

The SD12C is designed to protect voltage sensitive components from ESD and transient events. Excellent clamping capability, low leakage, and fast response time, make this part 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.



**Specification Features:**

- Peak Power – 350 W (8 x 20µs)
- Low Leakage
- Low Clamping Voltage
- Small Package for use in Portable Electronics
- Meets IEC61000-4-2 Level 4
- Meets IEC6100-4-4 Level 4
- Meets 16 kV Human Body Model ESD Requirements
- These Devices are Pb-Free and are RoHS Compliant

**Mechanical Characteristics:**

CASE: Void-free, transfer-molded, thermosetting plastic  
Epoxy Meets UL 94, V<sup>-</sup>0  
MOUNTING POSITION: Any  
QUALIFIED MAX REFLOW TEMPERATURE: 260°C  
Device Meets MSL 1 Requirements

**MAXIMUM RATINGS**

Rating	Symbol	Value	Unit
Peak Power Dissipation @ 20 µs @ T <sub>L</sub> ≤ 25°C	P <sub>pk</sub>	350	W
IEC 61000-4-2 (ESD)	Air Contact	±30 ±30	kV
IEC 61000-4-4 (EFT)		40	A
Total Device Dissipation FR-5 Board, (Note 1) @ T <sub>A</sub> = 25°C Derate above 25°C	P <sub>D</sub>	200 1.5	mW mW/°C
Thermal Resistance from Junction-to-Ambient	R <sub>θJA</sub>	635	°C/W
Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-65 to +150	°C
Lead Solder Temperature – Maximum (10 Second Duration)	T <sub>L</sub>	260	°C

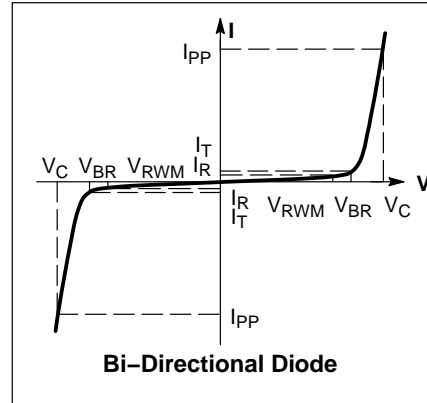
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. Minimum Solder Footprint.

**ELECTRICAL CHARACTERISTICS**

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

Symbol	Parameter
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_{PP}$
$V_{RWM}$	Working Peak Reverse Voltage
$I_R$	Maximum Reverse Leakage Current @ $V_{RWM}$
$V_{BR}$	Breakdown Voltage @ $I_T$
$I_T$	Test Current
$\Theta_{VBR}$	Maximum Temperature Variation of $V_{BR}$

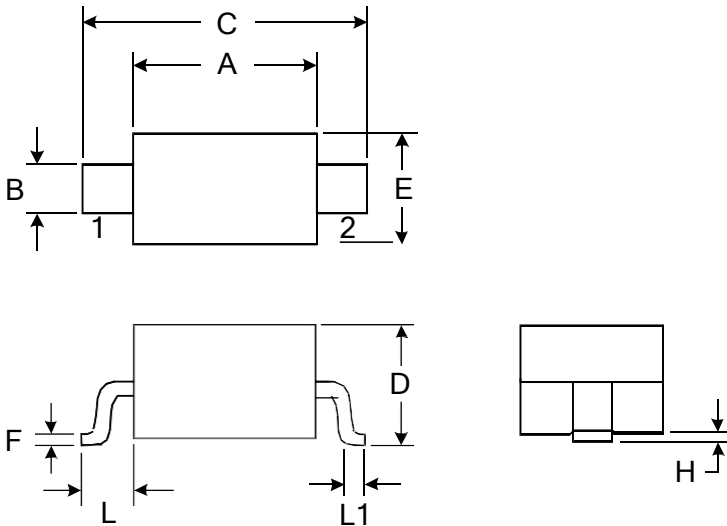


**ELECTRICAL CHARACTERISTICS** ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Reverse Working Voltage	(Note 2)	$V_{RWM}$			12	V
Breakdown Voltage	$I_T = 1 \text{ mA}$ , (Note 3)	$V_{BR}$	13.3			V
Reverse Leakage Current	$V_{RWM} = 12 \text{ V}$	$I_R$			1.0	$\mu\text{A}$
Clamping Voltage	$I_{PP} = 5 \text{ A}$ , (8 x 20 $\mu\text{sec}$ Waveform) $I_{PP} = 15 \text{ A}$ , (8 x 20 $\mu\text{sec}$ Waveform)	$V_C$			19	V
Additional Clamping Voltage					24	
Maximum Peak Pulse Current	8 x 20 $\mu\text{sec}$ Waveform	$I_{PP}$			15	A
Capacitance	$V_R = 0 \text{ V}$ , $f = 1 \text{ MHz}$	$C_j$		64		pF
	$V_R = 12 \text{ V}$ , $f = 1 \text{ MHz}$			36		

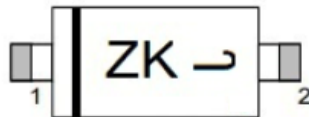
- TVS devices are normally selected according to the working peak reverse voltage ( $V_{RWM}$ ), which should be equal or greater than the DC or continuous peak operating voltage level.
- $V_{BR}$  is measured at pulse test current  $I_T$ .

**Outline Drawing - SOD-323**



DIMENSIONS				
SYMBOL	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	1.600	1.800	0.063	0.071
B	0.250	0.350	0.010	0.014
C	2.500	2.700	0.098	0.106
D		1.000		0.039
E	1.200	1.400	0.047	0.055
F	0.080	0.150	0.003	0.006
L	0.475 REF		0.019REF	
L1	0.250	0.400	0.010	0.016
H	0.000	0.100	0.000	0.004

**Marking**



**Ordering information**

Order code	Package	Baseqty	Delivery mode
SD12CT1G	SOD-323	3000	Tape and reel