SuperESD - SM24CANA-02HTG-ES

1. Description

The SM24CANA-02HTG-ES 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
- 340W Peak pulse Power (8/20us)
- Low clamping voltage
- Working voltage: 24V
- Low leakage current
- RoHS compliant
- Protecting two bidirectional lines

3. Applications

- Portable electronics
- Control & monitoring systems
- Servers, notebooks, and desktop PCs
- CAN bus protection
- Automotive application
- Cellular handsets and accessories

4. Ordering Information

Part Number	Package	Marking	Material	Packing	Quantity per reel	Flammability Rating	Reel Size
SM24CANA-02HTG-ES	SOT-23	C24	Halogen free	Tape & Reel	3,000 PCS	UL 94V-0	7 inches

Table-1 Ordering information

5. Pin Configuration and Functions

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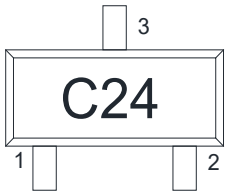
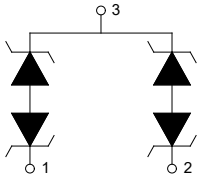
Pin	Name	Description	Outline	Circuit Diagram
1	IO	Connect to IO		
2	IO	Connect to IO		
3	GND	Connect to GND		

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℃	P_{pk}	-	340	W
Peak pulse current (tp=8/20us)@25℃	I_{PP}		8	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	℃

Table-3 Absolute Maximum rating

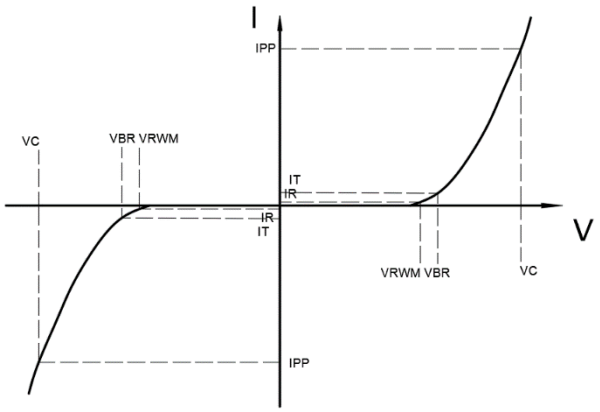
6.2. Electrical Characteristics

At TA = 25℃ unless otherwise noted

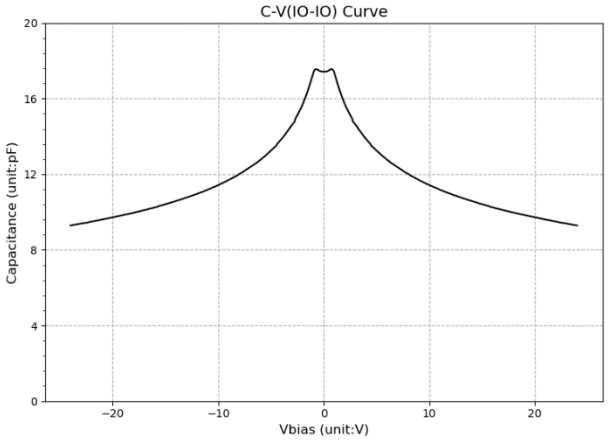
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V_{RWM}				24.0	V
Reverse Breakdown Voltage	V_{BR}	IT=1mA	26.0	28.0		V
Reverse Leakage Current	I_R	VRWM=24V			100	nA
Clamping Voltage	V_C	IPP=1A; tp=8/20us		31.0		V
Clamping Voltage	V_C	IPP=8A; tp=8/20us		43.0		V
Junction Capacitance	C_J	VR=0V; f=1MHz		18		pF

