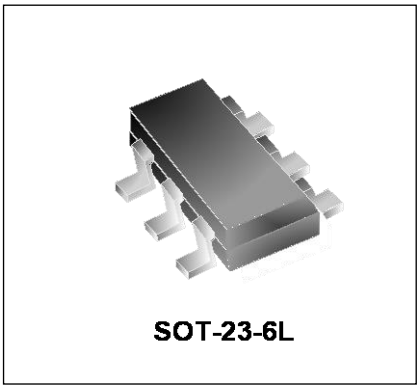
WE05-4RVLCH

Transient Voltage Suppressor

Features



- Low operating voltage: 5V
- Ultra low capacitance
- Solid-state silicon-avalanche and active circuit triggering technology
- Up to four I/O Lines of Protection
- Low Leakage

IEC COMPATIBILITY (EN61000-4)

- **IEC 61000-4-2 (ESD) ±25kV (air), ±20kV (contact)**
- **IEC 61000-4-4 (EFT) 40A (5/50ns)**
- **IEC 61000-4-5 (Lightning)6A (8/20μs)**

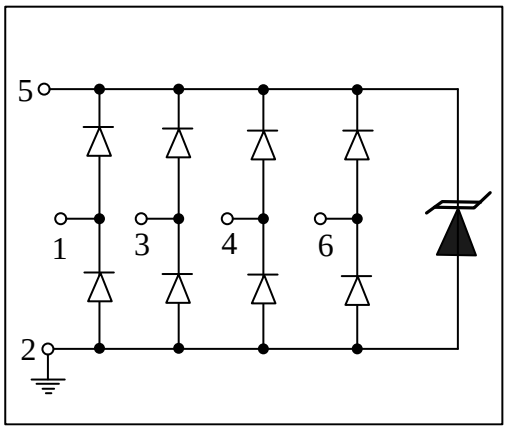
Mechanical Characteristics

- SOT-23-6L package
- Marking : Making Code
- Packaging : Tape and Reel per EIA 481
- RoHS Compliant

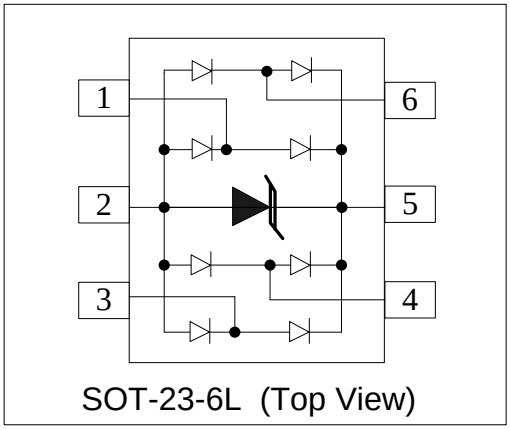
Applications

- Video/Graphics Card
- Digital Visual Interface (DVI)
- USB2.0 Power and Data lines protection
- Notebook and PC Computers
- Monitors and Flat Panel Displays

Circuit Diagram



Schematic & PIN Configuration



SOT-23-6L (Top View)

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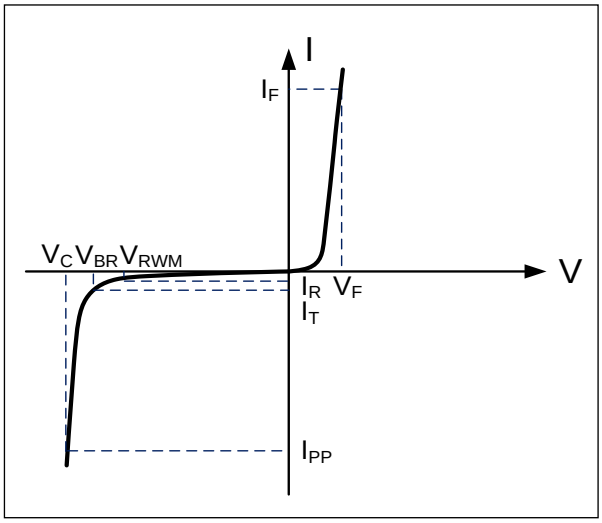
Absolute Maximum Rating			
Rating	**Symbol**	**Value**	**Units**
Peak Pulse Power（t_p=8/20μs）	P_{PP}	84	Watts
Peak Pulse Current (t_p=8/20μs)	I_{PP}	6	A
Operating Temperature	T_J	-55 to + 125	°C
Storage Temperature	T_{STG}	-55 to +150	°C

