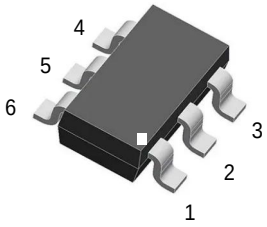
ESDU5V0H4
4-Line Uni-directional TVS Diode

Features

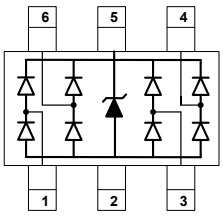
Ultra low capacitance: 0. 6pF typical (I/O-GND)
Ultra low leakage: nA level
Low operating voltage: 5.0V
Up to 4 data lines and one power line protects
Low clamping voltage
Complies with following standards:
– IEC 61000-4-2 (ESD) immunity test
Air : ±20kV; discharge: ±15kV
– IEC61000-4-5 (Lightning) 4.5A (8/20μs)
SOT23-6 Package
RoHS Compliant

V05

SOT 23-6L



Circuit Diagram



Applications

Monitors and flat panel displays
Set-top box and Digital TV
Video graphics cards
Digital Video Interface (DVI)
Notebook Computers
PCI Express and Serial SATA Ports

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

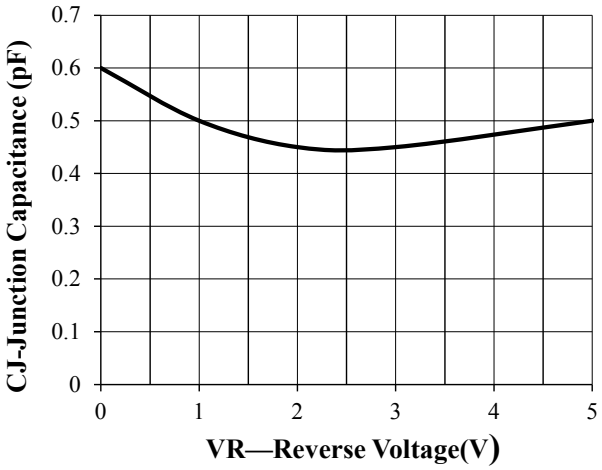
Absolute Maximum Ratings (@ T_a = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs,I/O-GND)	Ppk	60	W
Peak Pulse Power (8/20μs,Vcc-GND)	Ppk	300	W
Peak Pulse Current (8/20μs,I/O-GND)	IPP	4.5	A
Peak Pulse Current (8/20μs,Vcc-GND)	IPP	17	A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	$V_{ESD,VDD}$ $V_{ESD,I/O}$	±20 ±15	kV
Operating Temperature Range	TJ	−55 to +125	°C
Storage Temperature Range	Tstg	−55 to +150	°C

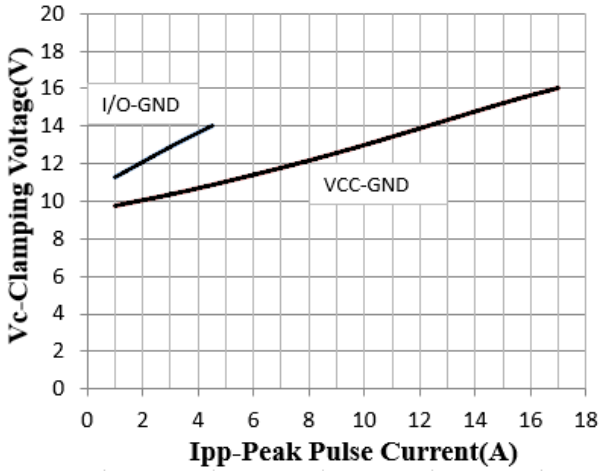
Electrical Characteristics (T_a=25℃unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}	Pin 5 to GND,I/O-GND			5. 0	V
Breakdown Voltage	V_{BR}	I_T = 1mA($_{Pin\ 5\ to\ GND,I/O-GND}$)	6.0	7.5	8.5	V
Reverse Leakage Current	I_R	V_{RWM} = 5. 0V			0.5	μA
Forward Breakdown Voltage	V_F	I_F= 15mA,GND to Pin 5/IO		0.8	1.0	V
Clamping Voltage	V_C	IPP = 4.5A (8 x 20μs pulse, I/O to GND)		14.0	15.0	V
Clamping Voltage	V_C	IPP = 17A (8 x 20μs pulse,Pin 5 to GND)		16.0	18. 0	V
Junction Capacitance	C_J	V_{pin5} = 5V, I/O=0V, f = 1MHz,I/O-GND		0.6	0.7	pF
Junction Capacitance	C_J	V_{pin5} = 5V, I/O=0V, f = 1MHz,I/O-I/O pins		0.3	0.4	pF

