SOT-23-6 Plastic-Encapsulate ESD Protection Diodes

Features

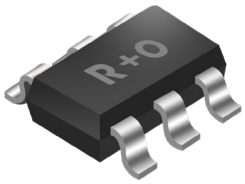
- Low leakage current
- Low clamping voltage
- IEC 61000-4-2 (ESD Air): ±30kV
- IEC 61000-4-2 (ESD Contact): ±30kV
- IEC 61000-4-5 (Lightning 8/20μs):4/20A

Reverse Working Voltage
5V Max.
Low capacitance
0.8 $pF_{(Pin1/3/4/6\sim Pin2)}$(Max.)
150 $pF_{(Pin5\sim Pin2)}$(TYP.)

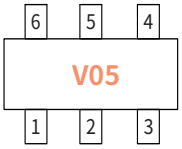
Applications

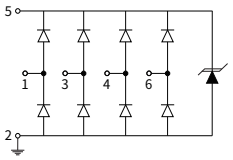
- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation,Digital Cameras
- Peripherals, Audio Players, Industrial Equipment

SOT-23-6



Function Diagram



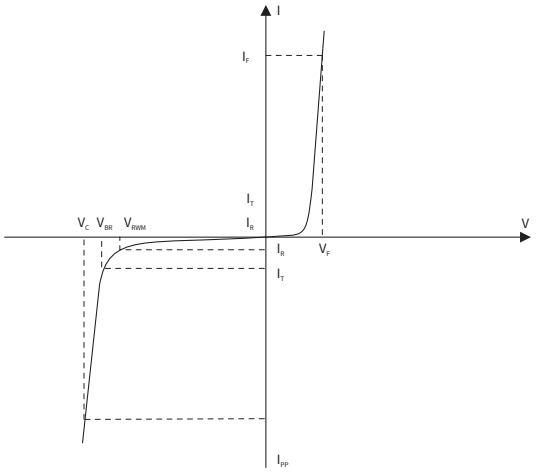


Maximum Ratings (Ta=25°C Unless otherwise specified)

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
$P_{PP(Pin1/3/4/6\sim Pin2)}$	Peak Pulse Power	tp = 8/20 μs	60	W
$I_{PP(Pin1/3/4/6\sim Pin2)}$	Rated Peak Pulse Current	tp = 8/20 μs	4	A
$P_{PP(Pin5\sim Pin2)}$	Peak Pulse Power	tp = 8/20 μs	440	W
$I_{PP(Pin5\sim Pin2)}$	Rated Peak Pulse Current	tp = 8/20 μs	20	A
T_J	Operating JunctionTemperature Range	—	-55 to +150	°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	—	—	5.0	V
Breakdown Voltage	V_{BR}	I_T=1mA,T_a=25°C	6.0	7.5	—	V
Reverse Leakage Current	I_R	V_{RWM}=5.0V,T_a=25°C	—	—	1.0	μA
Clamping Voltage	V_C (Pin1/3/4/6~Pin2)	I_{PP}=1A,t_p=8/20μs	—	9.0	—	V
		I_{PP}=4A,t_p=8/20μs	—	13.5	15	V
Clamping Voltage	V_C (Pin5~Pin2)	I_{PP}=1A,t_p=8/20μs	—	8.5	—	V
		I_{PP}=20A,t_p=8/20μs	—	20	22	V
Junction Capacitance	$C_{J(Pin1/3/4/6-Pin2)}$	V_{RMW}=0V,f=1MHz	—	0.5	0.8	pF
Junction Capacitance	$C_{J(Pin5-Pin2)}$	V_{RMW}=0V,f=1MHz	—	150	—	pF

