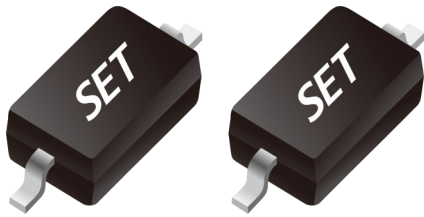


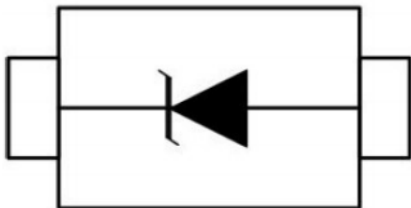
ESD Protection Diodes

Uni-directional ESD and Transient Voltage Protection

SDxxxxD32G1 SOD323



Pinout and Functional Block Diagram



Applications

- Networking and Telecom
- Microprocessor based equipment
- Personal Digital Assistants (PDA's)
- Notebooks, Desktops, and Servers
- Cell Phone Handsets and Accessories
- Portable Instrumentation
- Serial and Parallel Ports
- Peripherals

Order Information

Type	Package	Marking Code	Delivery Form	Delivery Quantity
SDxxxxD32G1	SOD323	Refer to next page	7" T&R	3000 PCS

Limiting Values

(T_A = 25 °C, unless otherwise specified)

Symbol	Parameter	Conditions	Min	Max	Unit
V _{ESD}	Electrostatic Discharge Voltage	IEC 61000-4-2; Contact Discharge	-	30	kV
		IEC 61000-4-2; Air Discharge	-	30	kV
P _{PP}	Peak Pulse Power (8 / 20 μs)	-	-	350	W
T _A	Operating Temperature Range	-	-55	150	°C
T _{stg}	Storage Temperature Range	-	-55	150	°C

Description

The SDxxxxD32G1 series is designed for applications requiring transient overvoltage protection capability. They are intended for use in voltage and ESD sensitive equipment such as computers, printers, business machines, communication systems, medical equipment and other applications. These devices are ideal for situations where board space is at a premium.

This series has been specifically designed to protect sensitive components which are connected to power, data and transmission lines from overvoltage caused by ESD (electrostatic discharge), CDE (Cable Discharge Events), and EFT (electrical fast transients).

Features

- IEC61000-4-2 (ESD) ± 30 kV (Air), ± 30 kV (Contact)
- IEC61000-4-4 (EFT) 40 A (5 / 50 ns)
- Peak Power Dissipation: 350 W@8 / 20 μs
- Protects One I/O Line (Uni-directional)
- Low Clamping Voltage
- Low Leakage Current
- High Temperature to Reflow Soldering Guaranteed: 260 °C/10 sec
- MSL1
- Flammability Rating: UL 94 V-0
- Halogen Free and RoHS Compliant

Electrical Characteristics

(T_A = 25 °C, unless otherwise specified)

Part Number	Device Marking Code	V _{RWM}	V _B	I _T	V _{C@1A}	V _C		I _R	C _J
		(V)	(V)	(mA)	(V)	(V)		(μA)	(pF)
		(max.)	(min.)		(max.)	(max.)	(@A)	(max.)	(max.)
SD0320D32G1	03W	3.3	4.0	1	6.5	14	20	40	450
SD0517D32G1	05W	5.0	6.0	1	9.8	18	17	10	300
SD0815D32G1	08W	8.0	8.5	1	10.5	24	15	1	240
SD1211D32G1	12W	12.0	13.3	1	19.0	32	11	1	130
SD1510D32G1	15W	15.0	16.7	1	24.0	38	10	1	120
SD1809D32G1	18W	18.0	20.0	1	29.0	45	9	1	100
SD2008D32G1	20W	20.0	22.3	1	35.0	50	8	1	90
SD2407D32G1	24W	24.0	26.7	1	43.0	52	7	1	80
SD3605D32G1	36W	36.0	40.0	1	60.0	75	5	1	60

Performance Curve for Reference

(T_A=25 °C unless otherwise noted)

