



ESD4U5V0ASG

Transient Voltage Suppressor

Descriptions

Designed to protect voltage sensitive electronic components from ESD and other transients. Excellent clamping capability, low leakage, low capacitance, and fast response time provide best in class protection on designs that are exposed to ESD. The combination of small size, low capacitance, and high level of ESD protection makes them a flexible solution for applications such as HDMI, Display Port TM, and MDDI interfaces. It is designed to replace multiplayer varistors (MLV) in consumer equipments applications such as mobile phone, notebook, PAD, STB, LCD TV etc.

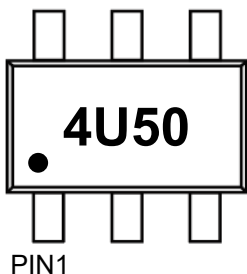
Features

- Uni-directional ESD Protection of four lines
- Low reverse stand-off voltage: 5V
- Low reverse clamping voltage
- Low leakage current
- Fast response time
- IEC 61000-4-2(ESD) : $\pm 15\text{KV}$ (Air Model)
 $\pm 10\text{KV}$ (Contact Model)

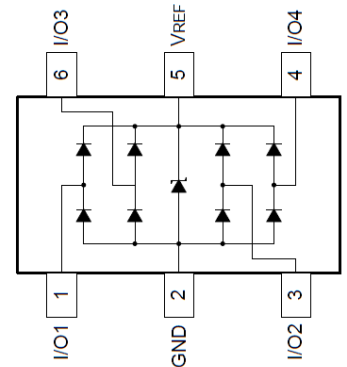
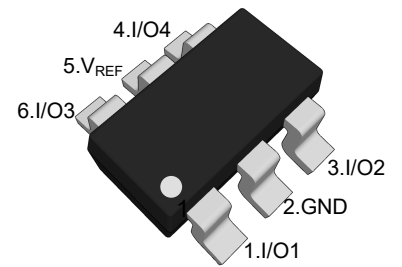
Applications

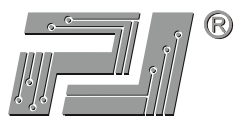
- Computers and peripherals
- Audio and video equipment
- High Definition Multi-Media Interface (HDMI)
- Cell phone

Marking Code



SOT-23-6





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Absolute Maximum Ratings ($T_A=25^\circ\text{C}$)

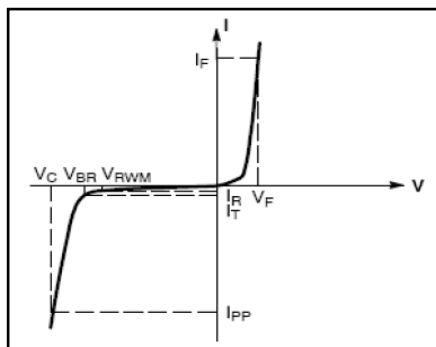
Parameter		Symbols	Value	Unit
IEC61000-4-2 ESD Voltage ^{Note1}	Air Model	V_{ESD}	± 15	KV
	Contact Model		± 10	
Peak Pulse Power Dissipation ^{Note2}		P_{PP}	100	W
Peak Pulse Current ^{Note2}		I_{PP}	5	A
Junction Temperature		T_J	125	$^\circ\text{C}$
Storage Temperature Range		T_{STG}	-55 to +150	$^\circ\text{C}$

Note: 1. Device stressed with ten non-repetitive ESD pulses.