Electrical Parameters (T=25℃)

Symbol	Parameter
I_{PP}	Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Reverse Stand-Off Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_F	Forward Current
V_F	Forward Voltage @ I_F



Electrical Characteristics

WE05-4RVLCH						
Parameter	**Symbol**	**Conditions**	**Minimum**	**Typical**	**Maximum**	**Units**
Reverse Stand-Off Voltage	V_{RWM}	Pin5 to pin2 T=25°C			5	V
Breakdown Voltage	V_{BR}	I_T=1mA Pin 5 to pin2	6			V
Reverse Leakage Current	I_R	V_{RWM}=5V, T=25°C Pin 5 to pin2			500	nA
Forward Voltage	V_F	I_T=10mA	0.5		1.2	V
Clamping Voltage	V_C	I_{PP}=6A, t_p=8/20μs Any I/O pin to ground		11	14	V
Dynamic Resistance[1,2]	R_{DYN}	TLP=0.2/100ns		0.96		Ω
ESD Clamping Voltage[1]	V_C	IPP = 4A, tp = 0.2/100ns (TLP)		11		V
ESD Clamping Voltage[1]	V_C	IPP = 16A, tp = 0.2/100ns (TLP)		22.5		V
Junction Capacitance	C_j	V_R = 0V, f = 1MHz I/O pin to GND		1.5	2	pF
		V_R = 0V, f = 1MHz Between I/O pins		0.7	1	pF

Notes：1、TLP Setting：t_p=100ns, t_r=0.2ns, I_{TLP} and V_{TLP} sample window:t_1=70ns to t_2=90ns.
2、Dynamic resistance calculated from I_{PP}=4A to I_{PP}=16A using “Best Fit”.

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Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

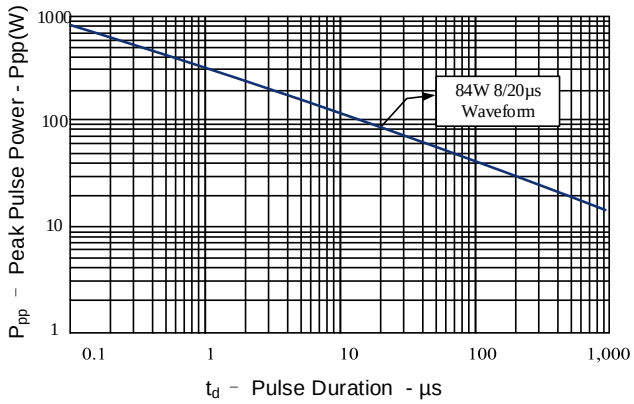


Figure 2: Power Derating Curve

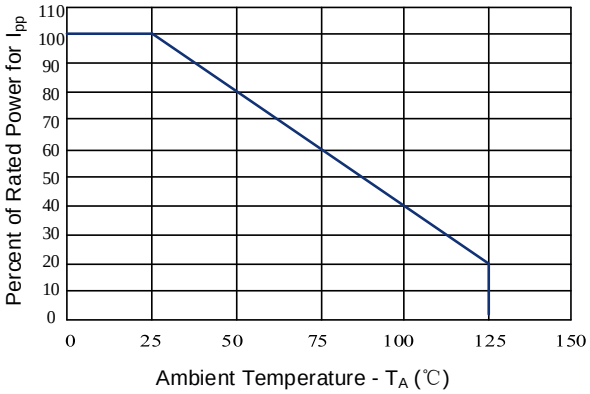


Figure 3: Clamping Voltage vs. Peak Pulse Current

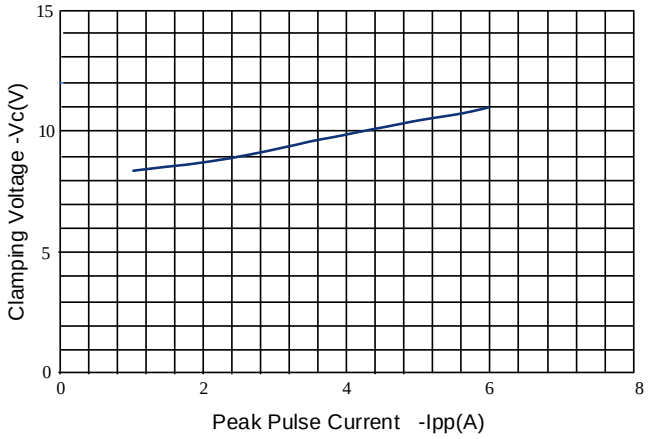


Figure 4: Normalized Junction Capacitance vs. Reverse Voltage (IO-GND)