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

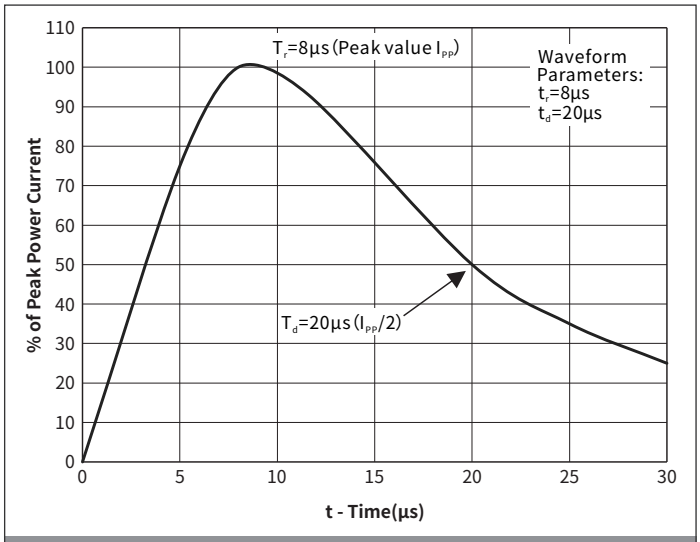


Fig.1 Pulse Waveform

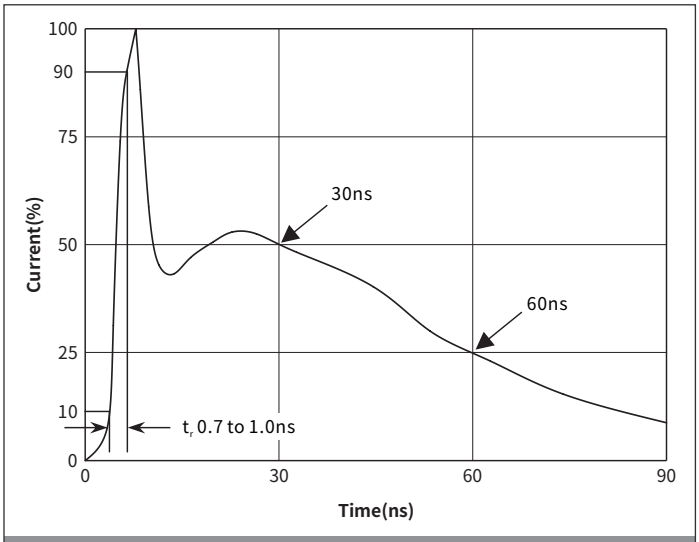


Fig.2 Pulse Waveform-ESD(IEC61000-4-2)

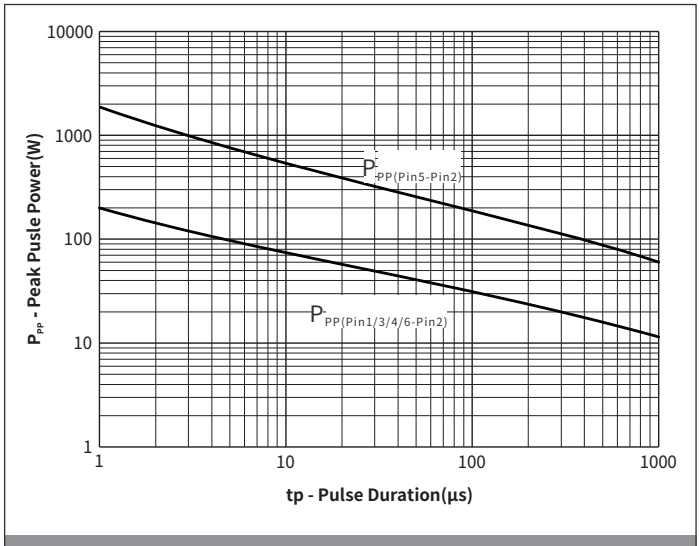


Fig.3 Peak Pulse Power vs. Pulse Time

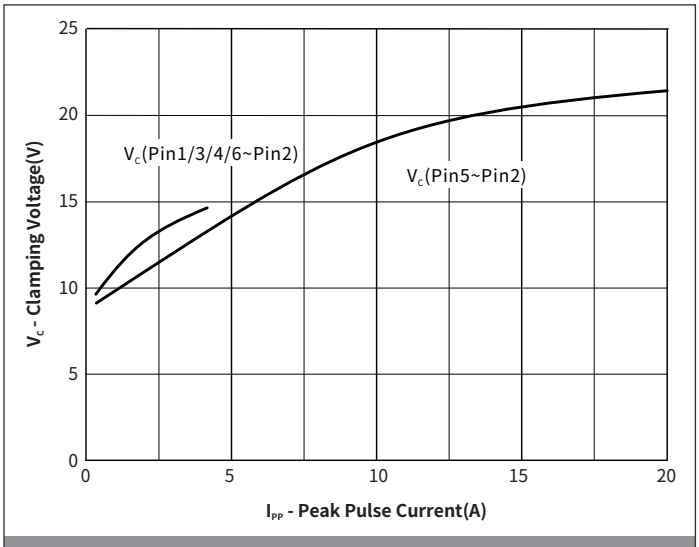
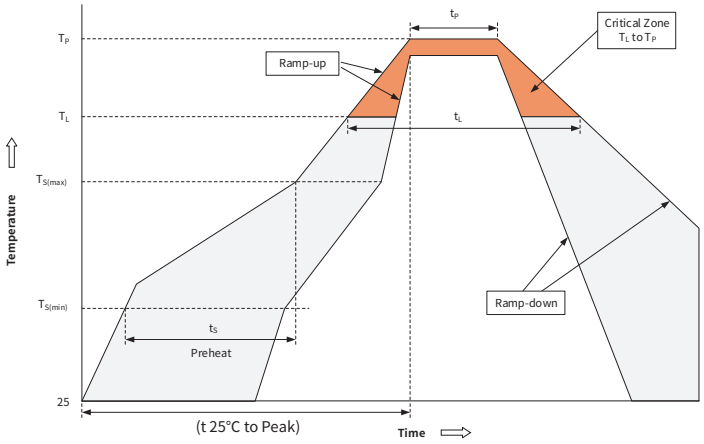


