

SITMXX 2-Channel ESD Protection Diode

1. Description

The SITMXX is a Transient Voltage Suppressor Arrays that designed to protect components which are connected to data and transmission lines against electrostatic discharge (ESD), electrical fast Transients (EFT), and lightning. All pins are rated to withstand 30kV ESD pulses using the IEC61000-4-2 are discharge method.

2. Features

- IEC 61000-4-2 Level 4 ESD Protection
 - ±30kV Contact Discharge
 - ±30kV Air Discharge
- 450W Peak pulse Power (8/20us)
- Low clamping voltage
- Protects one bidirectional or two Unidirectional lines
- Low leakage current
- ESD protection > 15kV
- RoHS compliant

3. Applications

- Portable electronic
- Control & monitoring systems
- Servers, notebooks, and desktop PCs
- Set-top box
- Communications systems

4. Ordering Information

Part Number	Package	Material	Packing	Quantity per reel	Flammability Rating	Reel Size	
SITMXX	SOT-23	Halogen free	Tape & Reel	3,000 PCS	UL 94V-0	7 inches	
Marking for the SITMXX series							
V _{RWM}	3.3V	5V	7V	12V	15V	24V	36V
Marking	M03	M05	M07	M12	M15	M24	M36

Table-1 Ordering information

5. Pin Configuration and Functions

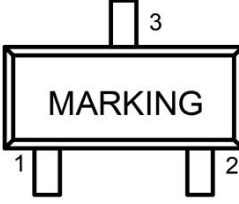
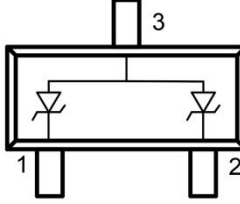
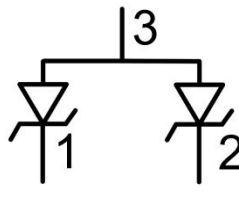
Pin	Name	Description	Outline	Circuit Diagram	Schematic symbol
1	IO	Connect to IO			
2	IO	Connect to IO			
3	GND	Connect to GND			

Table-2 Pin configuration

6. Specification

6.1. Absolute Maximum rating

Over operating free-air temperature range (unless otherwise noted)

Parameters	Symbol	Min.	Max.	Unit
Peak pulse power (tp=8/20us)@25°C	P _{pk}	-	450	W
Peak pulse current (tp=8/20us)@25°C	I _{PP}		Refer to Table-5	A
ESD (IEC61000-4-2 air discharge) @25°C	V _{ESD}	-	±30	kV
ESD (IEC61000-4-2 contact discharge) @25°C	V _{ESD}	-	±30	kV
Junction temperature	T _J	-	125	°C
Operating temperature	T _{OP}	-40	85	°C
Storage temperature	T _{STG}	-55	150	°C
Lead temperature	T _L	-	260	°C

Table-3 Absolute Maximum rating

6.2. Electrical Characteristics

Symbol	Description
V_{RWM}	Rated reverse stand-off voltage
V_{BR}	Minimum breakdown voltage @ $I_T = 1\text{mA}$
V_{CL}	Clamping voltage
I_{PP}	Maximum peak pulse current
I_R	Reverse leakage current @ V_{RWM}
C_O	Typical line capacitance ($V_{IO}=0\text{V}$, $V_{P-P} = 30\text{mV}$, $f = 1\text{MHz}$)

