SOD-323 Plastic-Encapsulate ESD Protection Diodes

Features

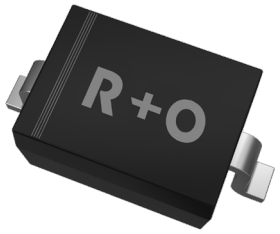
- Low leakage current
- SOD-323 surface mount package
- IEC 61000-4-2 (ESD Air): ±30kV
- IEC 61000-4-2 (ESD Contact): ±30kV
- IEC 61000-4-5 (Lightning 8/20μs): 20A

Reverse Working Voltage
8V Max.
Small capacitance
1.0pF(Max.)

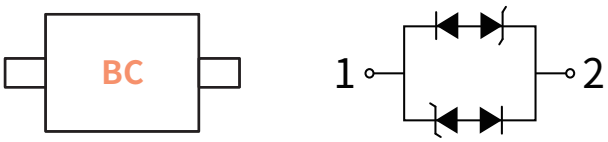
Applications

- LED Lighting Modules
- RS232/RS485
- CAN and LIN Bus
- Portable Instrumentation
- General Purpose I/O

SOD-323



Function Diagram

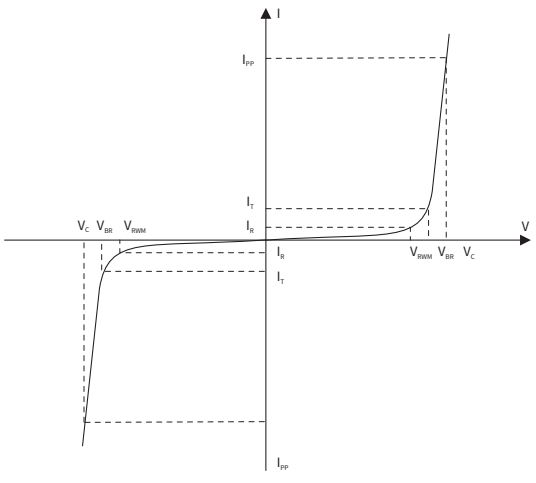


Maximum Ratings (Ta=25°C Unless otherwise specified)

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V_{ESD}	Electrostatic Discharge Voltage	ESD per IEC 61000-4-2(Air)	±30	KV
		ESD per IEC 61000-4-2(Contact)	±30	KV
P_{PP}	Peak Pulse Power	tp = 8/20 μs	500	W
I_{PP}	Rated Peak Pulse Current	tp = 8/20 μs	20	A
T_J	Operating JunctionTemperature Range	—	-55 to +125	°C
T_{STG}	Operating JunctionTemperature Range	—	-55 to +150	°C

Electrical Parameter

SYMBOL	PARAMETER
V_C	Clamping Voltage @ I_{PP}
V_{BR}	Breakdown Voltage @ I_T
I_{PP}	Peak Pulse Current
I_T	Test Current
I_R	Reverse Leakage Current @ VRWM
V_{RWM}	Peak Reverse Working Voltage
P_{PP}	Peak Pulse Power Dissipation
C_J	Junction Capacitance @ V_R=0V,f=1MHz
I_F	Forward Current
V_F	Forward Voltage @I_F



Electrical Characteristics (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	CONDITION	Min	Typ	Max	UNIT
Peak Reverse Working Voltage	V_{RWM}	T_a=25°C	—	—	8	V
Breakdown Voltage	V_{BR}	I_R=1mA,T_a=25°C	8.5	—	12.5	V
Reverse Leakage Current	I_R	V_R=8V,T_a=25°C	—	—	2.0	μA
Clamping Voltage	V_C	I_{PP}=1A, t_p=8/20μs	—	—	13	V
		I_{PP}=20A,t_p=8/20μs			25	
Junction Capacitance	C_J	V_R=0V,f=1MHz	—	—	1.0	pF

Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)