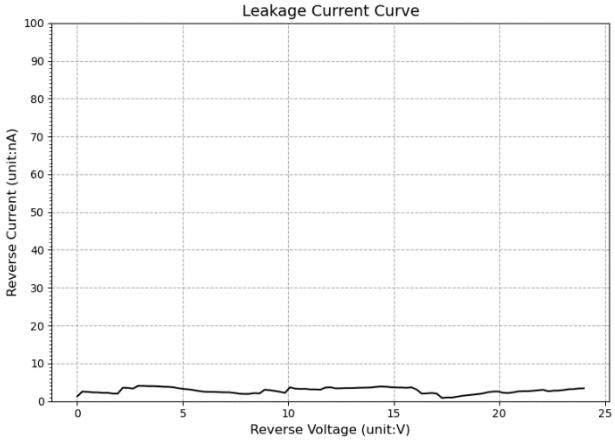
Table-4 Electrical Characteristics

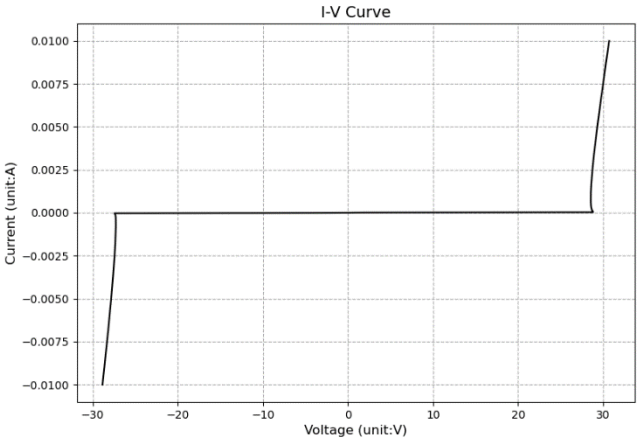
Symbol	Parameters
V_{RWM}	Peak Reverse Working Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}

