THE DATASHEET OF

SDD32C15L01

Innovative Service Around the Globe YAGEO

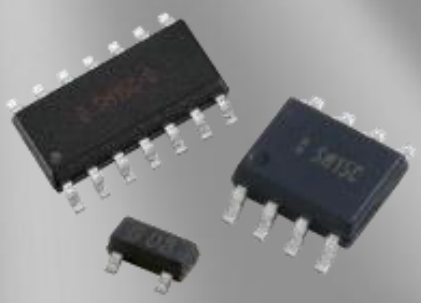
DATA SHEET

ELECTROSTATIC DISCHARGE PROTECTION DEVICES

INDUSTRIAL / CONSUMER

SDD32CXXL01 SERIES

RoHS compliant & Halogen free



Product specification– June 30, 2023 V.5

Electrostatic Discharged Protection Devices (ESD) Data Sheet

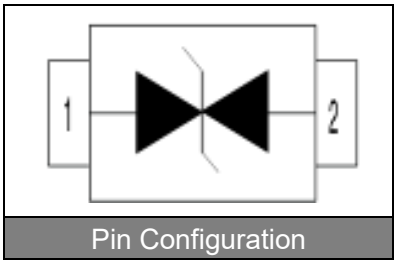
Description

Brightking's SDD32CXXL01 series are designed to protect low voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium. Because of their small size, they are suited for use in cellular phones, portable devices, digital cameras, power supplies and many other portable applications.
They are designed to protect sensitive semiconductor components from damage or upset due to electrostatic discharge(ESD), electrical fast transients(EFT), and cable discharge events(CDE).

Contact : ±30kV
Air : ±30kV

Features

- IEC61000-4-2 ESD 30KV Air, 30KV contact compliance, ESD 15KV Air, 8KV contact compliance for SDD32C36L01
- SOD-323 surface mount package
- Protects bi-directional line
- Peak power dissipation of 320W under 8/20μs waveform
- Working voltage: 5V，8V，15V，18V， 24V，36V
- Low leakage current
- Low clamping voltage
- Solid-state silicon avalanche technology
- Lead Free/RoHS compliant
- Solder reflow temperature: Pure Tin-Sn, 260~270℃
- Flammability rating UL 94V-0
- Meets MSL level 1, per J-STD-020



Pin Configuration

Applications

- Cellular handsets & Accessories
- Cordless phones
- Personal digital assistants (PDAs)
- Notebooks & Handhelds
- Portable instrumentation
- Digital cameras
- Peripherals

Maximum Ratings

Rating	Symbol	Value	Unit
Peak pulse power (tp=8/20μs waveform)	P_{PP}	320	W
ESD voltage (Contact discharge)	V_{ESD}	±30	kV
ESD voltage (Air discharge)		±30	
Storage & operating temperature range	T_{STG} ,T_J	-55~+150	℃

Electrical Characteristics (T_J=25℃)

SDD32C05L01 (Marking: 2B)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V_{RWM}				5	V
Reverse breakdown voltage	V_{BR}	I_{BR}=1mA	6			V
Reverse leakage current	I_R	V_R=5V			1	μA
Clamping voltage (tp=8/20μs)	V_C	I_{PP}=1A			9.8	V
Clamping voltage (tp=8/20μs)	V_C	I_{PP}=10A		15		V
Peak Pulse Current(tp=8/20μs)	I_{PP}				19	A
Off state junction capacitance	C_J	0Vdc,f=1MHz		100		pF

SDD32C08L01 (Marking: 2P)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V_{RWM}				8	V
Reverse breakdown voltage	V_{BR}	I_{BR}=1mA	8.5			V
Reverse leakage current	I_R	V_R=8V			1	μA
Clamping voltage (tp=8/20μs)	V_C	I_{PP}=1A		10		V
Clamping voltage (tp=8/20μs)	V_C	I_{PP}=10A			20	V
Peak Pulse Current(tp=8/20μs)	I_{PP}				28	A
Off state junction capacitance	C_J	0Vdc,f=1MHz		90		pF

