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SuperESD - MMBZ6V8ALT1G

1. Description

The MMBZ6V8ALT1G 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 air discharge method.

2. Features

- IEC 61000-4-2 Level 4 ESD Protection
  - ±30kV Contact Discharge
  - ±30kV Air Discharge
- 180W Peak pulse Power (8/20us)
- Low clamping voltage
- Working voltage: 5V
- Low leakage current
- ESD Protection > 15kV
- RoHS compliant
- Protecting one bidirectional or two unidirectional lines

3. Applications

- Portable electronics
- Control & monitoring systems
- Servers, notebooks, and desktop PCs
- Set-top box
- Communication systems

4. Ordering Information

Part Number	Package	Marking	Material	Packing	Quantity per reel	Flammability Rating	Reel Size
MMBZ6V8ALT1G	SOT-23	M05	Halogen free	Tape & Reel	3,000 PCS	UL 94V-0	7 inches

Table-1   Ordering information

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5. Pin Configuration and Functions
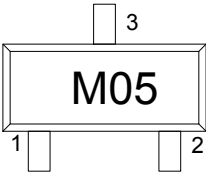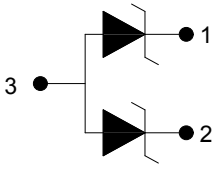
Pin	Name	Description	Outline	Circuit Diagram
1	IO	Connect to IO		
2	IO	Connect to IO	M05	
3	GND	Connect to GND		

<div align="center">Table-2   Pin configuration</div>

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℃	P_{pk}	-	180	W
Peak pulse current (tp=8/20us)@25℃	I_{PP}		12	A
ESD (IEC61000-4-2 air discharge) @25℃	V_{ESD}	-	±30	kV
ESD (IEC61000-4-2 contact discharge) @25℃	V_{ESD}	-	±30	kV
Junction temperature	T_J	-	150	℃
Operating temperature	T_{OP}	-40	125	℃
Storage temperature	T_{STG}	-55	150	℃
Lead temperature	T_L	-	260	℃

<div align="center">Table-3   Absolute Maximum rating</div>

6.2. Electrical Characteristics

At TA = 25℃ unless otherwise noted

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V_{RWM}				5.0	V
Reverse Breakdown Voltage	V_{BR}	IT=1mA	6.0		9.5	V
Reverse Leakage Current	I_R	VRWM=5V			1.0	uA
Clamping Voltage	V_C	IPP=1A; tp=8/20us		8.5	11	V
Clamping Voltage	V_C	IPP=12A; tp=8/20us		12.0	15.0	V
Junction Capacitance	C_J	VR=0V; f=1MHz		120	150	pF

