

## Electrostatic Discharged Protection Devices (ESD) Data Sheet

### Description

SDD32C05L01 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).

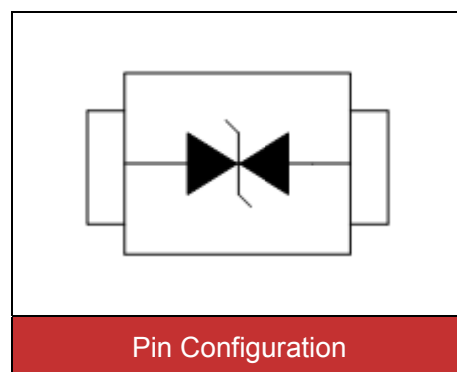


Contact : ±30kV  
Air : ±30kV



### Features

- IEC61000-4-2 ESD 30KV Air, 30KV contact compliance
- SOD-323 surface mount package
- Protects bi-directional line
- Working voltage: 12V
- 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: 2M



### Applications

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>● Cellular handsets &amp; Accessories</li> <li>● Cordless phones</li> <li>● Personal digital assistants (PDAs)</li> <li>● Notebooks &amp; Handhelds</li> </ul> | <ul style="list-style-type: none"> <li>● Portable instrumentation</li> <li>● Digital cameras</li> <li>● Peripherals</li> <li>● MP3 players</li> </ul> |
|---|---|

### Maximum Ratings

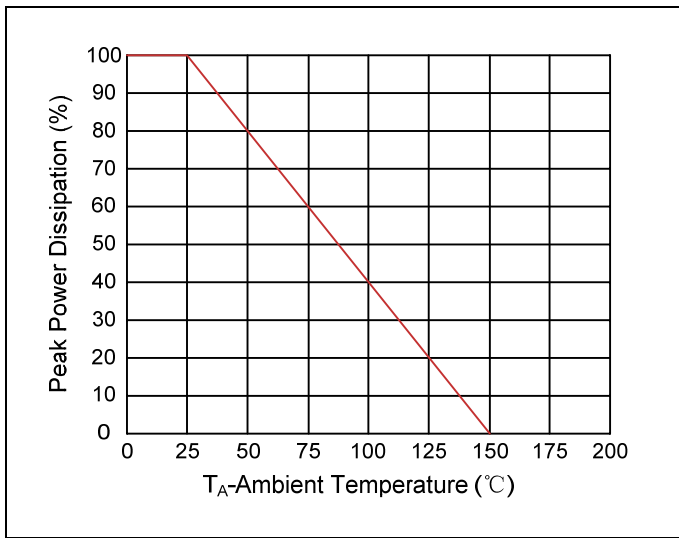
Rating	Symbol	Value	Unit
Peak pulse current (tp=8/20µs waveform)	$I_{PP}$	320	A
ESD voltage (Contact discharge)	$V_{ESD}$	±30	kV
ESD voltage (Air discharge)		±30	
Storage & operating temperature range	$T_{STG}, T_J$	-55~+150	°C

**Electrical Characteristics ( $T_J=25^{\circ}\text{C}$ )**

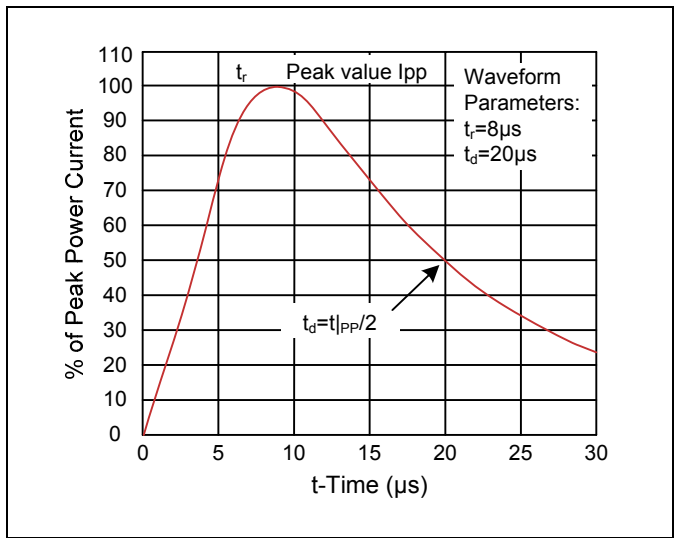
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	$V_{RWM}$				12	V
Reverse breakdown voltage	$V_{BR}$	$I_{BR}=1\text{mA}$	13.3			V
Reverse leakage current	$I_R$	$V_R=12\text{V}$			1	$\mu\text{A}$
Clamping voltage ( $t_p=8/20\mu\text{s}$ )	$V_C$	$I_{PP}=12\text{A}$		25		V
Off state junction capacitance	$C_J$	$0\text{Vdc}, f=1\text{MHz}$		45		pF