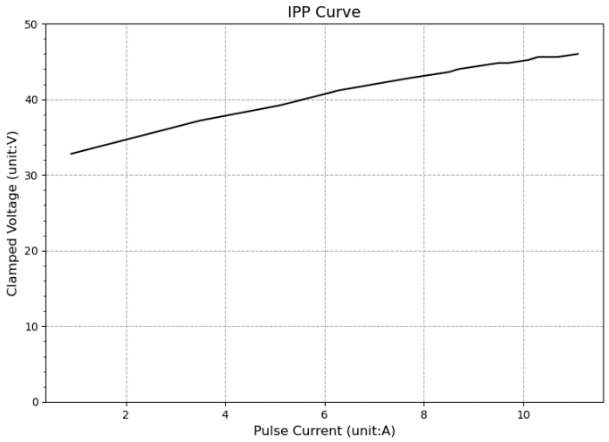


7. Typical Characteristic

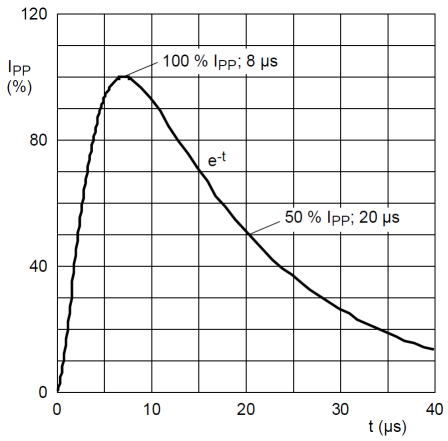




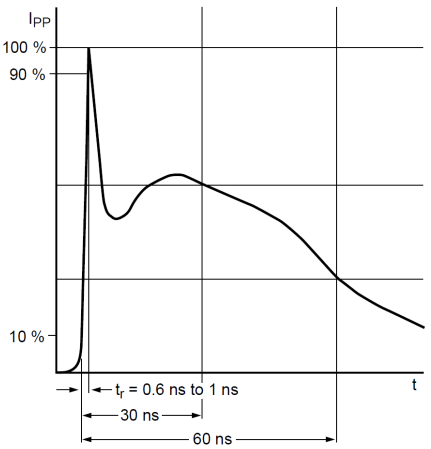




Measurement Wave According to IEC Standard

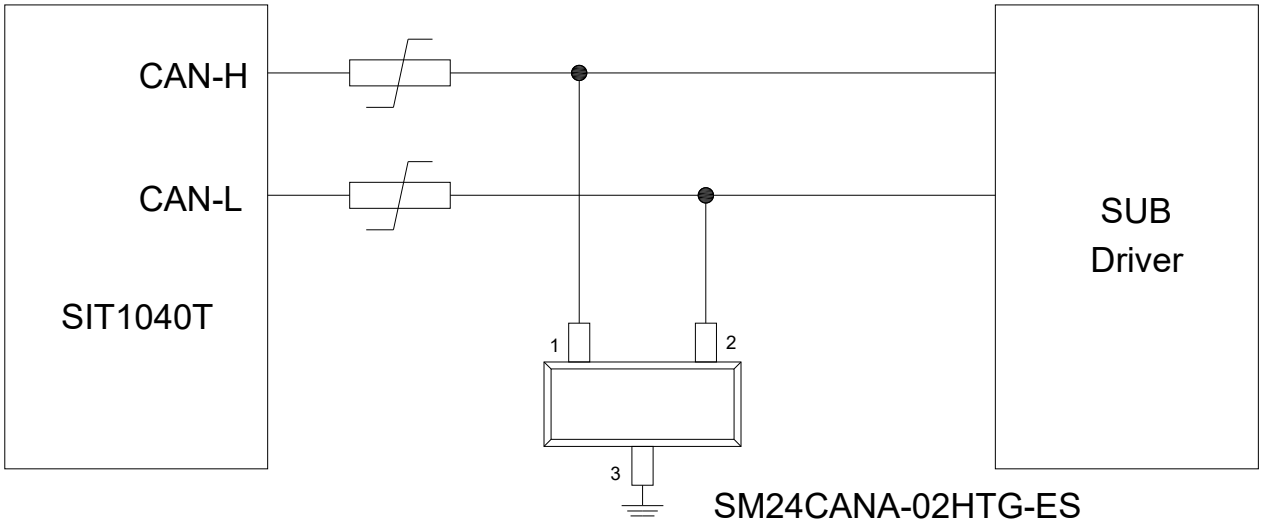


8/20 µs pulse waveform according to IEC 61000-4-5



ESD pulse waveform according to IEC 61000-4-2

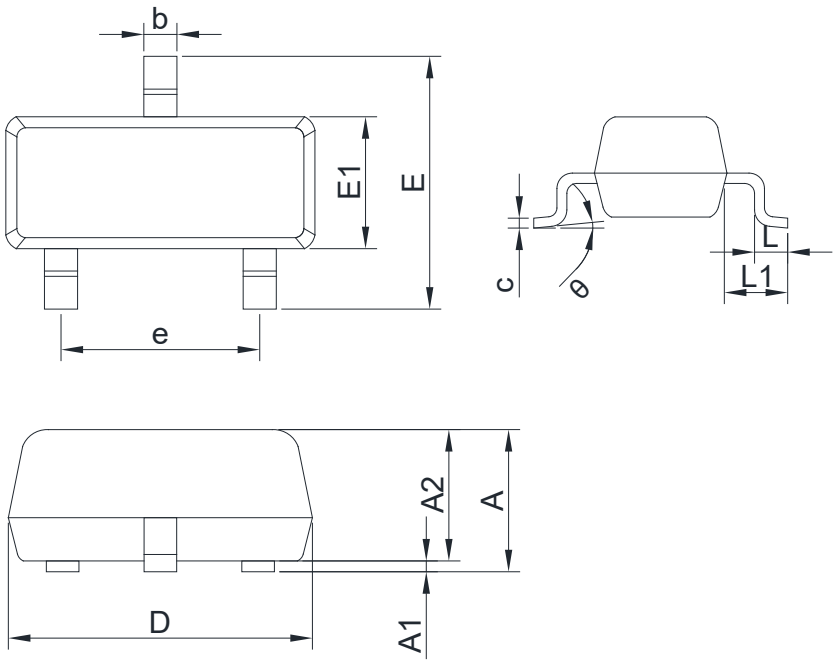
8. Typical Application



Typical Interface Application of CAN Bus Protection