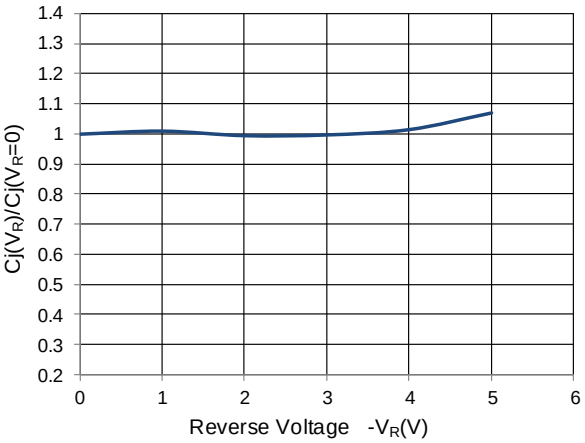


Figure 5: Pulse Waveform

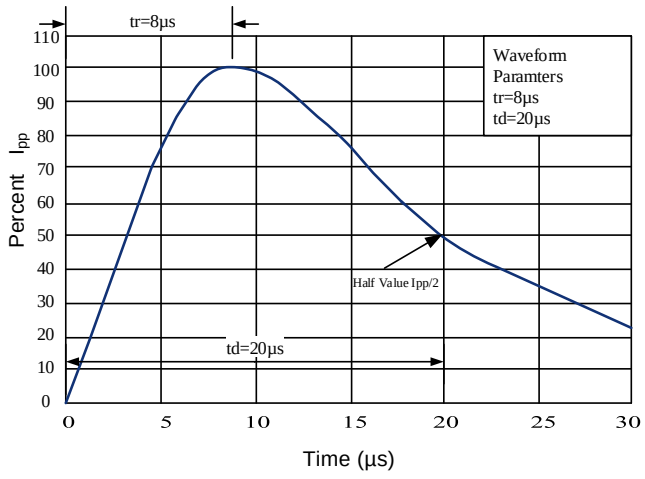
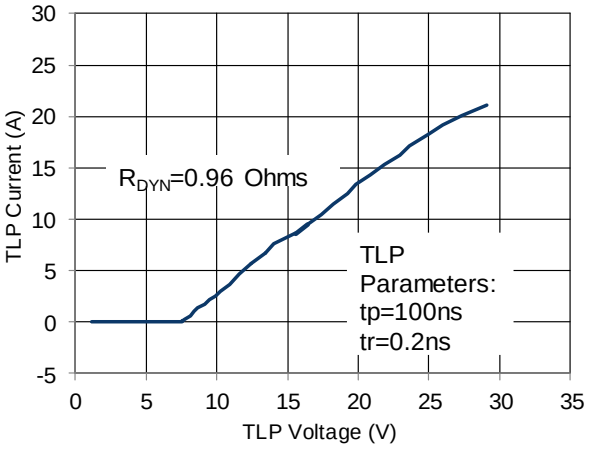


Figure 6: TLP I-V Curve



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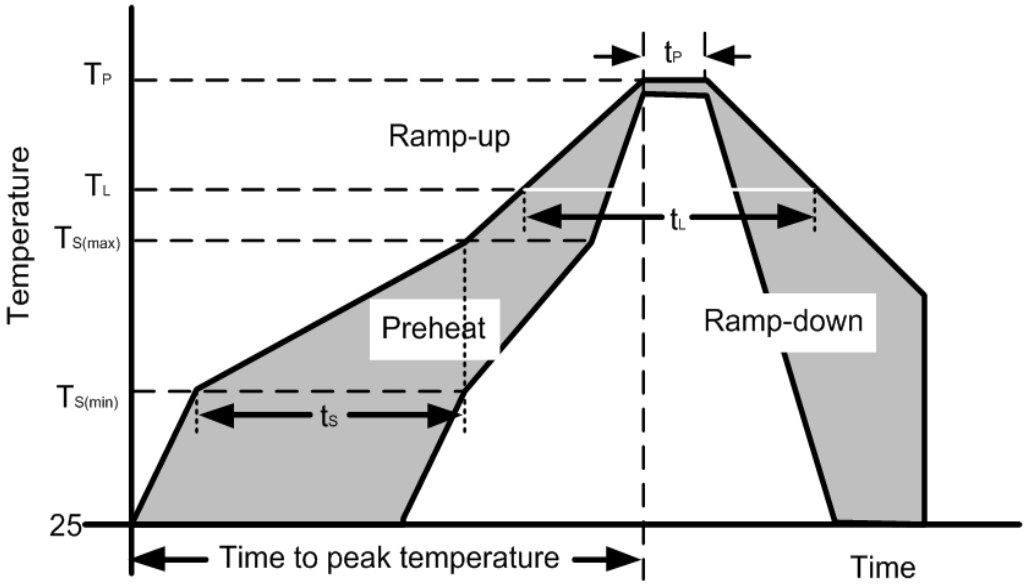
Soldering Parameters