**Typical Characteristics Curves**

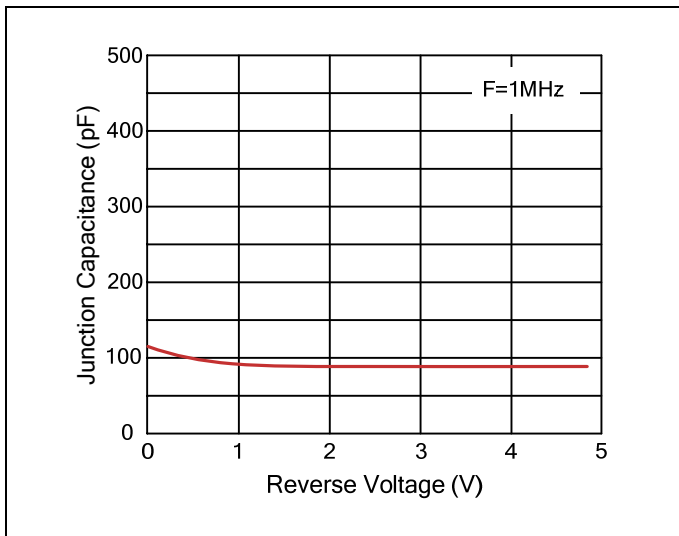
**Figure 1. Power Derating Curve**



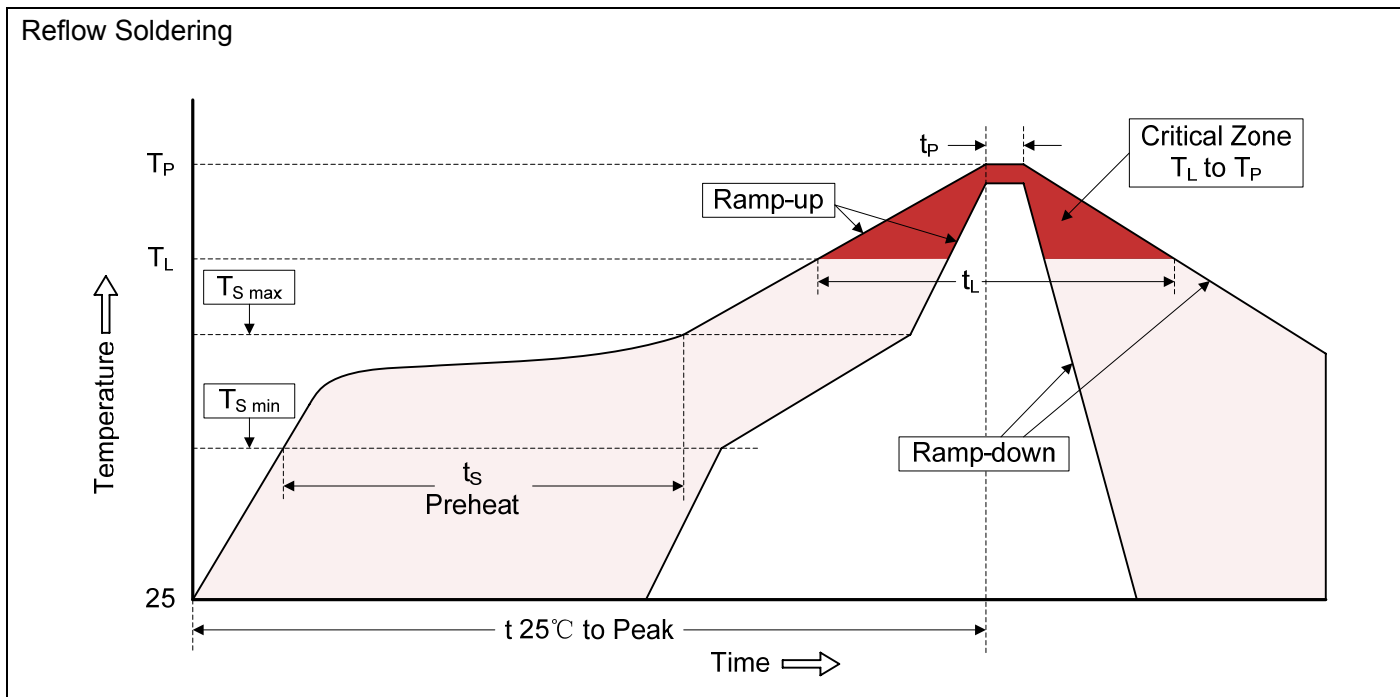
**Figure 2. Pulse Waveform**



**Figure 3. Capacitance vs. Reverse Voltage**



**Recommended Soldering Conditions**



Recommended Condition

Profile Feature	Pb-Free Assembly
Average ramp-up rate ( $T_L$ to $T_P$ )	3°C/second max.
Preheat	
-Temperature Min ( $T_{S\ min}$ )	150°C
-Temperature Max ( $T_{S\ max}$ )	200°C
-Time (min to max) ( $t_s$ )	60-180 seconds
$T_{S\ max}$ to $T_L$	
-Ramp-up Rate	3°C/second max.
Time maintained above:	
-Temperature ( $T_L$ )	217°C
-Time ( $t_L$ )	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)**

	Dimension				
	Symbol	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	2.60	0.094	0.102	

**Packaging**

<p><b>Tape</b></p>	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	
<p><b>Reel</b></p>	D	Φ178.0±2.0
	D2	Φ13.0
	W1	9.5
	Quantity: 3000PCS	