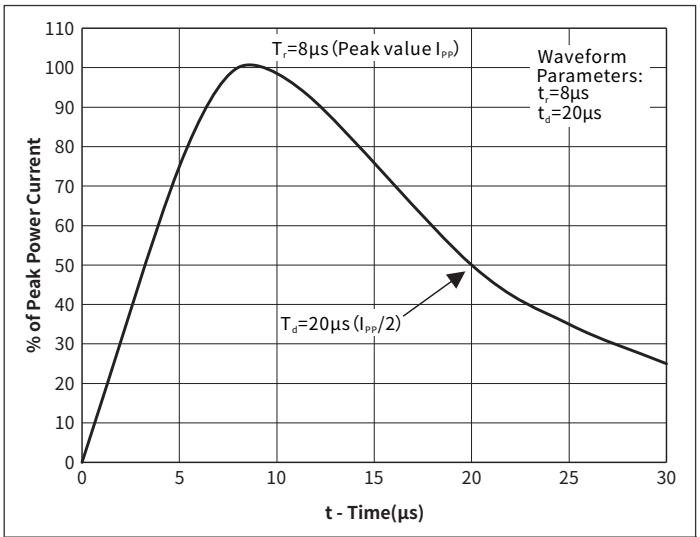


Fig.1 Pulse Waveform

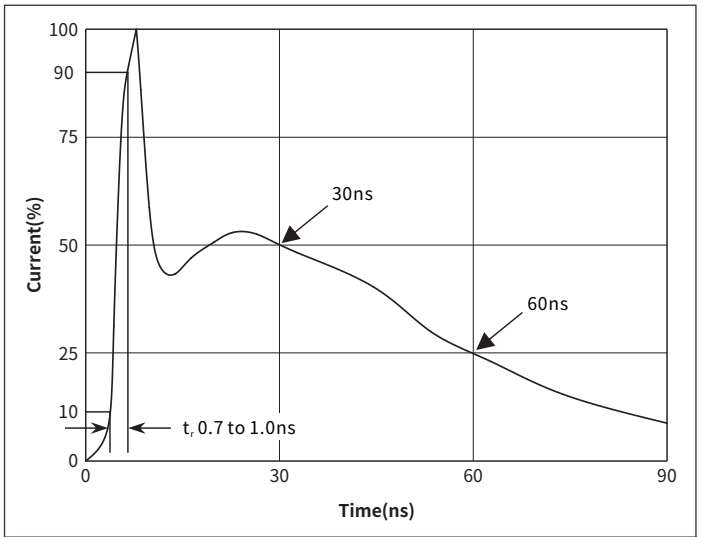


Fig.2 Pulse Waveform-ESD(IEC61000-4-2)

