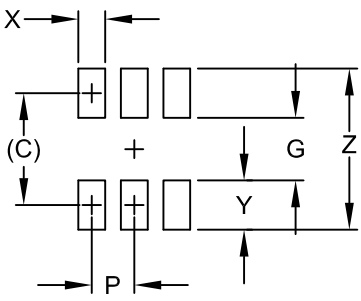




NOTES:

1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).
2. DATUMS -A- AND -B- TO BE DETERMINED AT DATUM PLANE -H-
3. DIMENSIONS "E1" AND "D" DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.

Land Pattern - SOT23-6L

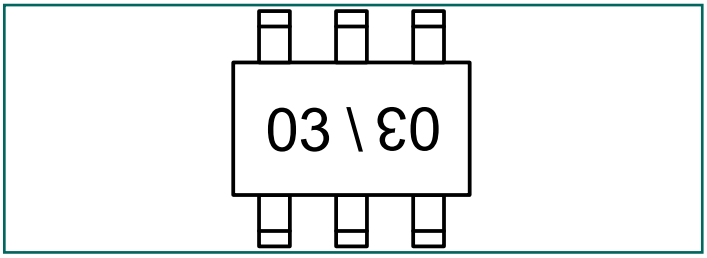


DIMENSIONS	
DIM	MILLIMETERS
C	(2.50)
G	1.40
P	0.95
X	0.60
Y	1.10
Z	3.60

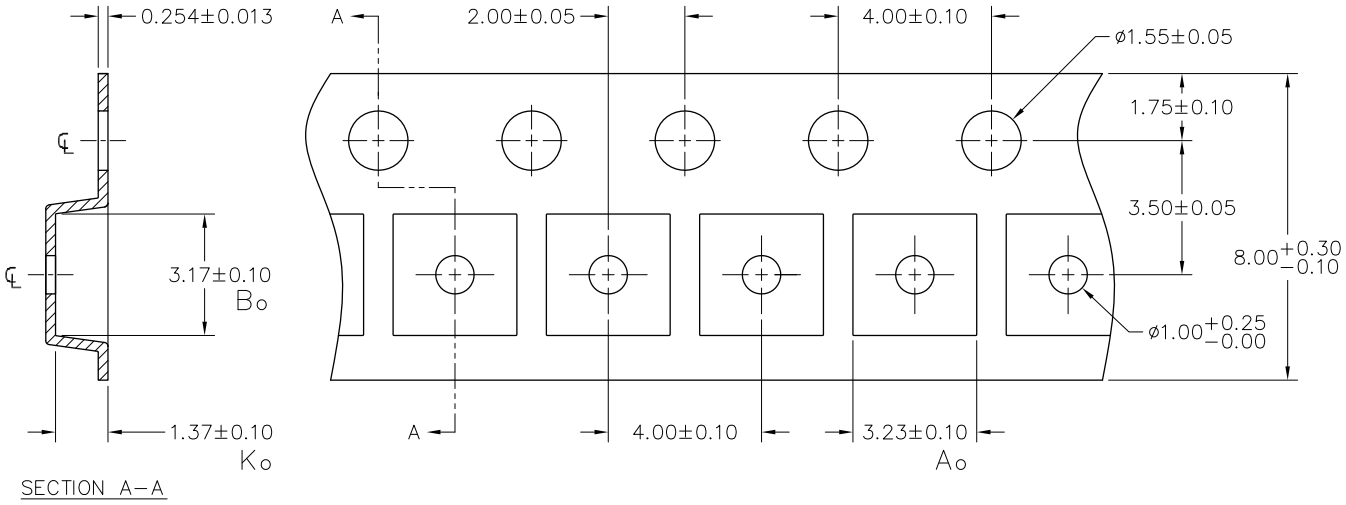
NOTES:

1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).
2. THIS LAND PATTERN IS FOR REFERENCE PURPOSES ONLY. CONSULT YOUR MANUFACTURING GROUP TO ENSURE YOUR COMPANY'S MANUFACTURING GUIDELINES ARE MET.

Marking Code



Tape and Reel Specification



Ordering Information

Part Number	Qty per Reel	Reel Size	Pitch
SMS3.3.TCT	3000	7 Inch	4mm

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