SDD32C15L01 (Marking: 2N)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V_{RWM}				15	V
Reverse breakdown voltage	V_{BR}	I_{BR}=1mA	16.7			V
Reverse leakage current	I_R	V_R=15V			1	μA
Clamping voltage (tp=8/20μs)	V_C	I_{PP}=8A		30		V
Peak Pulse Current(tp=8/20μs)	I_{PP}				8	A
Off state junction capacitance	C_J	0Vdc,f=1MHz		35		pF

SDD32C18L01 (Marking: 2K)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V_{RWM}				18	V
Reverse breakdown voltage	V_{BR}	I_{BR}=1mA	20			V
Reverse leakage current	I_R	V_R=18V			1	μA
Clamping voltage (tp=8/20μs)	V_C	I_{PP}=1A			29	V
Clamping voltage (tp=8/20μs)	V_C	I_{PP}=5A			40	V
Peak Pulse Current(tp=8/20μs)	I_{PP}				5	A
Off state junction capacitance	C_J	0Vdc,f=1MHz		40		pF

SDD32C24L01 (Marking: 2H)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V_{RWM}				24	V
Reverse breakdown voltage	V_{BR}	I_{BR}=1mA	26.7			V
Reverse leakage current	I_R	V_R=24V			1	μA
Clamping voltage (tp=8/20μs)	V_C	I_{PP}=1A			43	V
Clamping voltage (tp=8/20μs)	V_C	I_{PP}=5A			56	V
Peak Pulse Current(tp=8/20μs)	I_{PP}				5	A
Off state junction capacitance	C_J	0Vdc,f=1MHz		37		pF

SDD32C36L01 (Marking: 36C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V_{RWM}				36	V
Reverse breakdown voltage	V_{BR}	I_{BR}=1mA	40			V
Reverse leakage current	I_R	V_R=36V			1	μA
Clamping voltage (tp=8/20μs)	V_C	I_{PP}=1A			56	V
Clamping voltage (tp=8/20μs)	V_C	I_{PP}=5A			75	V
Peak Pulse Current(tp=8/20μs)	I_{PP}				5	A
Off state junction capacitance	C_J	0Vdc,f=1MHz		30		pF