2. Non-repetitive current pulse 8/20 μs exponential decay waveform according to IEC61000-4-5.

Electrical Parameter

Symbol	Parameter
V_C	Clamping Voltage @ I_{PP}
I_{PP}	Peak Pulse Current
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_R	Reverse Leakage Current @ V_{RWM}
V_{RWM}	Reverse Standoff Voltage
V_F	Forward Voltage @ I_F
I_F	Forward Current



V-I characteristics for a uni-directional TVS

Electrical Characteristics ($T_A=25^\circ\text{C}$)

Parameter	Symbols	Min.	Typ.	Max.	Unit
Reverse stand-off voltage ^{Note1}	V_{RWM}	--	--	5.0	V
Breakdown Voltage at $I_T = 1 \text{ mA}$ (I/O to GND)	V_{BR}	6.0	--	--	V
Reverse Leakage Current at $V_{\text{RWM}} = 5 \text{ V}$ (I/O to GND & V_{REF} to GND)	I_R	--	--	1.0	μA
Forward Voltage ^{Note2} at $I_F = 1 \text{ A}$ (GND to I/O & GND to V_{REF}) at $I_F = 5 \text{ A}$ (GND to I/O & GND to V_{REF})	V_F	-- --	1.8 5.0	-- --	V
Clamping Voltage ^{Note2} at $I_{\text{PP}} = 1 \text{ A}$ (I/O to GND & V_{REF} to GND) at $I_{\text{PP}} = 5 \text{ A}$ (I/O to GND & V_{REF} to GND)	V_C	-- --	-- --	12 16	V
Junction Capacitance at $V_R = 0 \text{ V}$, $f = 1 \text{ MHz}$ at $V_R = 0 \text{ V}$, $f = 1 \text{ MHz}$ (I/O to I/O)	C_J	-- --	-- --	0.8 0.4	pF

Note: 1. Other voltages available upon request.

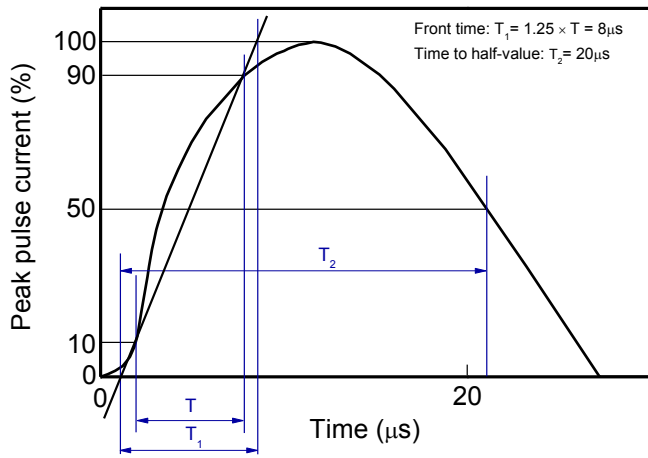
2. Non-repetitive current pulse 8/20 μs exponential decay waveform according to IEC61000-4-5.



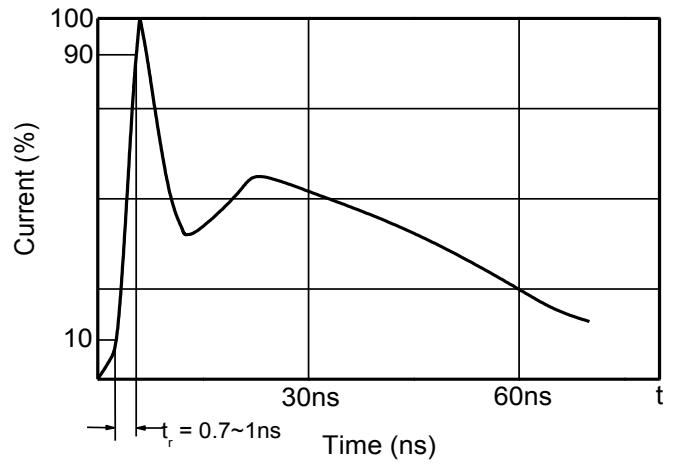
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Typical Characteristic Curves