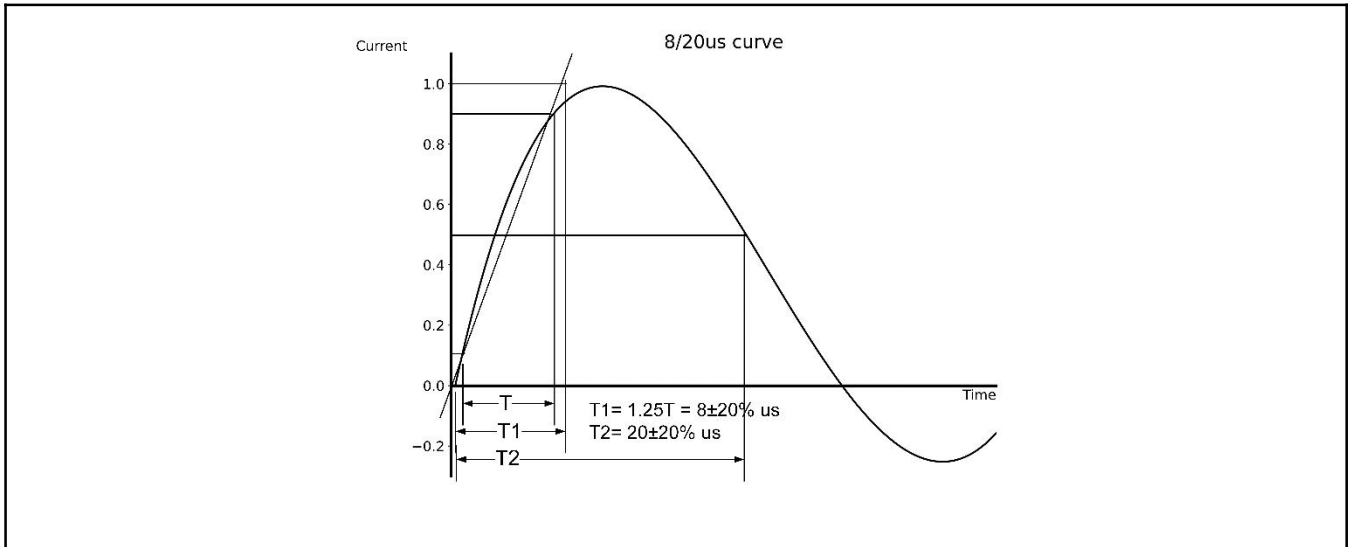
Table-4 Parameters Description

At TA = 25°C unless otherwise noted

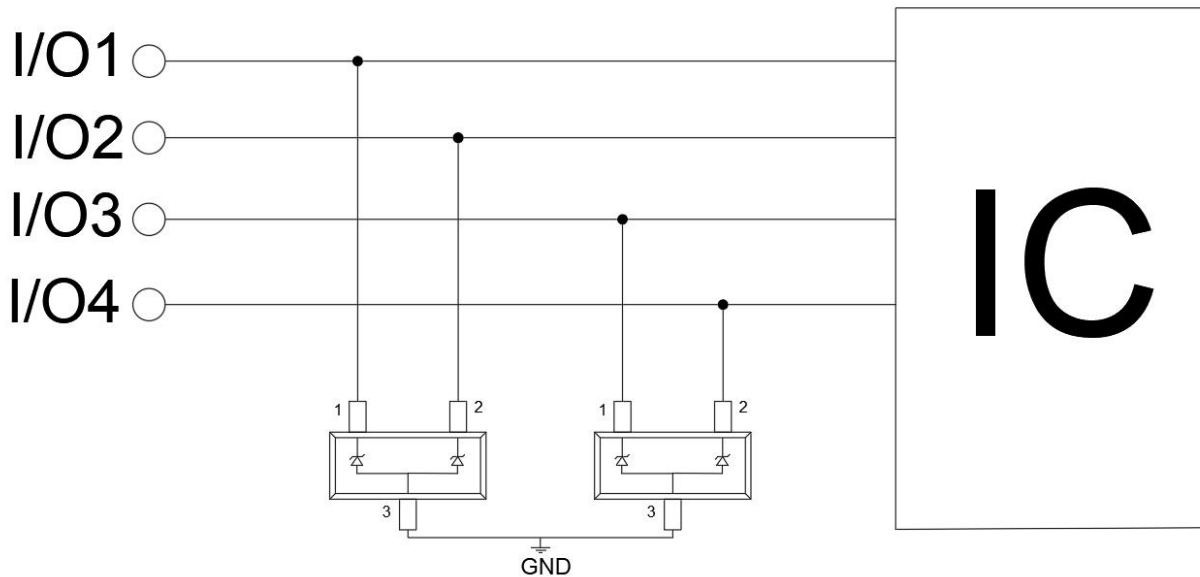
Part Number	V_{RWM}	V_{BR}	$V_{CL}@I=1\text{A}$	I_{PP}	$V_{CL}@I=I_{PP}$	I_R	C_O
	(V)	(V)	(V)	(A)	(V)	(μA)	(pF)
SITM03	3.3	4.5	9	32	18	1.0	300
SITM05	5	6	9	30	18	1.0	220
SITM07	7	7.5	9	25	20	1.0	180
SITM12	12	13.5	18	15	28	1.0	100
SITM15	15	16.5	22	11	33	1.0	80
SITM24	24	26.5	33	6	48	1.0	60
SITM36	36	40	55	3	65	1.0	50