Typical Characteristics Curves

Figure 1. Power Derating Curve

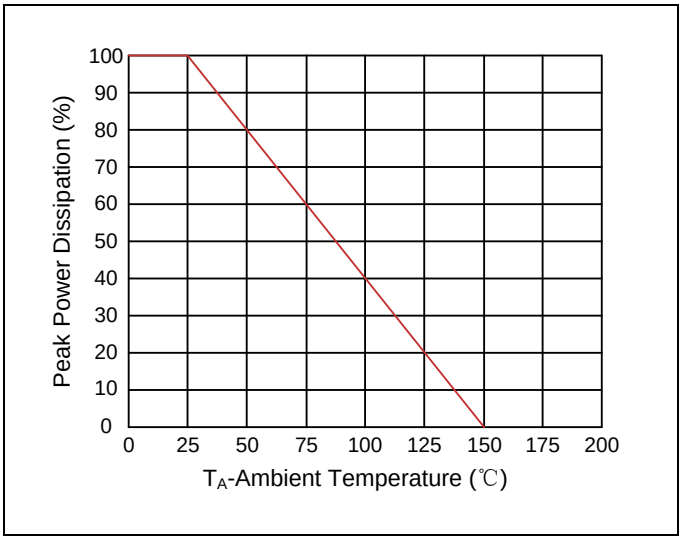


Figure 2. Pulse Waveform

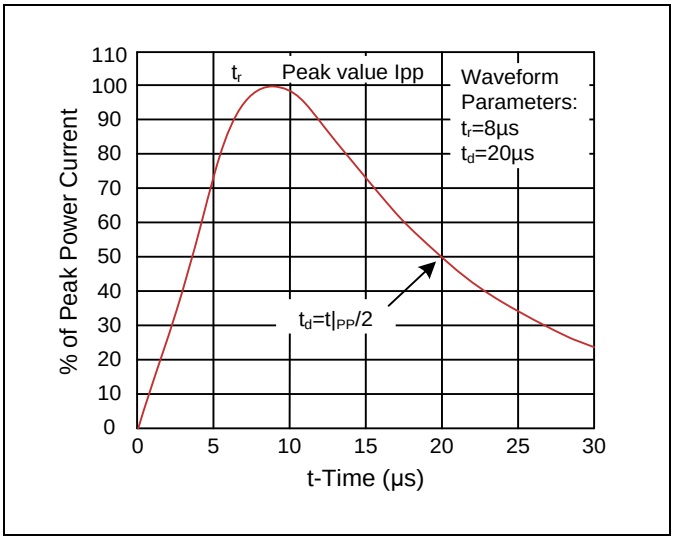
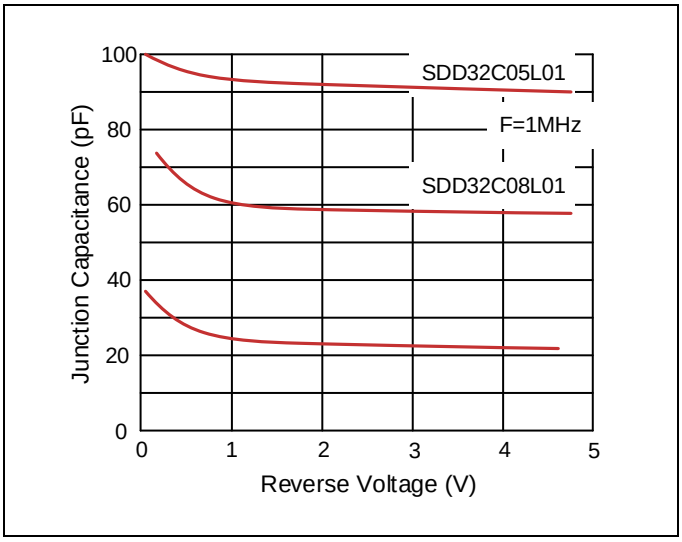
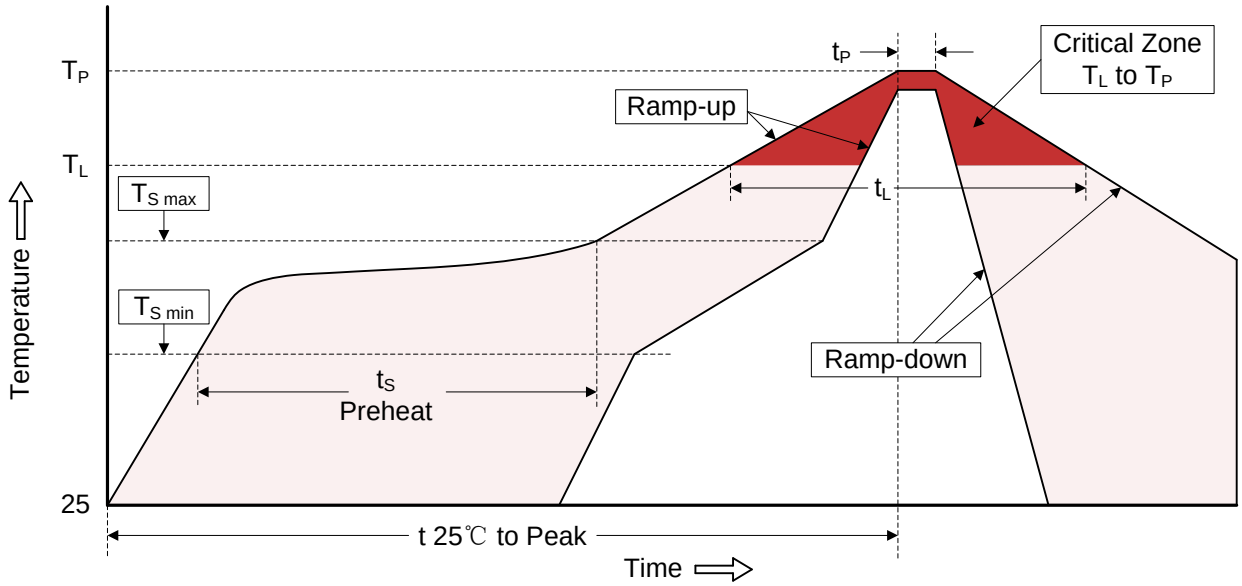