8/20 μs waveform per IEC61000-4-5



Contact discharge current waveform per IEC61000-4-2



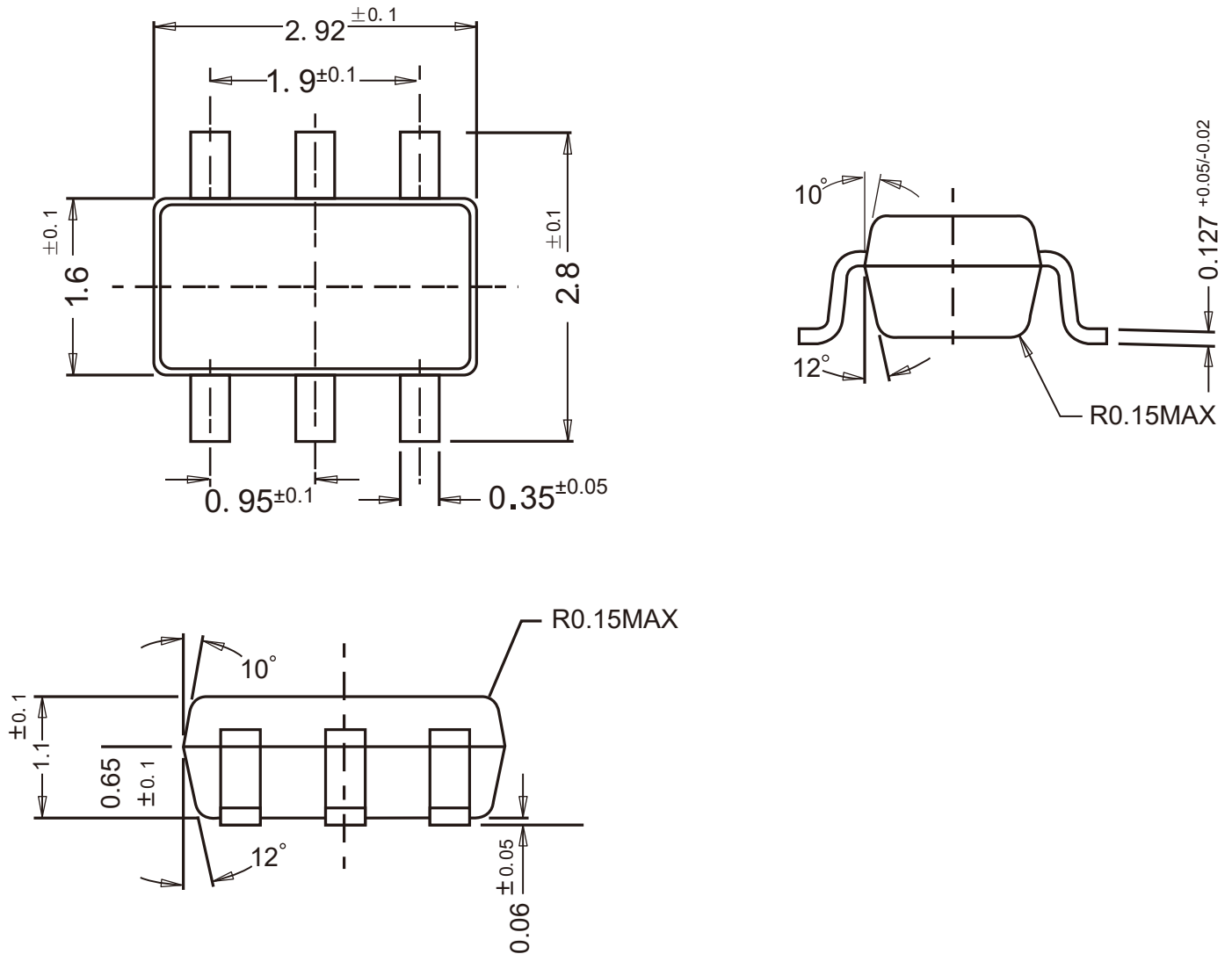
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Package Outline