Table-5 Electrical Characteristics for All Series

7. Typical Characteristic

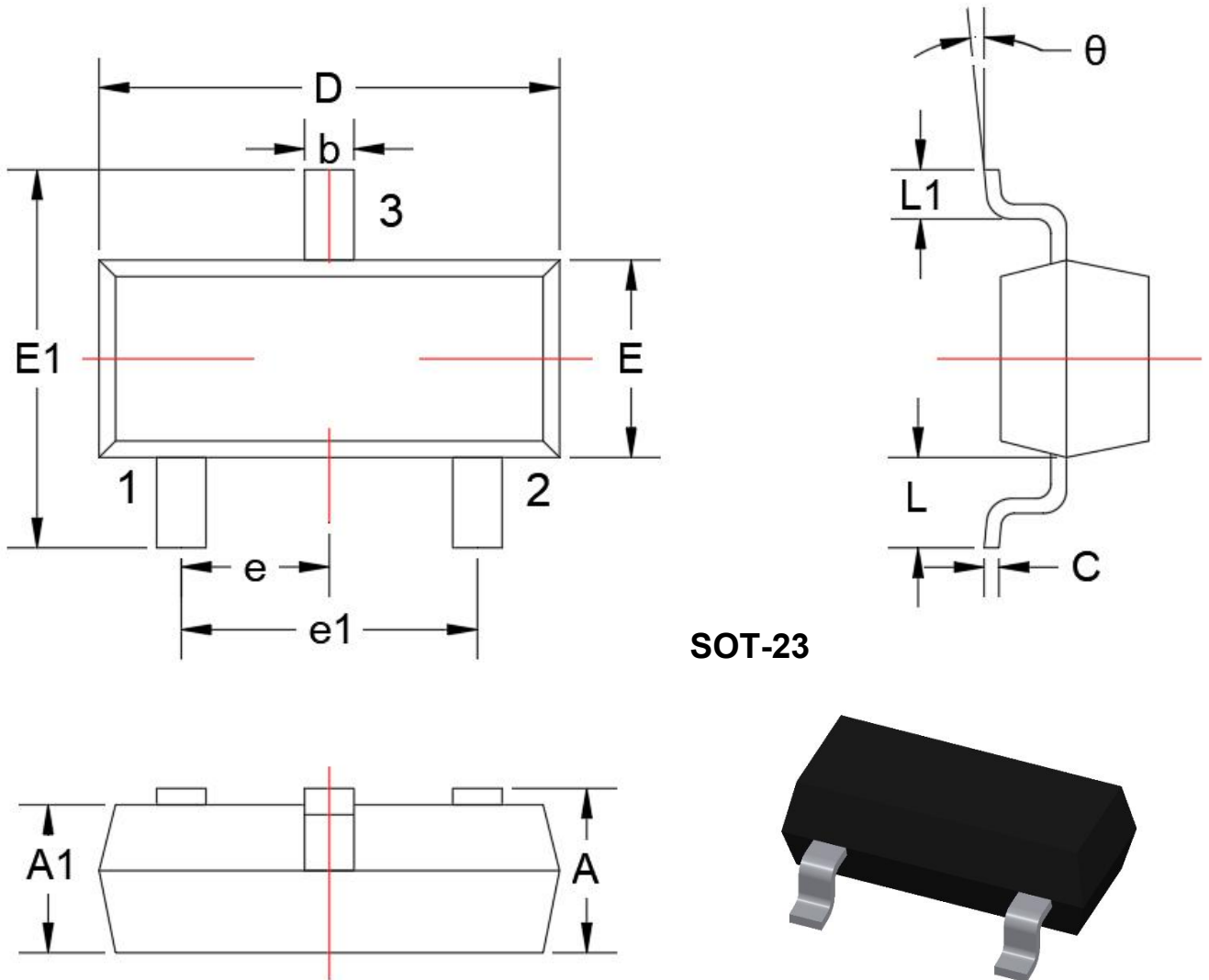


8. Typical Application



Typical Interface Application

9. Dimension

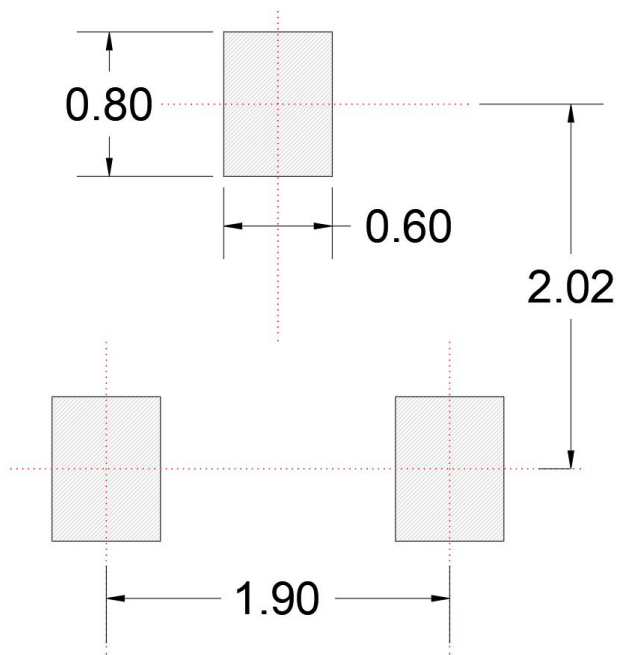


SOT-23

Dimensions in Millimeters					
Symbol	Min.	Max.	Symbol	Min.	Max.
A	0.9	1.15	e1	1.80	2.00
A1	0.00	0.10	L	0.55REF	
