

Descriptions

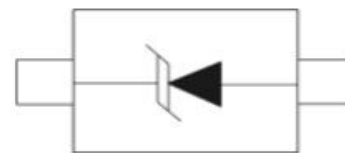
The SP20P323A12P01 is so standard capacitance, low leakage current, insertion loss in a miniature SOD-323 package that designed to protect voltage sensitive components of high frequency line from over-voltage caused by ESD, EFT. The devices will meet IEC 61000-4-2 (ESD), IEC 61000-4-4 (EFT) and IEC 61000-4-5 (Lightning) requirements.



Features

- ◆ 2000W Peak power dissipation under 8/20 μ s waveform
- ◆ IEC 61000-4-2 (ESD): ± 30 KV(Air) , ± 30 KV(Contact)
- ◆ IEC 61000-4-4 (EFT): 40A (5/50ns)
- ◆ IEC 61000-4-5(Lightning):70A (8/20 μ s)
- ◆ SOD-323 surface mount package
- ◆ Solid-state silicon-avalanche technology
- ◆ Protects one uni-directional I/O line
- ◆ Low clamping voltage
- ◆ Working voltage:12V
- ◆ Low leakage current
- ◆ High surge capability
- ◆ RoHS compliant

Schematic



Pin Configuration

Applications

- ◆ Cell phone handsets and accessories
- ◆ Microprocessor based equipment
- ◆ Personal digital assistants (PDA's)
- ◆ Notebooks, desktops, and servers
- ◆ Portable instrumentation
- ◆ Power lines
- ◆ Peripherals

Dimensions (SOD-323)

Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.80	1.10	0.031	0.043
A1	0.00	0.20	0.000	0.008
b	0.25	0.40	0.010	0.016
C	0.00	0.15	0.000	0.006
D	1.60	1.80	0.063	0.071
E	1.15	1.45	0.045	0.057
HE	2.30	2.80	0.091	0.110
L	-	0.40	-	0.016

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

Rating	Symbol	Value	Unit
Peak Pulse Power ($t_p = 8/20\mu\text{s}$)	P_{PPM}	2000	W
ESD voltage (Contact discharge)	V_{ESD}	± 30	KV
ESD voltage (Air discharge)		± 30	
Operating junction 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 noted)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V_{RWM}				12	V
Reverse breakdown voltage	V_{BR}	$I_{BR}=1.0\text{mA}$	13	14.4	17	V
Reverse leakage current	I_R	$V_R=12\text{V}$			1	μA
Clamping voltage ($t_p=8/20\mu\text{s}$)	V_C	$I_{PP}=20\text{A}$		16	19	V
		$I_{PP}=40\text{A}$		20	24	
		$I_{PP}=70\text{A}$		22	28	
Off state junction capacitance	C_J	$0\text{Vdc}, f=1\text{MHz}$		370	450	pF

Ratings and Characteristic Curves (T_A=25℃ unless otherwise noted)

Figure 1. Pulse waveform (8/20μs)