Fig.4 Clamping Voltage vs. Peak Pulse Current

Ordering Information

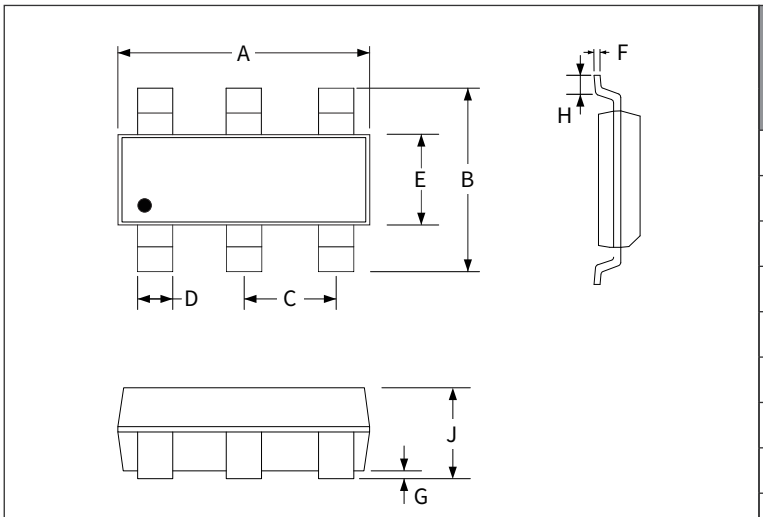
PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-23-6L	R1	0.008	3000	30000	120000	7''

Recommended Soldering Conditions



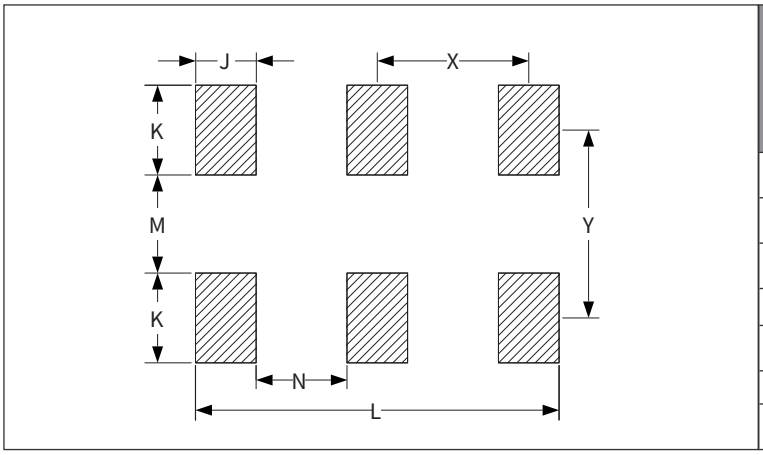
Profile Feature		Pb-Free Assembly
Pre-heat	Temperature Min ($T_{S(min)}$)	+150°C
	Temperature Max($T_{S(max)}$)	+200°C
	Time (Min to Max) (t_S)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C /sec. Max
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C /sec. Max
Reflow	Temperature(T_L)(Liquid 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 (SOT-23-6L)



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.80	3.00	0.110	0.118
B	2.60	3.00	0.102	0.118
C	0.93	0.97	0.037	0.038
D	0.41		0.016	
E	1.50	1.70	0.059	0.067
F	0.11	0.19	0.004	0.007
G	-	0.10	-	0.004
H	0.40	-	0.016	-
J	1.00	1.20	0.035	0.057

Suggested Pad Layout



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	0.60	-	0.024	-
K	0.90	-	0.035	-
M	-	1.40	-	0.055
N	-	0.35	-	0.014
X	-	0.95	-	0.037
Y	-	2.30	-	0.090
L	-	2.50	-	0.098