b	0.30	0.50	L1	0.30	0.50
C	0.08	0.15	θ	0°	8°
D	2.80	3.00			
E	1.20	1.40			
E1	2.25	2.55			
e	0.95TYP				

Table-5 Product dimensions

10. Recommended Land Pattern

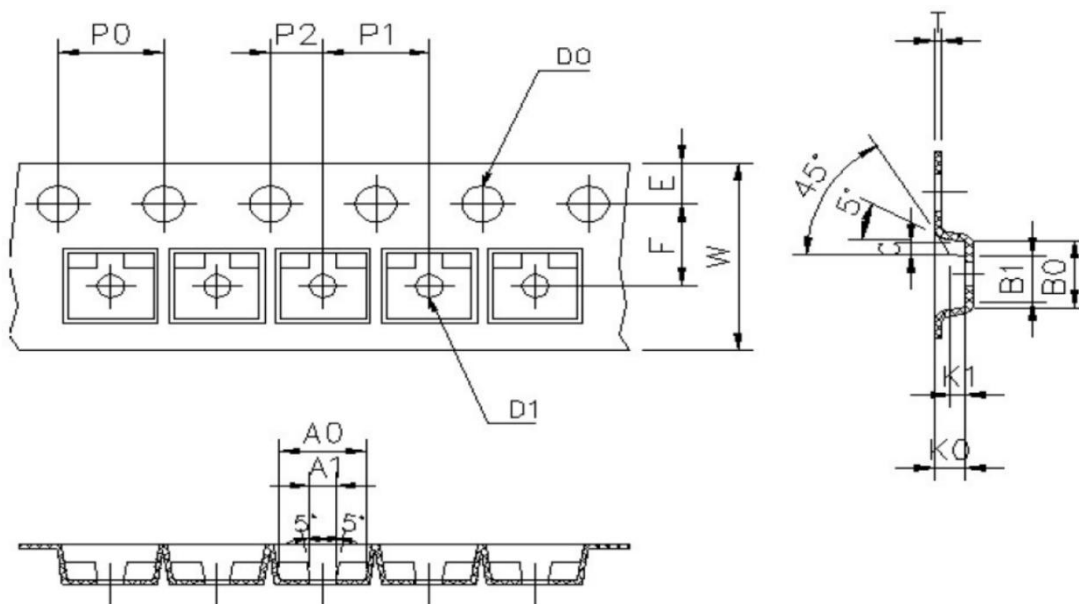


Note:

1. Controlling dimension: in millimeters
2. General tolerance: $\pm 0.05\text{mm}$
3. The pad layout is for reference only