Reflow Condition		Pb – Free assembly
Pre Heat	Temperature Min ($T_{s(min)}$)	150°C
	Temperature Max ($T_{s(max)}$)	200°C
	Time (min to max) (ts)	60 – 190 secs
Average ramp up rate (Liquidus Temp) (T_L) to peak		5°C/second max
$T_{S(max)}$ to T_L——Ramp-up Rate		5°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Temperature (t_L)	60 – 150 seconds
Peak Temperature (T_P)		260+0/-5 °C
Time within actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		5°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max.
Do not exceed		280°C



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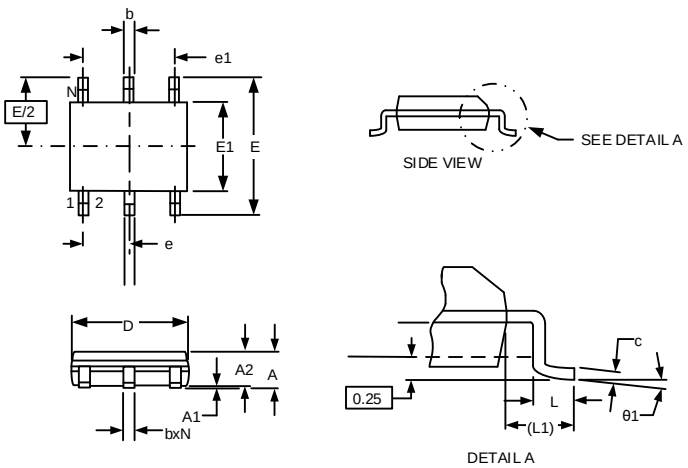
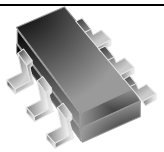
Outline Drawing – SOT-23-6L

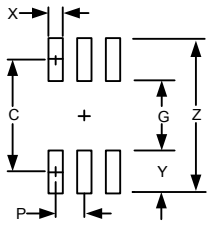
PACKAGE OUTLINE





SOT-23-6L

DIMENSIONS				
DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.035	0.057	0.90	1.45
A1	0.000	0.006	0.00	0.15
A2	0.035	0.051	0.90	1.30
b	0.014	0.020	0.35	0.50
c	0.003	0.008	0.08	0.20
D	0.110	0.119	2.80	3.02
E1	0.060	0.069	1.50	1.75
E	0.102	0.118	2.60	3.00
e	0.037 BSC		0.95 BSC	
e1	0.075BSC		1.90 BSC	
L	0.014	0.024	0.35	0.60
L1	0.022	0.030	0.55	0.75
θ1	0°	8°	0°	8°
N	6		6	

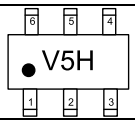


DIMENSIONS		
DIM	INCHES	MILLIMETERS
C	0.098	2.50
G	0.055	1.40
P	0.037	0.95
X	0.024	0.60
Y	0.043	1.10
Z	0.141	3.60

Notes:

Controlling Dimension: Millimeter.

Marking Codes

Part Number	WE05-4RVLCH
Marking Code	

Package Information

Qty：3k/Reel

CONTACT INFORMATION

No.1001, Shiwan (7) Road, Pudong District, Shanghai, P.R.China.201207
Tel: 86-21-68969993 Fax: 86-21-50757680 Email: market@way-on.com
WAYON website: **http://www.way-on.com**

For additional information, please contact your local Sales Representative.

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Specifications are subject to change without notice.
The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.
Users should verify actual device performance in their specific applications.

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