

2-Lines, Bi-directional transil functions

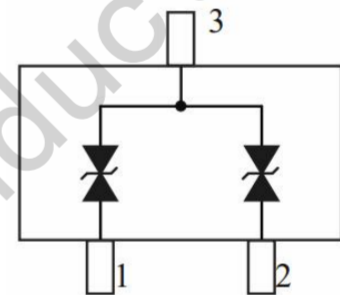
The SM24C TVS Diode Array is designed to protect Area Network (CAN) lines from damage due to electrostatic discharge (ESD), electrical fast transient (EFT), and other overvoltage transients. The SM24C Series can absorb repetitive ESD strikes above the maximum level specified in the IEC 61000-4-2 international standard without performance degradation and safely dissipate 2A of 8/20us surge current (IEC 61000-4-5) .



The SM24C is available in SOT-23 package. Standard products are Pb-free and Halogen-free.

Features

- ◆ 2 Bi-directional transil functions
- ◆ Reverse stand-off voltage: $\pm 24V$ Max
- ◆ Low leakage current: nA Level
- ◆ Response time is typically < 1 ns
- ◆ Low Capacitance 4.5pF (I/O-GND Typ)
- ◆ Transient protection for each line according to IEC61000-4-2(ESD) 15KV(air) 8KV(contact)
IEC61000-4-5(Lightning) see I_{PPM} below



Pin Configuration

Applications

- ◆ ADAS Control Units CAN Bus
- ◆ PowerTrain Control Units
- ◆ Electronic Control Units
- ◆ Factory Automation
- ◆ Body Control Units
- ◆ Lightning Control (DALI)

Ordering Information

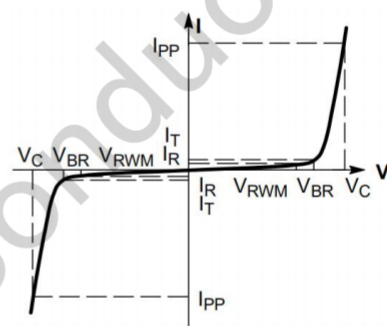
Device	Package	Shipping
SM24C	SOT-23	3000/Tape & Reel

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

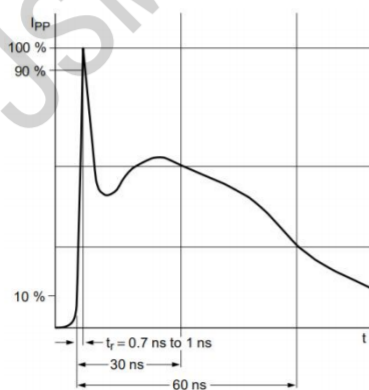
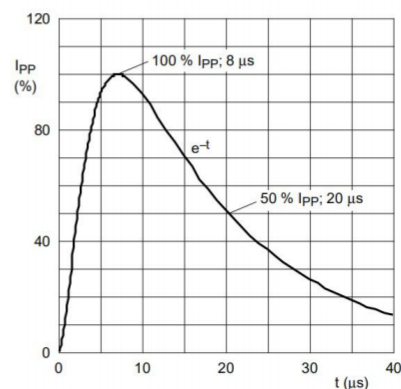
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	160	W
Lead Solder Temperature – Maximum (10 Second Duration)	TL	260	$^{\circ}\text{C}$
ESD per IEC61000-4-2 (Air) ESD per IEC61000-4-2 (Contact)	V_{ESD}	± 15 ± 8	KV
Operating Temperature Range	T_J	-40 to +125	$^{\circ}\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}\text{C}$

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

Symbol	Parameter
I_{PP}	Reverse Peak Pulse Current
V_{C}	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_{R}	Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_{T}
I_{T}	Test Current

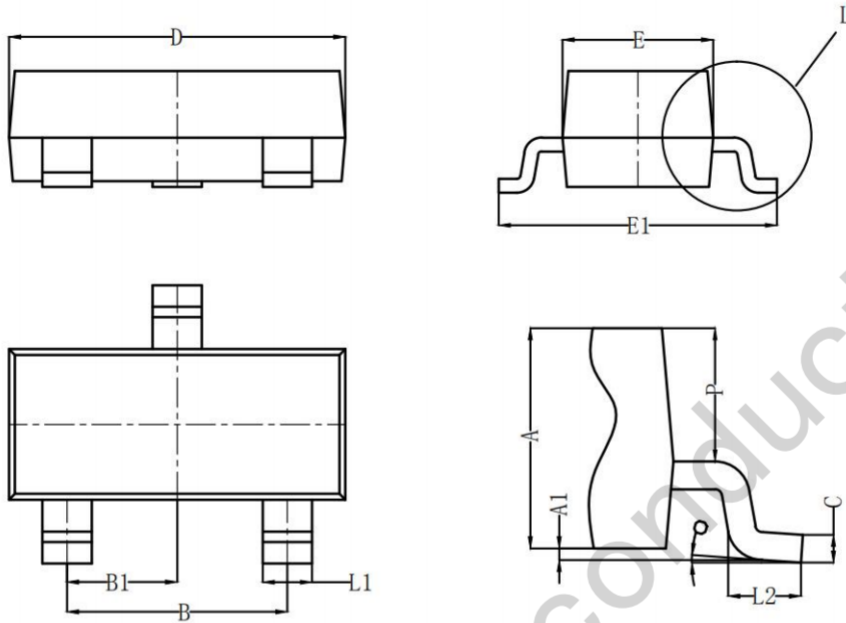

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}	--	--	24.0	V	
Breakdown Voltage	V_{BR}	26.7	--	--	V	$I_{\text{T}}=1\text{mA}$
Leakage Current ILeak	I_{R}	--	--	100	nA	$V_{\text{RWM}}=24\text{V}$
Clamping Voltage	V_{C}	--	--	80.0	V	$I_{\text{PP}}=2\text{A}, T_p=8/20\mu\text{s}$
Peak Pulse Current	I_{PP}	--	--	2.0	A	$T_p=8/20\mu\text{s}$
Junction Capacitance	C_J	--	4.5	6	pF	$V_{\text{R}}=0\text{V}, f=1\text{MHz}$ (Pin1 or 2 to 3)


IEC61000-4-2 Waveform

8/20 μs Pulse Waveform

Package Information

SOT-23



Symbol	Dimensions (mm)		
	Min	Typ	Max
A	0.900	1.000	1.1100
A1	0.000	0.050	0.100
L1	0.350	0.400	0.500
C	0.100	0.110	0.120
D	2.800	2.900	3.000
E	1.250	1.300	1.350
E1	2.250	2.400	2.550
B	1.800	1.900	2.000
B1	0.950 Typ		
L2	0.200	0.350	0.450
P	0.550	0.575	0.600