11. Package Information

SOT-23 Embossed Carrier Tape



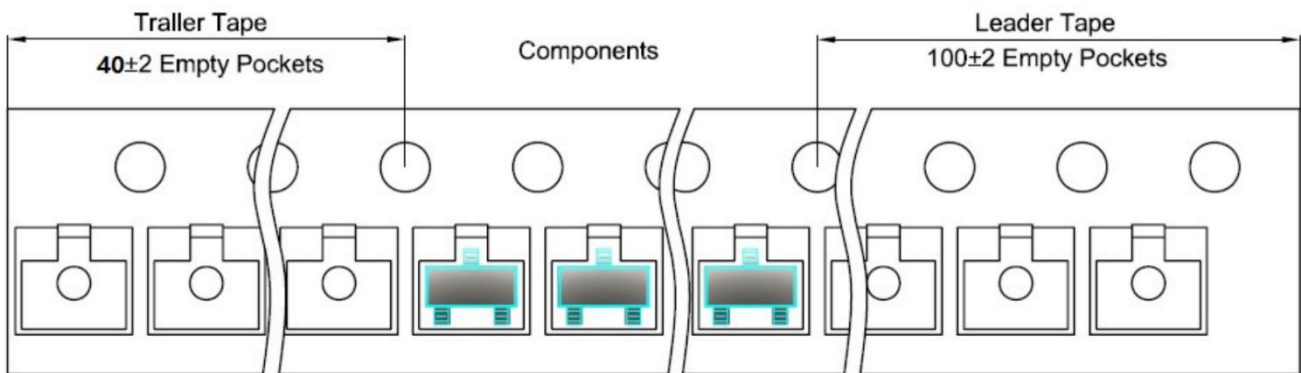
Symbol	Spec.	Symbol	Spec.
W	8.00±0.10	A0	3.15±0.10
D	1.75±0.10	A1	1.09±0.10
F	3.50±0.10	B0	2.77±0.10
D0	1.50±0.10	B1	2.15±0.10
D1	1.00±0.10	K0	1.22±0.10
P0	4.00±0.10	10*P0	40.00±0.20
P1	4.00±0.10		
P2	2.00±0.10		
t	0.19±0.22		

Table-6 Tape dimensions in millimeter(mm)

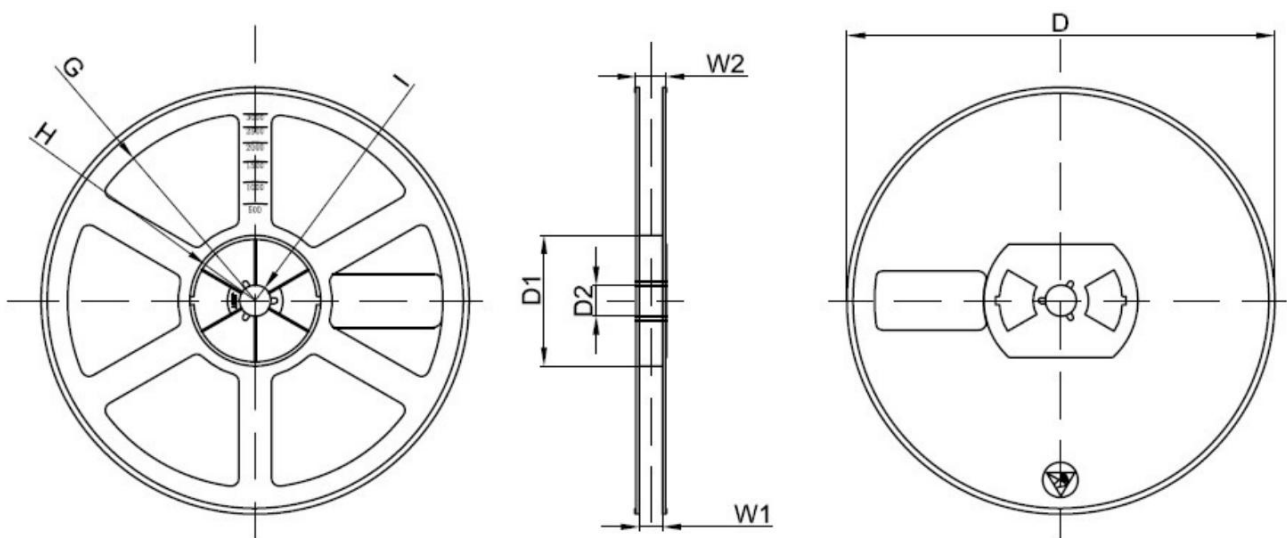
Packaging Description:

SOT-23 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (heat Activated Adhesive in nature) Primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. The reels are blue in color and made of recyclable plastic.

SOT-23 Tape leader and Trailer



SOT-23 Reel





Reel option	D	D1	D2	G	H	I	W1	W2
7" Dia	ϕ 178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30
Tolerance	± 2	± 1	± 1	± 1	± 1	± 1	± 1	± 1

Table-7 Reel dimension in millimeters(mm)

Packaging Quantity

Reel	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)
3000	7 inches	45,000	210*208*203	180,000	440*440*230

Table-8 Packaging Quantity



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