



SD12C-Q ESD Protection Diode

Feature

- Bi-directional ESD protection of one line
- 400Watts peak pulse power ($t_p = 8/20\mu s$)
- Working voltage: 12V
- Junction capacitance: 15pF(Typ)
- Low clamping voltage
- Low leakage current
- AEC-Q101 qualified
- IEC 61000-4-2 $\pm 30kV$ contact $\pm 30kV$ air
- IEC 61000-4-5 (Lightning) 18A (8/20 μs)

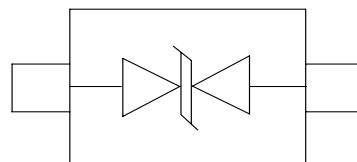
Application

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Pagers Peripherals
- Peripherals
- Desktop and Servers

Mechanical Data

- Package: SOD-323
- Molding compound flammability rating: UL 94V-0
- RoHS/WEEE Compliant

Circuit Diagram



Ordering Information

Part Number	Package	Marking	Packing	Reel Size
SD12C-Q	SOD-323		3000 Tape & Reel	7 inches



Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	P_{pk}	400	W
Peak Pulse Current (8/20 μs)	I_{PP}	18	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	± 30 ± 30	kV
Operating Temperature Range	T_J	-55 to $+125$	$^{\circ}\text{C}$
Storage Temperature Range	T_{stg}	-55 to $+150$	$^{\circ}\text{C}$

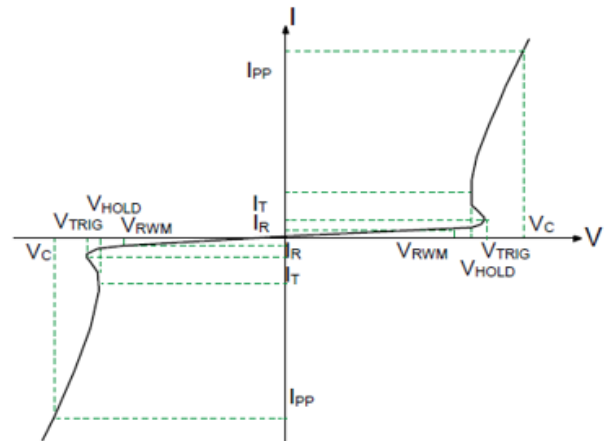
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				12.0	V
Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	13.0	14.0	16.0	V
Reverse Leakage Current	I_R	$V_{RWM} = 12\text{V}$			0.5	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}$ (8 x 20 μs pulse)		17.0	19.0	V
Clamping Voltage	V_C	$I_{PP} = 18\text{A}$ (8 x 20 μs pulse)		20.0	25.0	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$		15.0	30.0	pF

Electrical Parameters

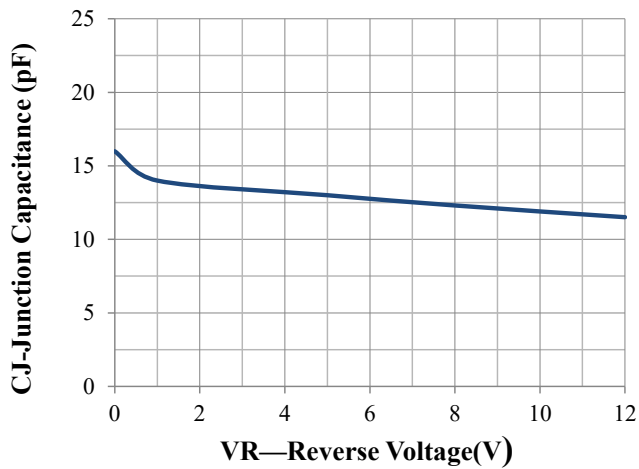
Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current

Note: 8/20 μs pulse waveform.

