

Electrostatic Discharged Protection Devices (ESD) Data Sheet

Description

Brightking's SDD32A05L01-DS045 is 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 its small size, it is suited for use in cellular phones, portable devices, digital cameras, power supplies and many other portable applications. It is designed to protect sensitive semiconductor components from damage or upset due to electrostatic discharge (ESD), electrical fast transients (EFT), and cable discharge events (CDE).

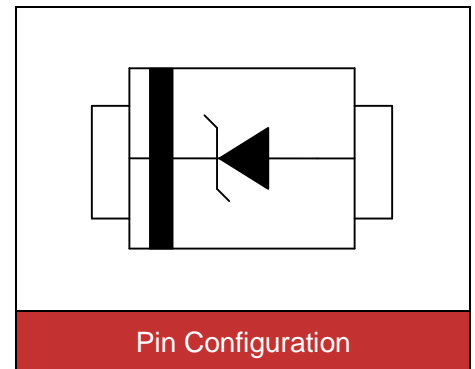


Contact : ±30kV
Air : ±30kV



Features

- IEC61000-4-2 ESD 30KV Air, 30KV contact compliance
- SOD-323 surface mount package
- Protects one I/O line
- Peak power Current of 25A under 8/20µs waveform
- Working voltage: 5V
- Low leakage current
- Low clamping voltage
- Solid-state silicon avalanche technology
- Lead Free/RoHS compliant
- Solder reflow temperature: Pure Tin-Sn, 260~270°C
- Flammability rating UL 94V-0
- Meets MSL level 1, per J-STD-020
- Marking: 05W



Applications

- | | |
|---|--|
| <ul style="list-style-type: none"> ● Cellular handsets & Accessories ● Cordless phones ● Personal digital assistants (PDAs) ● Notebooks & Handhelds | <ul style="list-style-type: none"> ● Portable instrumentation ● Digital cameras ● Peripherals |
|---|--|

Maximum Ratings

Rating	Symbol	Value	Unit
ESD voltage (Contact discharge)	V_{ESD}	±30	kV
ESD voltage (Air discharge)		±30	
Storage & operating temperature range	T_{STG}, T_J	-55~+150	°C

Electrical Characteristics (T_J=25°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				5.0	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	6.0			V
Reverse leakage current	I _R	V _R =5.0V			1.0	μA
Clamping voltage (tp=8/20μs)	V _C	I _{PP} =25A		18	25	V
Peak Pulse Current(tp=8/20μs)	I _{PP}				25	A
ESD Clamping voltage (TLP)	V _C	I _{PP} =8.0A		8.5		V
ESD Clamping voltage (TLP)	V _C	I _{PP} =16.0A		9.8		V
ESD Dynamic Turn-on Resistance	R _{dy}			0.12		Ω
Off state junction capacitance	C _J	0Vdc,f=1MHz		220	350	pF

