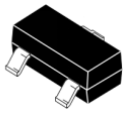
2-Line Unidirectional ESD Protection Diode



General description

These dual monolithic silicon surge protection diodes are designed for applications requiring transient overvoltage protection capability. They are intended for use in voltage and ESD sensitive equipment. as computers, printers, business machines, communication systems, medical equipment and other applications. Their dual junction common anode design protects two separate lines using only one package. These devices are ideal for situations where board space is at a premium.

Features and benefits

- 2 Unidirectional transil functions
- Reverse stand-off voltage: 24V Max
- Low clamping voltage
- Low leakage current: nA Level
- Response time is typically < 1 ns
- ESD Protection: 20kV(air)/ 15kV(contact) (IEC61000-4-2)

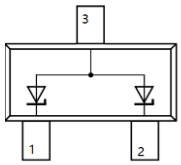
Application information

- Computers
- Printers
- Communication systems
- Cellular Handsets and Accessories
- Portable Electronis
- Industrial Controls

Ordering information

Device	Package	Marking	Packaging
SM24N	SOT23	M24	3000/Tape & Reel

Schematic & Pin configuration

Simplified outline and symbol	Pinning
	PIN1 cathode 1 (I/O) PIN2 cathode 2 (I/O) PIN3 common anode (GND)

Maximum Ratings (T_{OP} = 25 °C, unless otherwise specified)

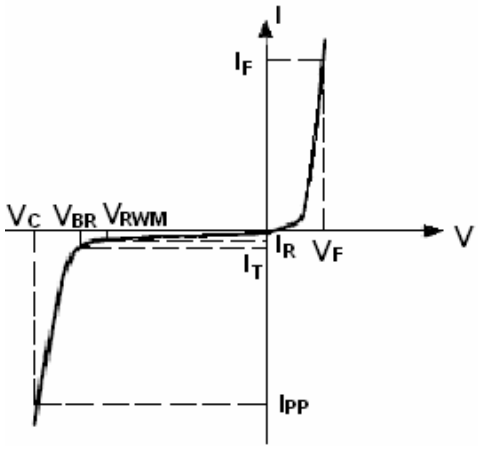
Parameter	Symbol	Value	Unit
Peak Pulse Power (tp = 8/20 μ s)	P_{PPM}	336	W
Peak Pulse Current(tp = 8/20 μ s)	I_{PPM}	6	A
Maximum lead temperature for soldering during 10s	T_L	260	°C
Storage Temperature Range	T_{stg}	-55 to +150	°C
Operating Temperature Range	T_{OP}	-40 to +125	°C
Maximum junction temperature	T_j	125	°C
ESD voltage IEC 61000-4-2 (air discharge)	V_{ESD}	20	kV
ESD voltage IEC 61000-4-2 (contact discharge)	V_{ESD}	15	kV

Electrical Characteristics (T_{OP} = 25 °C, unless otherwise specified)

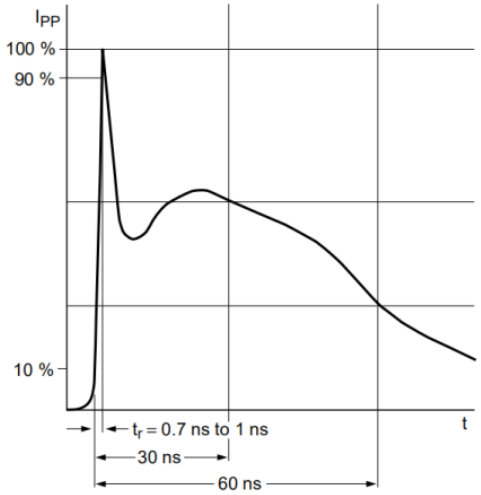
Parameter	Symbol	Min	Typ	Max	Unit	Condition
Reverse Working Voltage	V_{RWM}	--	--	24.0	V	
Breakdown Voltage	V_{BR}	27.0	28.5	32.0	V	I_T=1mA
Leakage Current ILeak	I_R	--	--	100	nA	V_{RWM}=24V
Forward Voltage	V_F	--	0.80	0.9	V	I_F=10mA
Clamping Voltage	V_C	--	35	--	V	I_{PP}=1.0A,Tp=8/20μs
Clamping Voltage	V_C	--	54	56.0	V	I_{PP}=6.0A,Tp=8/20μs
Junction Capacitance	C_J	--	25	30	pF	V_R=0V, f=1MHz (I/O to GND)
		--	13	16	pF	V_R=0V, f=1MHz (I/O to I/O)

Portion Electronics Parameter

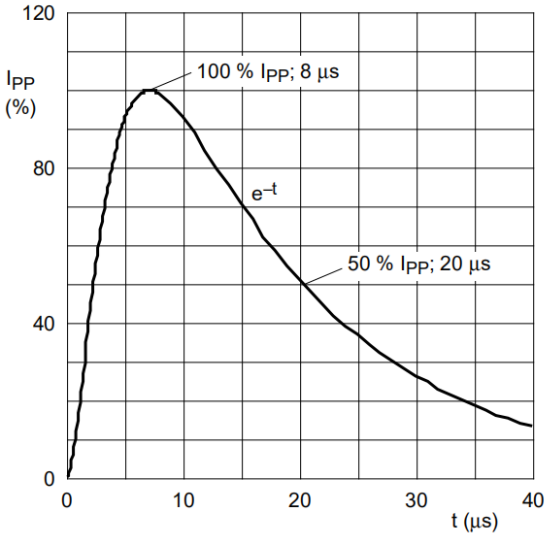
Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Reverse Leakage Current @ V_{RWM}
I_T	Test Current
V_{BR}	Breakdown Voltage @ I_T
I_F	Forward Current
V_F	Forward Voltage @ I_F



Typical Characteristics



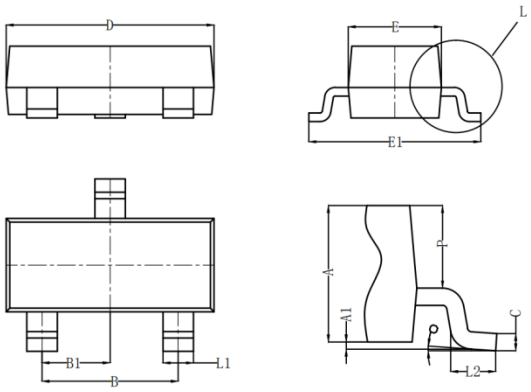
IEC61000−4−2 Waveform



IEC 61000-4-5 Waveform(8/20µs pulse)

Package Outline Dimensions

SOT23



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