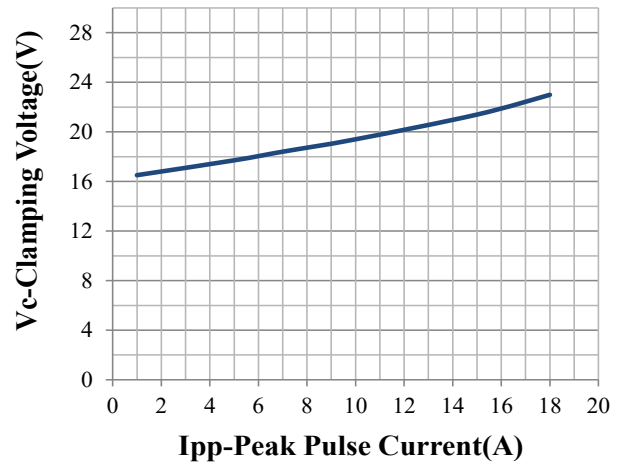




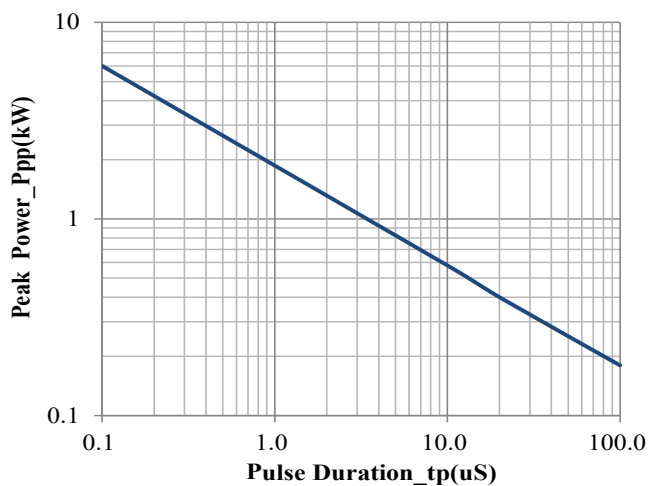
Typical Characteristics



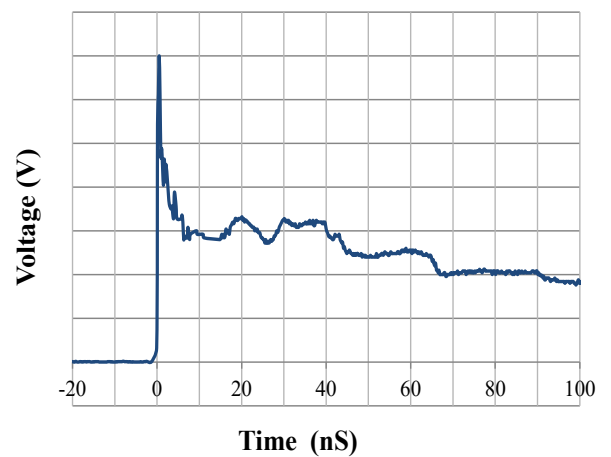
Junction Capacitance vs. Reverse Voltage



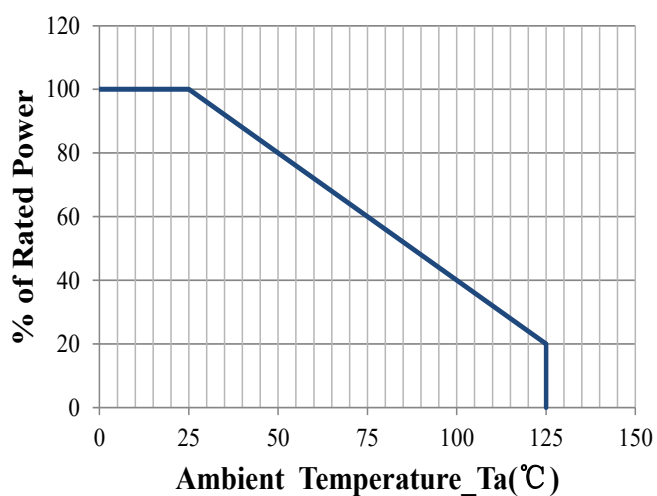
Clamping Voltage vs. Peak Pulse Current



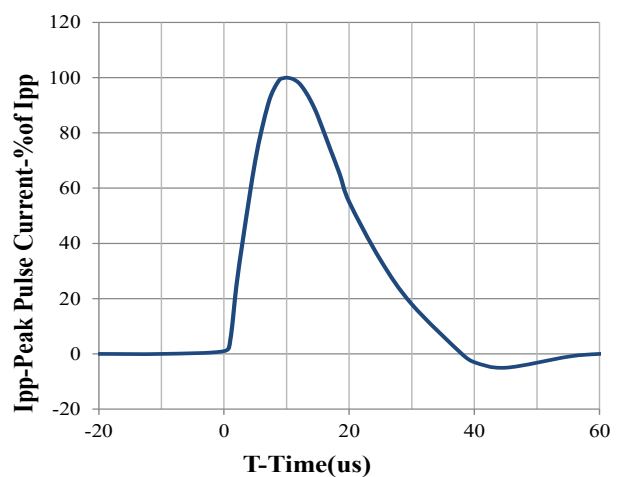
Peak Pulse Power vs. Pulse Time



IEC61000-4-2 Pulse Waveform



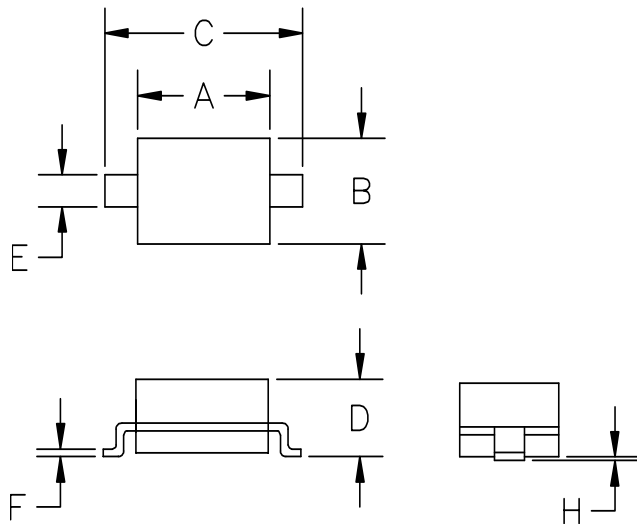
Power Derating Curve



8 X 20us Pulse Waveform



Outline Drawing – SOD-323



SYM	DIMENSIONS			
	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.50	1.80	0.060	0.071
B	1.20	1.40	0.045	0.054
C	2.30	2.70	0.090	0.107
D	-	1.10	-	0.043
E	0.30	0.40	0.012	0.016
F	0.10	0.25	0.004	0.010
H	-	0.10	-	0.004