Table-4   Electrical Characteristics
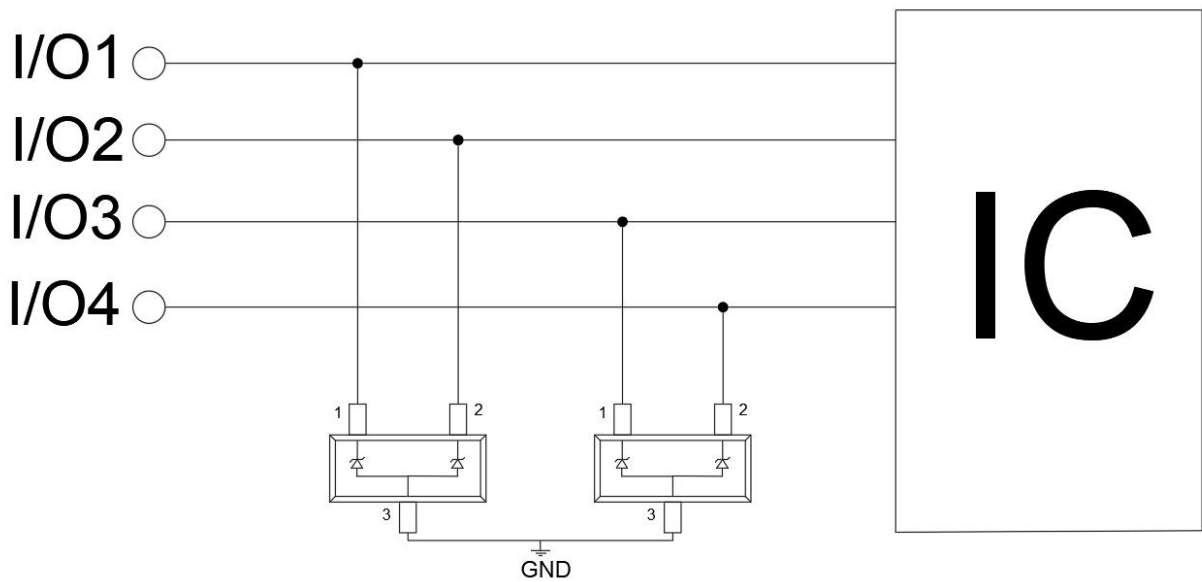
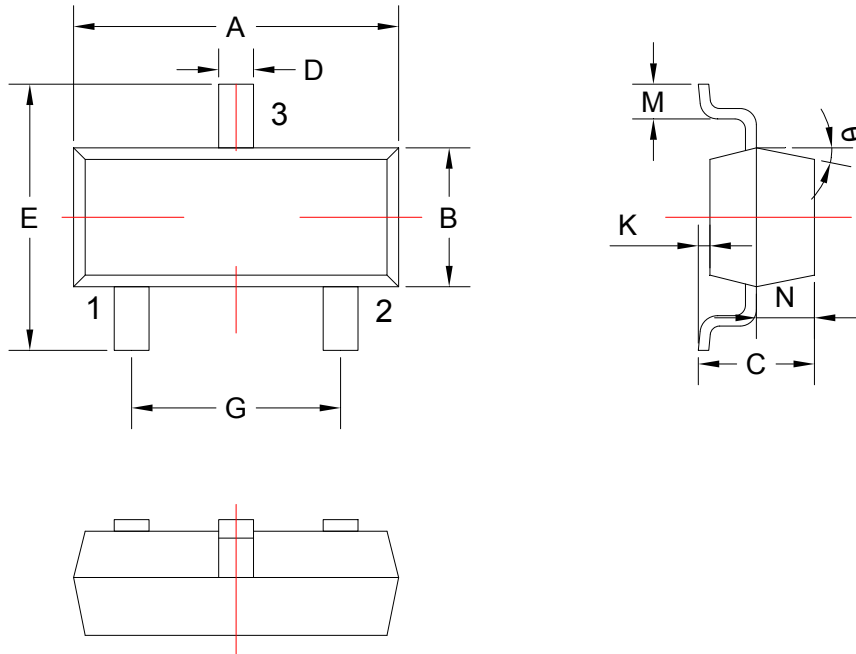| Symbol	Parameters
V_{RWM}	Peak Reverse Working Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
I_F	Forward Current
V_F	Forward Voltage @ I_F

7. Typical Characteristic

8/20us curve

Current

1.0

0.8

0.6

0.4

0.2

0.0

-0.2

Time

T

T1

T2

T1= 1.25T = 8±20% us
T2= 20±20% us

8. Typical Application

I/O1

I/O2

I/O3

I/O4

IC

1   2

1   2

3   3

GND
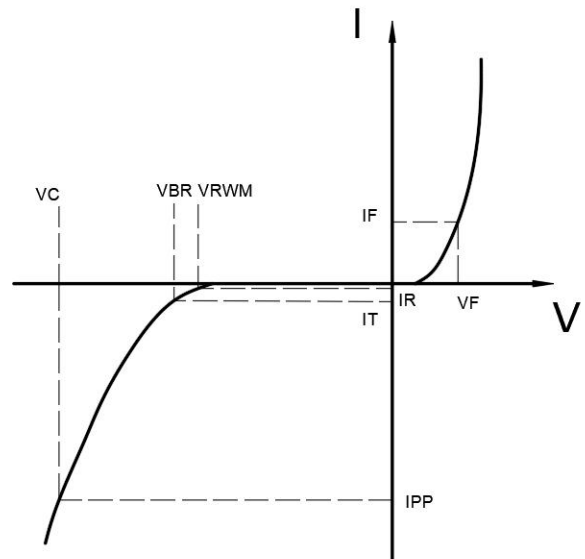
Typical Interface Application

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9. Dimension (SOT-23)

COMMON DIMENSIONS CUNITS MEASURE=MILLIMETER					
SYMBOL	MIN	MAX	SYMBOL	MIN	MAX
A	2.85	3.04	G	1.80	2.00
B	1.20	1.40	K	0	0.10
C	0.90	1.10	M	0.20	-
D	0.40	0.50	N	0.50	0.70
E	2.25	2.55	θ	5°	9°

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