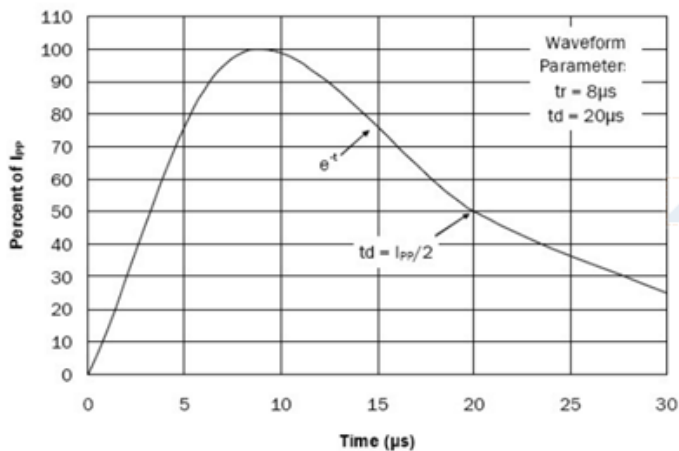


FIGURE 1
Pulse Waveform

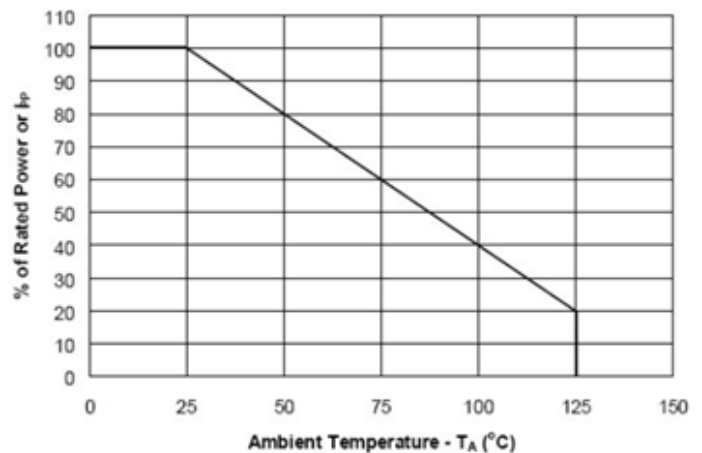


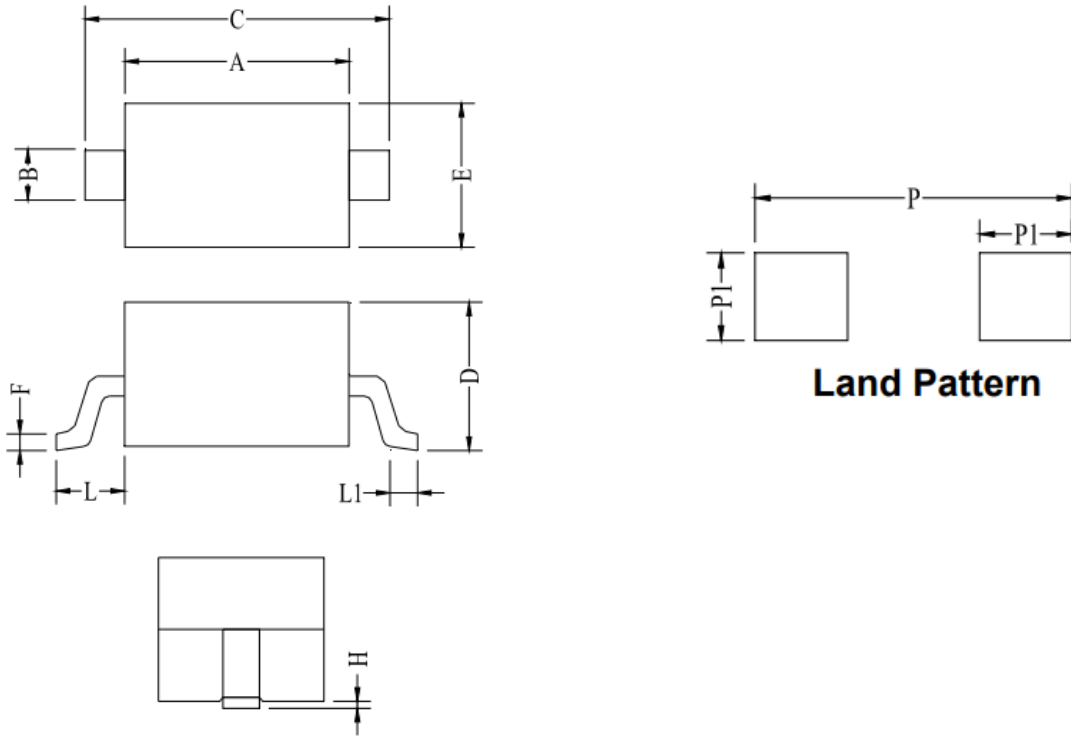
FIGURE 2
Power Derating Curve

ESD Protection Diodes

Uni-directional ESD and Transient Voltage Protection

SDxxxxD32G1 SOD323

Package Dimensions - SOD323

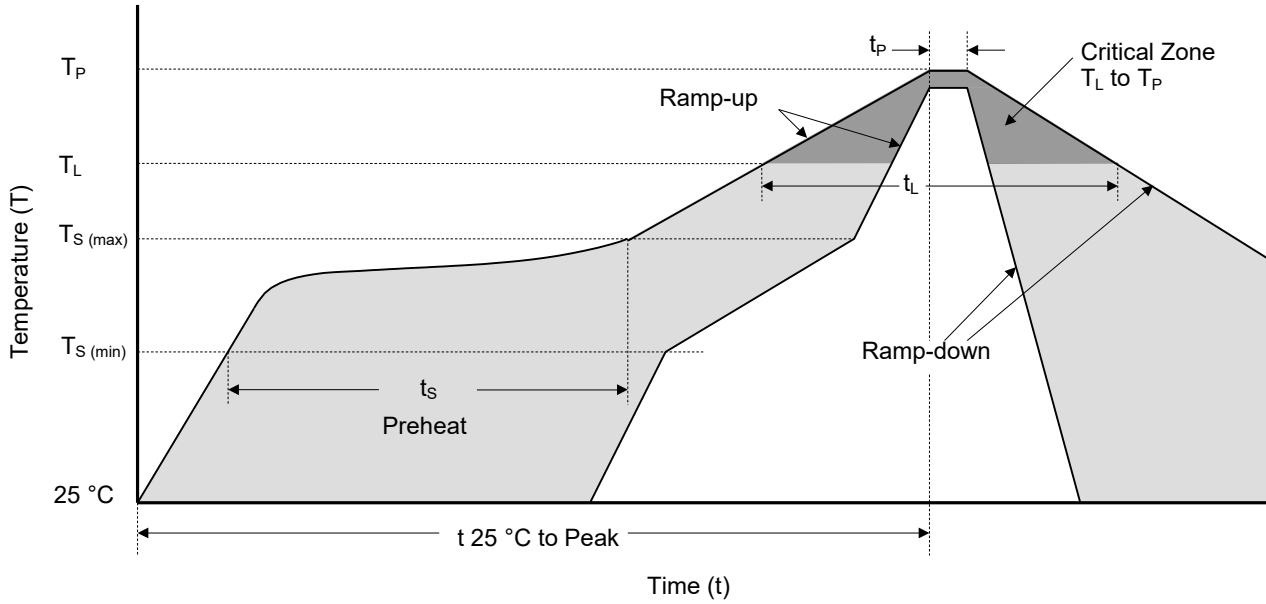


Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.60	1.80	0.063	0.071
B	0.25	0.40	0.010	0.016
C	2.30	2.80	0.091	0.110
D	0.80	1.10	0.031	0.043
E	1.20	1.40	0.047	0.055
F	0.08	0.18	0.003	0.007
L	0.475 Ref.		0.019 Ref.	
L1	0.25	0.40	0.010	0.016
H	0.00	0.14	0.000	0.006
P	3.00		0.118	
P1	0.80		0.031	

ESD TVS

ESD TVS

Soldering Parameters



Reflowing Condition

Reflow Soldering Parameters		Lead-Free Assembly
Pre-heat	Temperature Min ($T_{S (min)}$)	150 °C
	Temperature Max ($T_{S (max)}$)	200 °C
	Time (min to max) (t_s)	60 ~ 120 seconds
Average Ramp Up Rate (Liquidus Temp (T_L) to Peak)		3 °C / second max.
$T_{S (max)}$ to T_L Ramp-up Rate		3 °C / second max.
Reflow	Temperature (T_L) (Liquidus)	217 °C
	Time (min to max) (t_L)	60 ~ 150 seconds
Peak Temperature (T_P)		260 ^{+0/-5} °C
Time of within 5 °C of Actual Peak Temperature (t_p)		20 ~ 40 seconds
Ramp-down Rate		6 °C / second max.
Time from 25 °C to Peak Temperature		8 Minutes max.
Do Not Exceed		260 °C

ESD TVS

ESD TVS



ATTENTION

Usage

1. TVS must be operated in the specified ambient temp.
2. Do not clean the TVS with strong polar solvent such as ketone, esters, benzene and halogenated hydrocarbon, to avoid damaging the encapsulating layer.
3. Please do not apply severe vibration, shock or pressure to TVS, to avoid element cracking.

Replacement

1. If TVS is visually damaged, please replace it.
2. TVS is a non-repairable product. For safety sake, please use equivalent TVS for replacement.

Storage

1. Storage Temp. Range: (-55 to 150) °C.
2. Do not store the TVS at the high temp., high humidity or corrosive gas environment, to avoid influencing the solder- ability of the lead wires. The product shall be used up within 1 year after receiving the goods.

Environmental Conditions

1. TVS should not be exposed to the open air, nor direct sunshine.
2. TVS should avoid rain, water vapor or other condition of high temp. and high humidity.
3. TVS should avoid sand dust, salt mist, or other harmful gases.

Max. Typical Capacitance of TVS

1. The typical capacitance of TVS is listed in the specifications. Designers may refer to it when designing TVS in High frequency circuit.

Installation Mechanical Stress

1. Do not knock TVS when installing, to avoid mechanical damage.
2. Please do not apply severe vibration, shock or pressure to TVS, to avoid surface resin or element cracking.