Typical Characteristics Curves

Figure 1. Pulse Waveforms

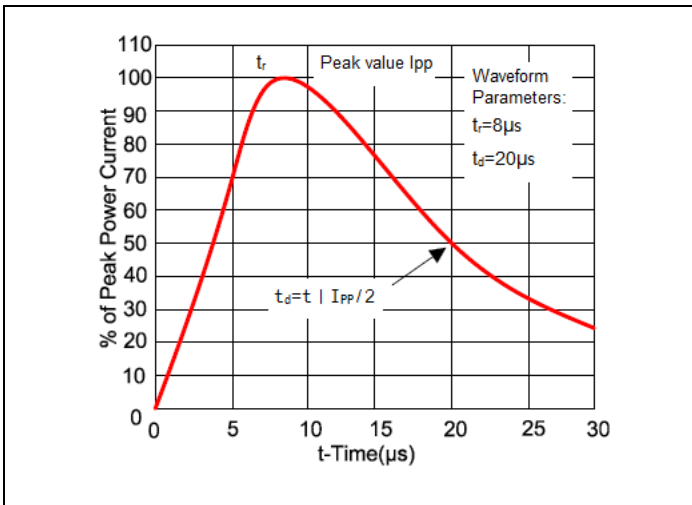


Figure 2. Clamping Voltage vs. Peak Pulse Current

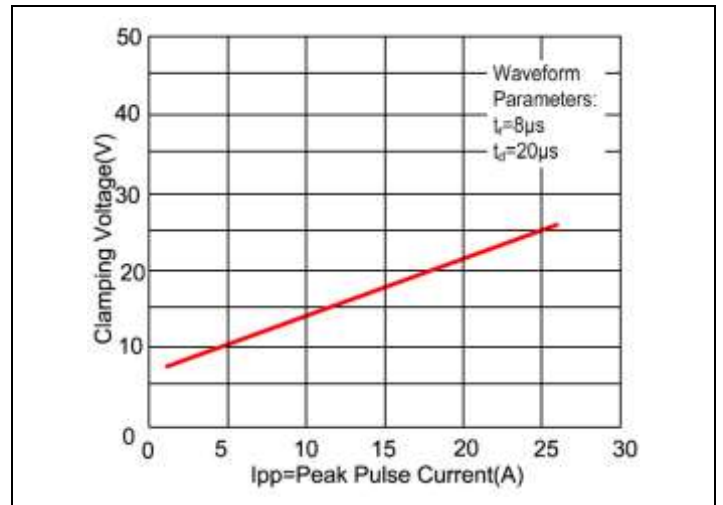


Figure 3. Capacitance vs. Reverse Voltage

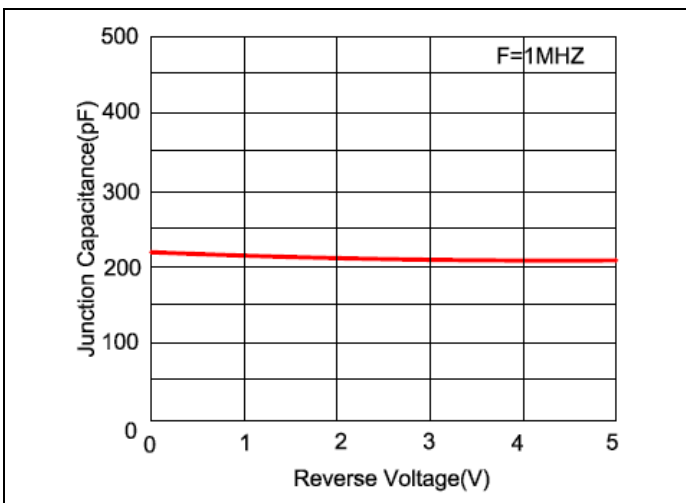
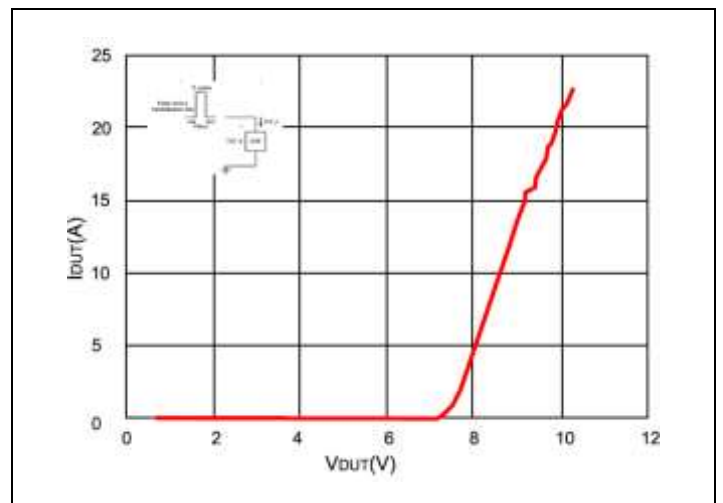
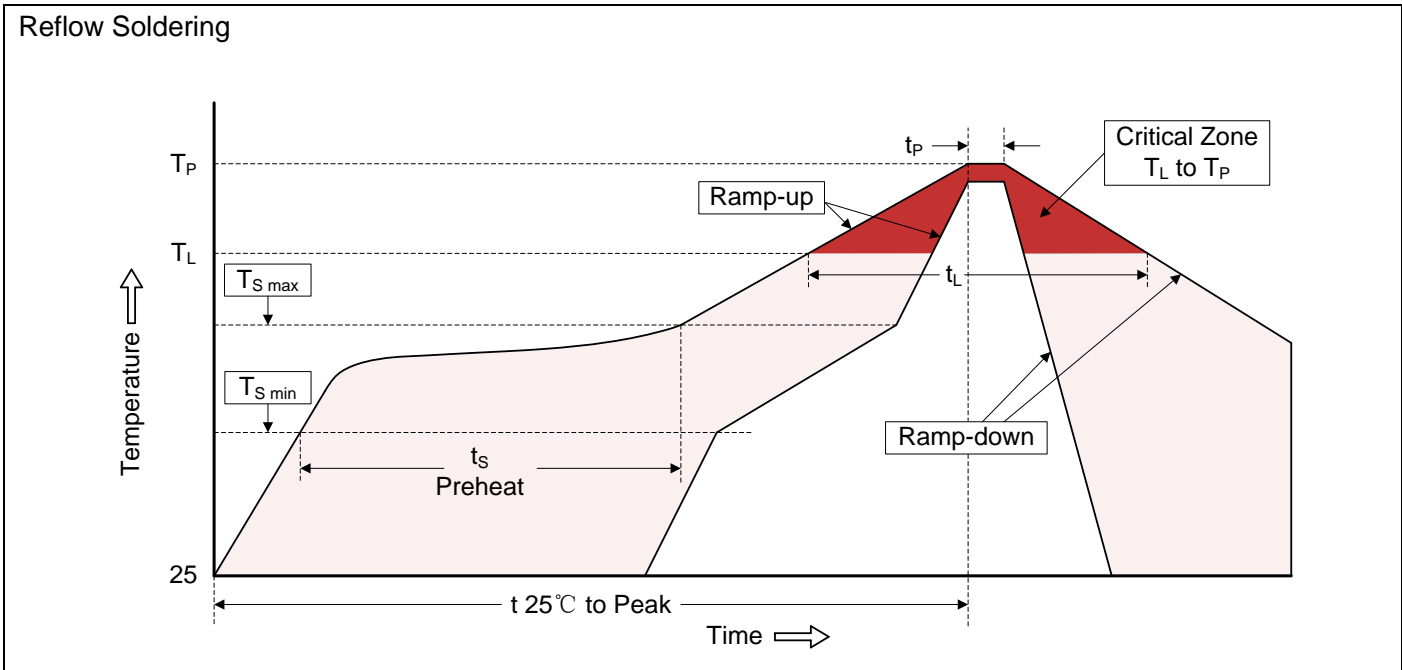