SOT-23-6

Dimensions in mm



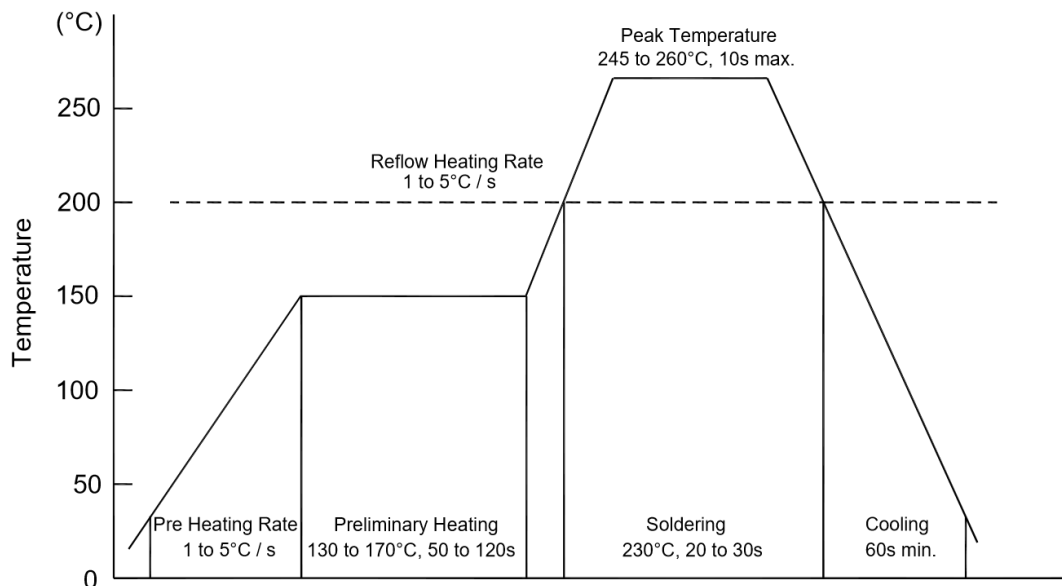
Ordering Information

Device	Package	Shipping
ESD4U5V0ASG	SOT-23-6	3,000PCS/Reel&7inches



Conditions of Soldering and Storage

◆ Recommended condition of reflow soldering



Recommended peak temperature is over 245 °C. If peak temperature is below 245 °C, you may adjust the following parameters:

- Time length of peak temperature (longer)
- Time length of soldering (longer)
- Thickness of solder paste (thicker)

◆ Conditions of hand soldering

- Temperature: 370 °C
- Time: 3s max.
- Times: one time

◆ Storage conditions

- **Temperature**
5 to 40 °C
- **Humidity**
30 to 80% RH
- **Recommended period**
One year after manufacturing