9. Dimension (SOT-23)

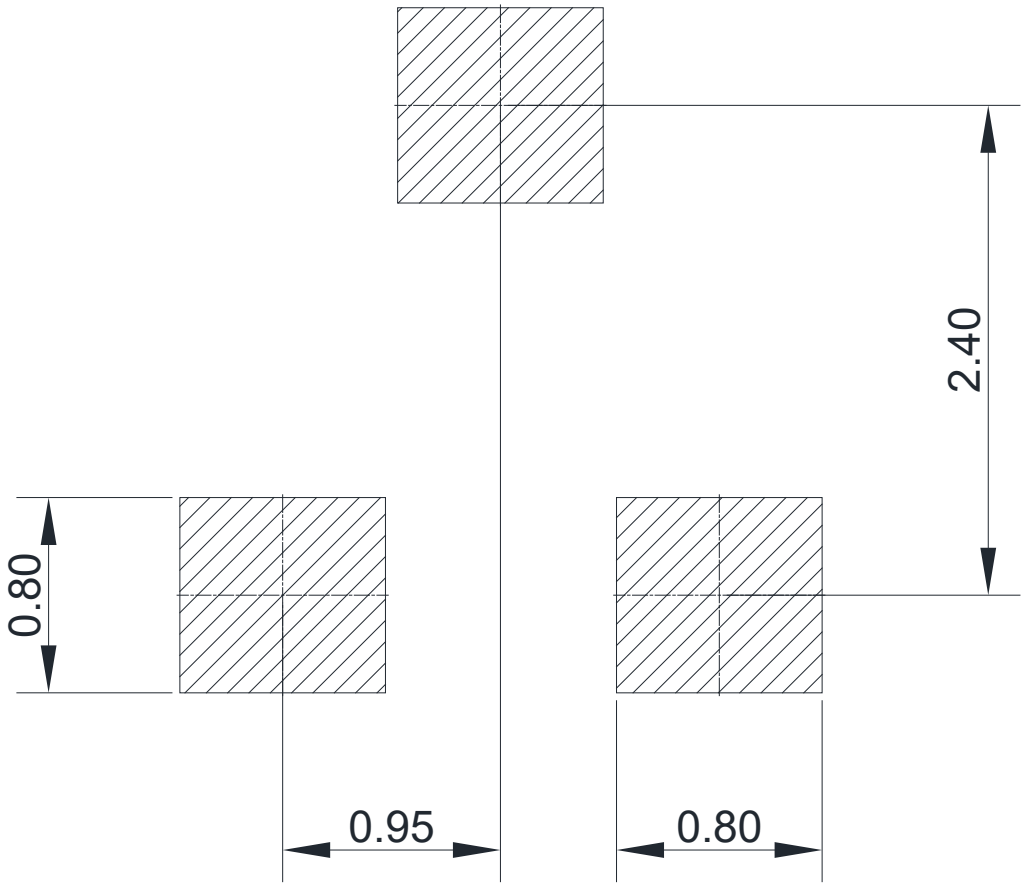
POD(Z)



COMMON DIMENSIONS CUNITS MEASURE=MILLIMETER					
SYMBOL	MIN	MAX	SYMBOL	MIN	MAX
A	0.90	1.20	E	2.25	2.55
A1	0.00	0.10	E1	1.20	1.40
A2	0.90	1.10	e	1.80	2.00
b	0.30	0.50	L	0.30	0.50
c	0.07	0.18	L1	0.475	0.625
D	2.80	3.04	θ	0°	8°

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10. Recommended Soldering Footprint



DIMENSIONS: MILLIMETERS

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