Figure 4. Transmission Line Pulsing (TLP) Measurement



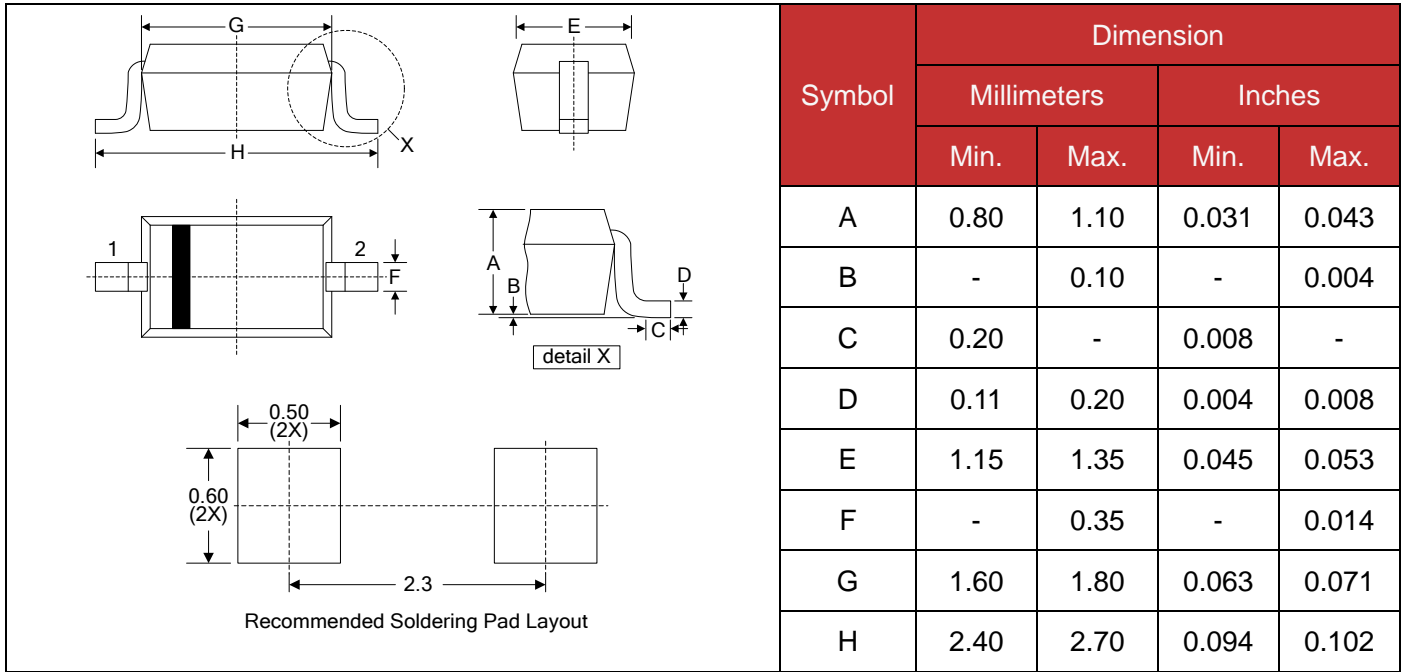
Recommended Soldering Conditions



Recommended Conditions

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

Dimensions (SOD-323)



Packaging