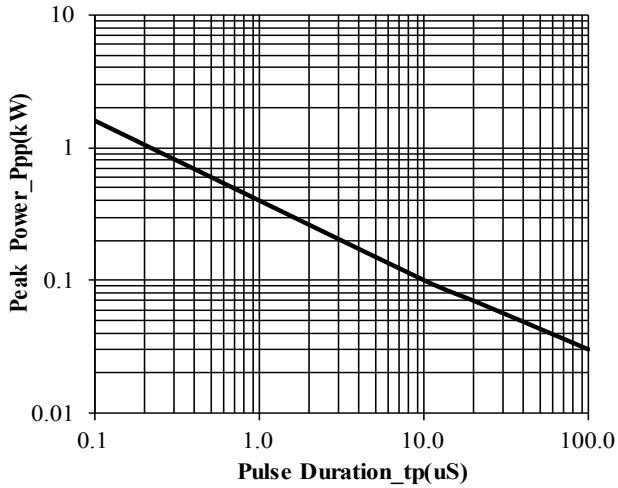
RATING AND CHARACTERISTIC CURVES



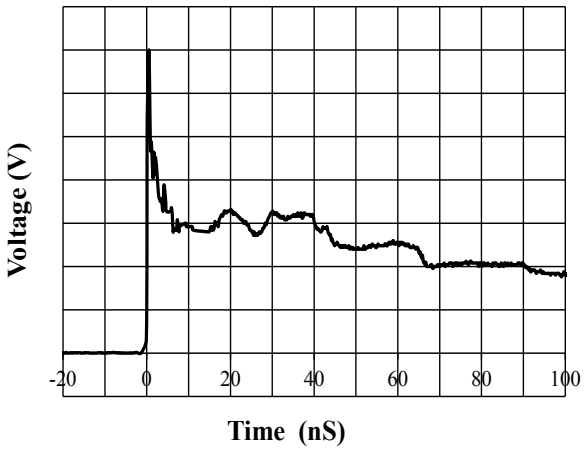
Junction Capacitance vs. Reverse Voltage