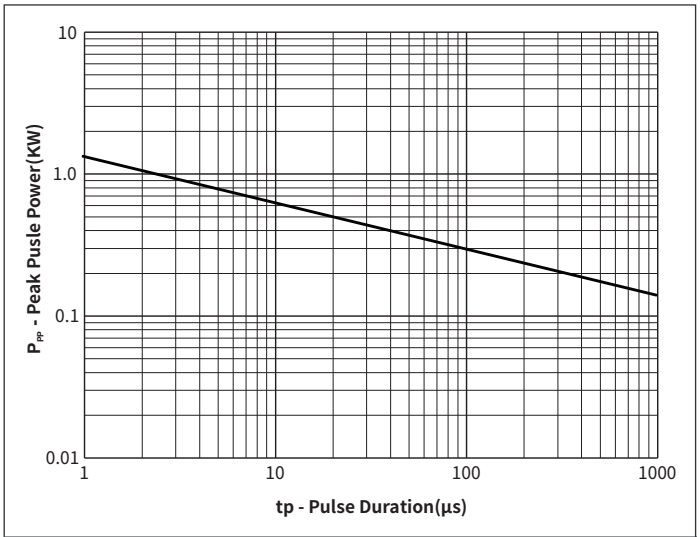


Fig.3 Peak Pulse Power vs. Pulse Time

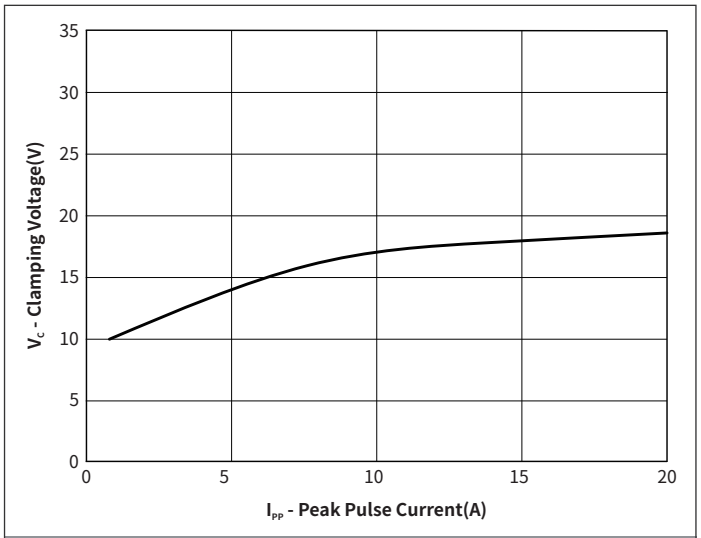
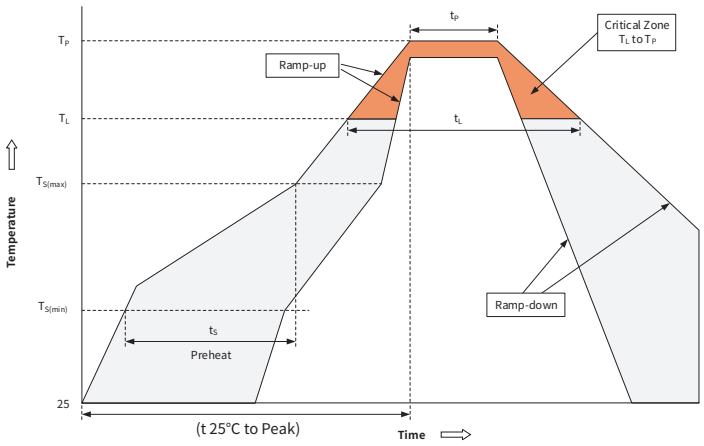


Fig.4 Clamping Voltage vs. Peak Pulse Current

Ordering Information

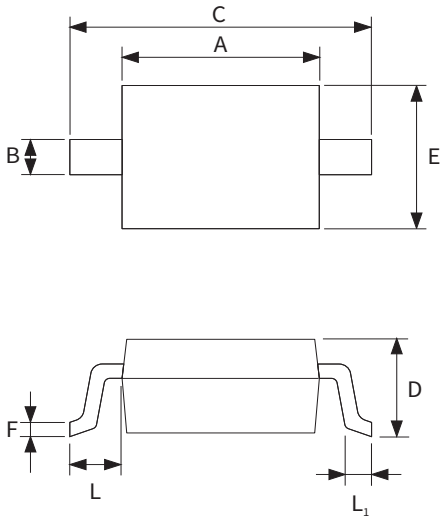
PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOD-323	R1	0.0048	3000	45000	180000	7''

Recommended Soldering Conditions



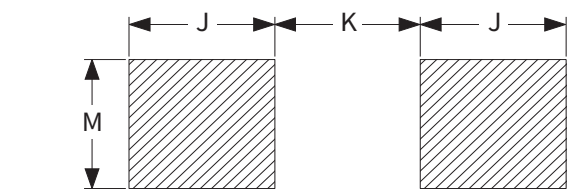
Profile Feature		Pb-Free Assembly
Pre-heat	Temperature Min ($T_{S(min)}$)	+150°C
	Temperature Max($T_{S(max)}$)	+200°C
	Time (Min to Max) (t_s)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C /sec. Max
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C /sec. Max
Reflow	Temperature(T_L)(Liquid us)	+217°C
	Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_P)		20-40secs
Ramp-down Rate		6°C /sec. Max
Time 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C

Package Outline Dimensions (SOD-323)



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.60	1.80	0.063	0.071
B	0.25	0.40	0.010	0.016
C	2.30	2.80	0.091	0.110
D	0.80	1.10	0.031	0.043
D_1	0.80	0.90	0.031	0.035
E	1.20	1.40	0.047	0.055
F	0.08	0.18	0.003	0.007
L	0.475REF		0.019REF	
L_1	0.25	0.40	0.010	0.016
H	-	0.14	-	0.006

Suggested Pad Layout



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	0.80	-	0.031	-
K	-	1.40	-	0.055
M	0.80	-	0.031	-