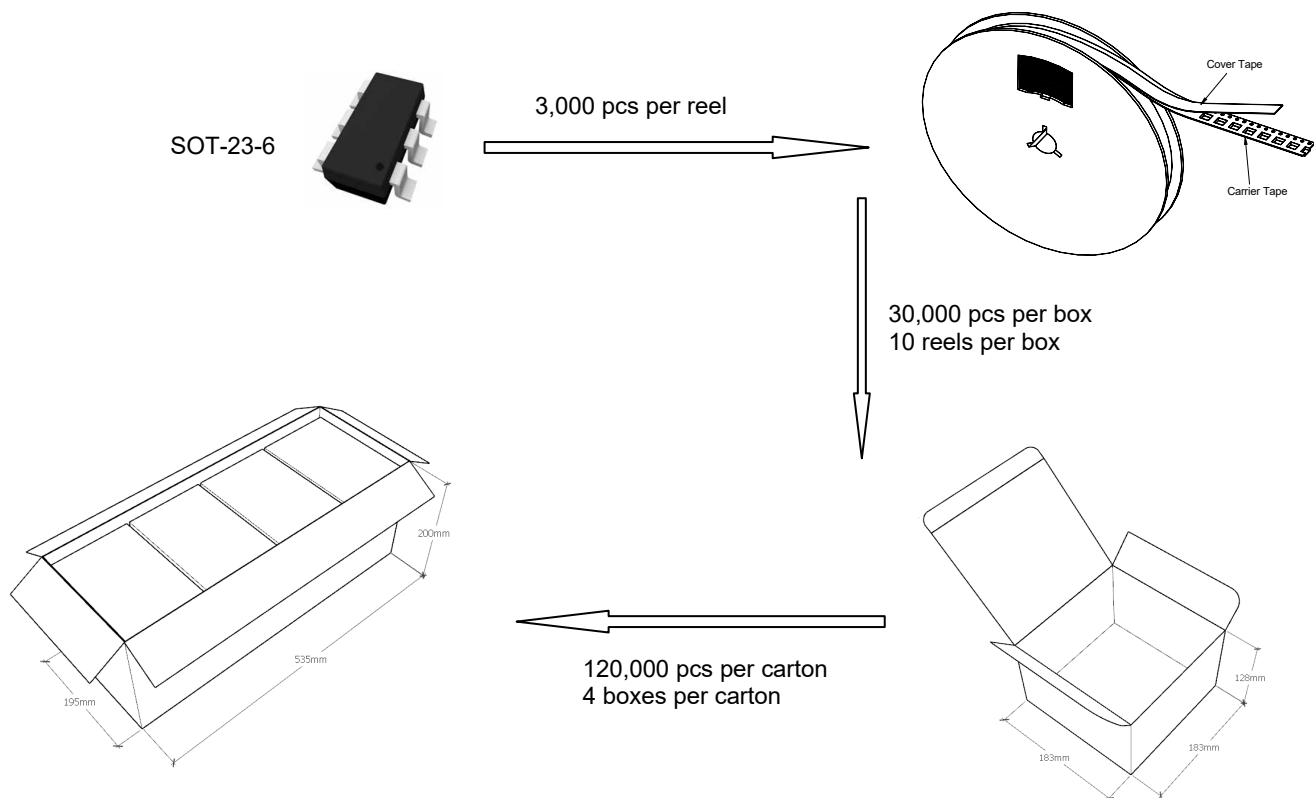


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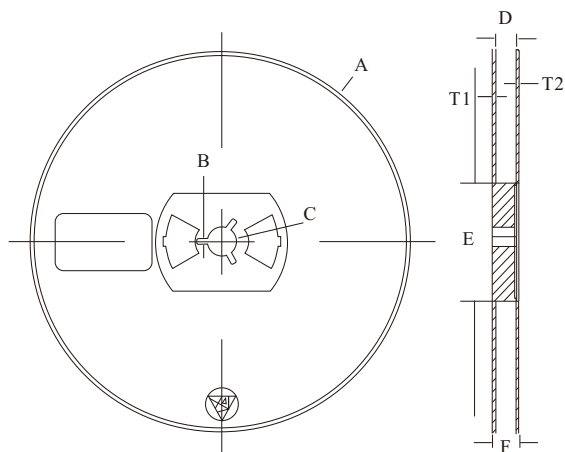
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Package Specifications

- The method of packaging

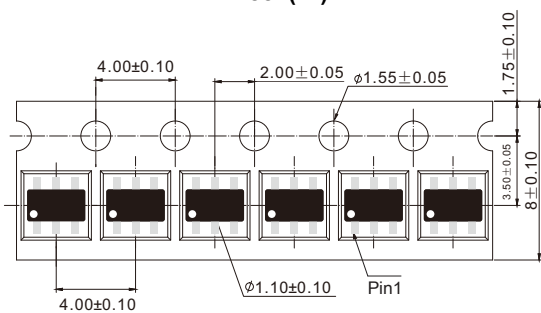


◆ Embossed tape and reel data



Symbol	Value (unit: mm)
A	Ø 177.8±1
B	2.7±0.2
C	Ø 13.5±0.2
E	Ø 54.5±0.2
F	12.3±0.3
D	9.6+2/-0.3
T1	1.0±0.2
T2	1.2±0.2

Reel (7")



Tape (8mm)