Figure 2. Pulse Derating Curve

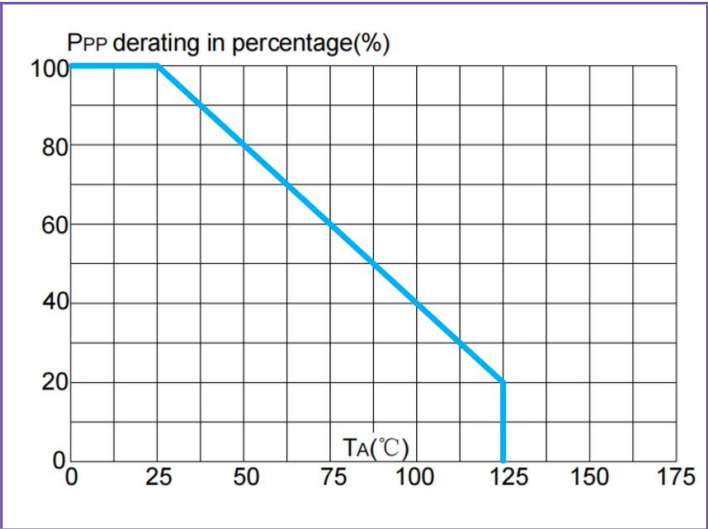
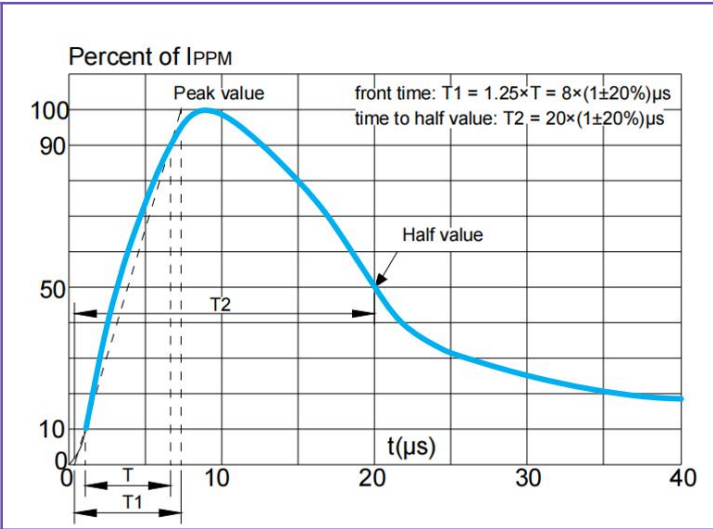
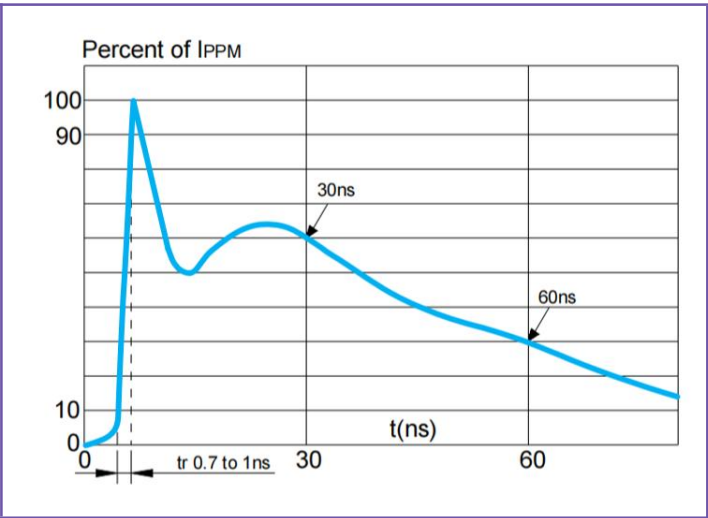
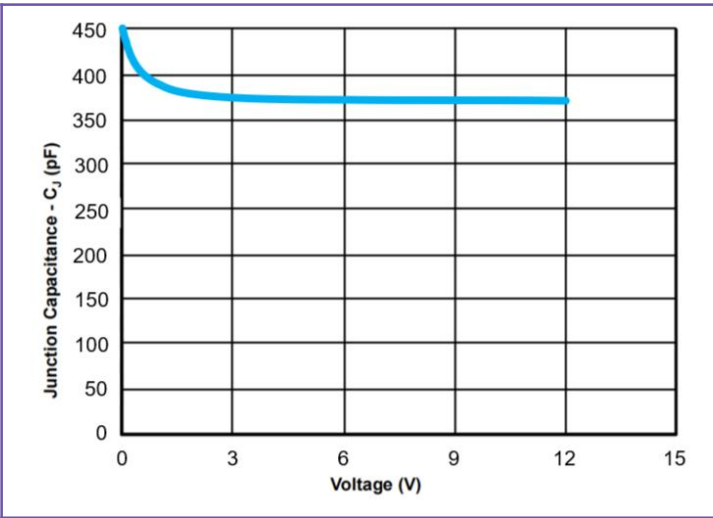
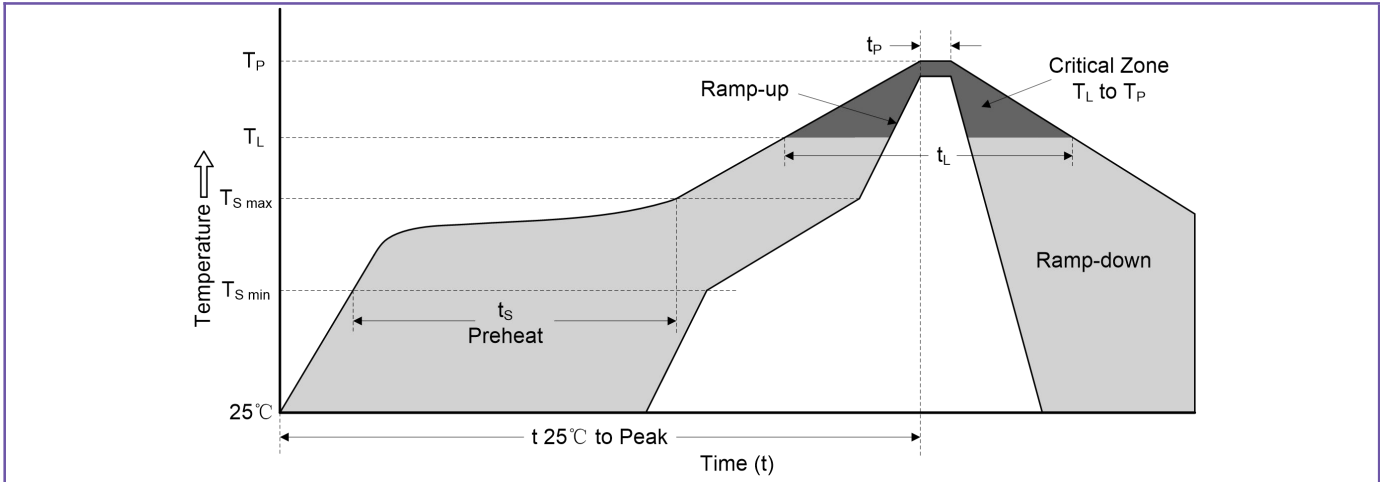


Figure 3. Typical Junction Capacitance

Figure 4. ESD clamping (30kV contact)



Reflow Soldering Parameters



Reflow Condition		Lead-free Assembly
Pre heat	-Temperature Min ($T_{S\ min}$)	150°C
	-Temperature Max ($T_{S\ max}$)	200°C
	-Time (min to max) (t_s)	60-180 seconds
Average ramp-up rate (T_L to T_P)		3°C/second max.
$T_{S\ max}$ to T_L -Ramp-up Rate		3°C/second max.
Reflow	-Temperature (T_L) (Liquidus)	217°C
	-Time (min to max) (t_s)	60-150 seconds
Peak Temperature (T_P)		260(+0/-5)°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(T_P)		8 minutes max.
Do not exceed		260°C

Package

Part number	QTY/Reel	Reel Size
SP20P323A12P01	3000PCS	7Inch