Figure 3. Capacitance vs. Reverse Voltage



Recommended Soldering Conditions

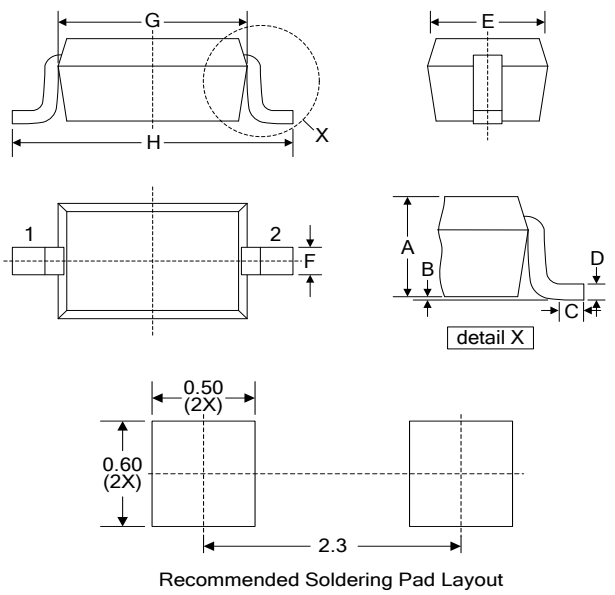
Reflow Soldering



Recommended Condition

Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3℃/second max.
Preheat -Temperature Min ($T_{S\ min}$) -Temperature Max ($T_{S\ max}$) -Time (min to max) (ts)	 150℃ 200℃ 60-180 seconds
$T_{S\ max}$ to T_L -Ramp-up Rate	3℃/second max.
Time maintained above: -Temperature (T_L) -Time (t_L)	 217℃ 60-150 seconds
Peak Temperature (T_P)	260℃
Time within 5℃ of actual Peak Temperature (t_P)	20-40 seconds
Ramp-down Rate	6℃/second max.
Time 25℃ to Peak Temperature	8 minutes max.

Dimensions (SOD-323)

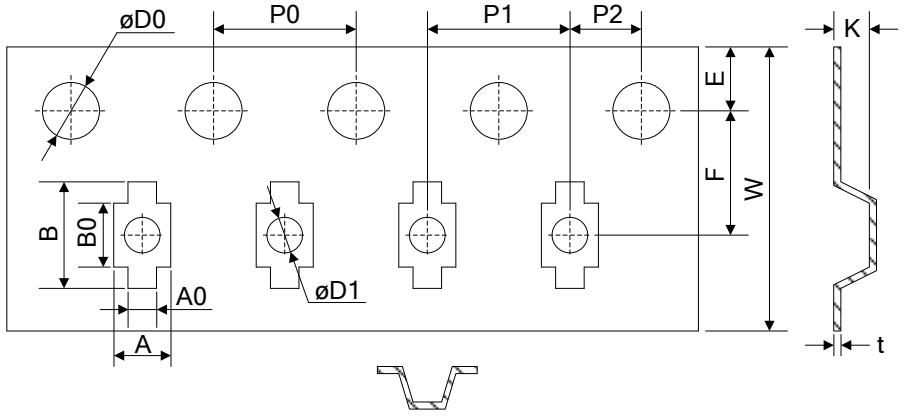


Recommended Soldering Pad Layout

Symbol	Dimension			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.80	1.10	0.031	0.043
B	-	0.10	-	0.004
C	0.20	-	0.008	-
D	0.11	0.20	0.004	0.008
E	1.15	1.35	0.045	0.053
F	-	0.35	-	0.014
G	1.60	1.80	0.063	0.071
H	2.40	2.70	0.094	0.102

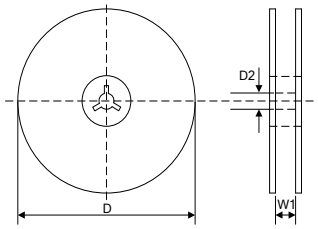
Packaging

Tape



Symbol	Dimension (mm)
W	8.00±0.30
P0	4.00±0.10
P1	4.00±0.10
P2	2.00±0.10
D0	Φ1.55±0.10
D1	Φ1.00±0.05
E	1.75±0.10
F	3.50±0.10
A	1.48±0.10
A0	0.80±0.10
B	3.00±0.10
B0	1.80±0.10
K	1.05±0.10
t	0.25±0.05

Reel



D	Φ178.0±2.0
D2	Φ13.0
W1	9.5
Quantity: 3000PCS	

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