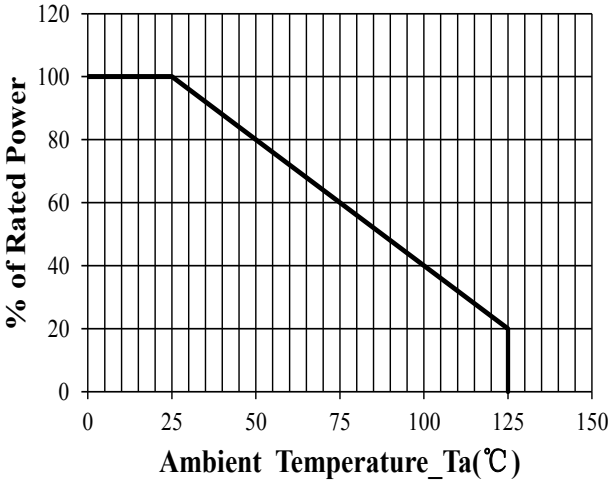
Clamping Voltage vs. Peak Pulse Current



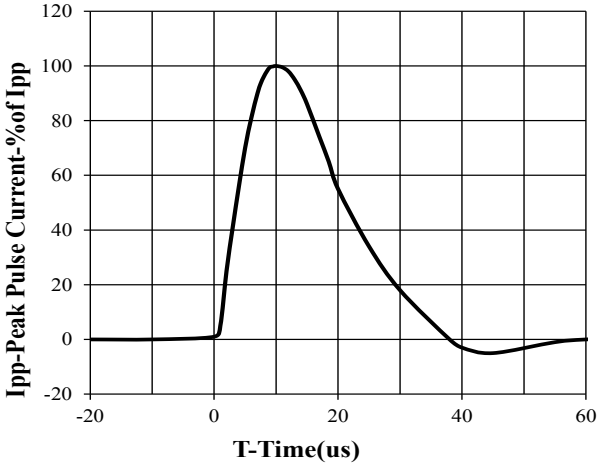
Peak Pulse Power vs. Pulse Time



IEC61000−4−2 Pulse Waveform



Power Derating Curve

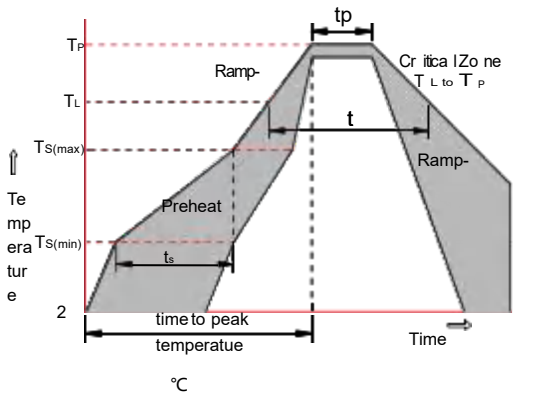


8 X 20us Pulse Waveform

Soldering parameters

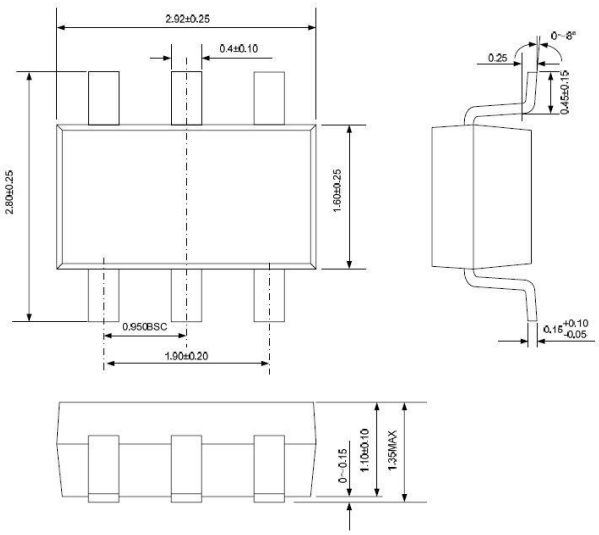
Reflow Condition		Pb-Free assembly (see as bellow)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217℃
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)℃
Time within 5℃ of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6℃/sec. Max
Time 25℃ to Peak Temp (T_P)		8 min. Max
Do not exceed		+260℃

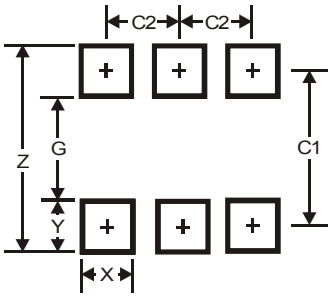
FIG5: Reflow condition



Package Dimensions & Suggested Pad Layout

SOT23-6L



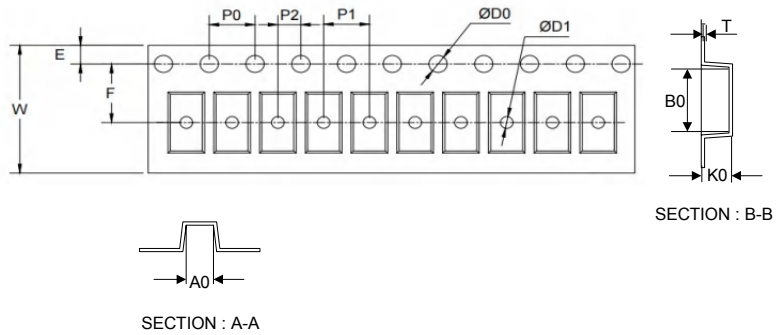


Dimensions	Value (in mm)
Z	3.50
G	1.30
X	0.65
Y	1.10
C1	2.40
C2	0.95

Dimensions in millimeters

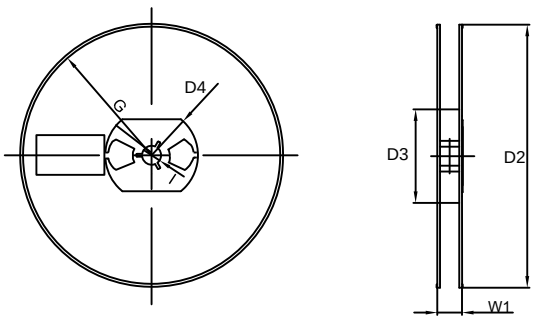
Tape & rell specification

Tape



Symbol	Dimension (mm)
P0	4.00±0.20
P1	4.00±0.20
P2	2.00±0.20
D0	1.55±0.20
D1	1.20±0.20
E	1.55±0.20
F	3.60±0.20
W	8.00±0.20
A0	3.80±0.20
B0	3.50±0.20
K0	1.55±0.20
T	0.25±0.15

7” Reel



D2	178.0±5.0
D3	55Min.
D4	R24.0±3.0
G	R82.0±3.0
I	13.0±2.0
W1	11.0±3.0

Quantity: 3000PCS