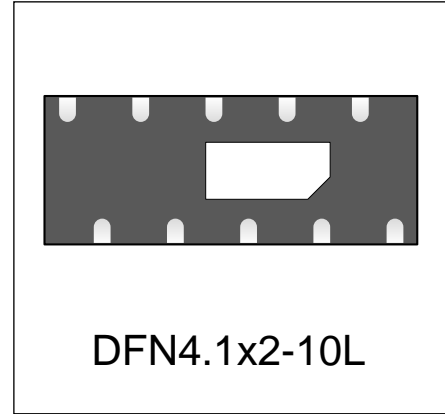


WE05-6R1N

Transient Voltage Suppressor

Features

- Solid-state silicon-avalanche technology
- Low operating and clamping voltage
- ESD Protection for super speed differential signaling channels
- Ultra low capacitance: 0.3pF typical(I/O to I/O)
- Low Leakage
- Low operating voltage:5V
- "feed through" layout



IEC COMPATIBILITY (EN61000-4)

- IEC 61000-4-2 (ESD) $\pm 15\text{kV}$ (air), $\pm 8\text{kV}$ (contact)
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 4.0A (8/20 μs)

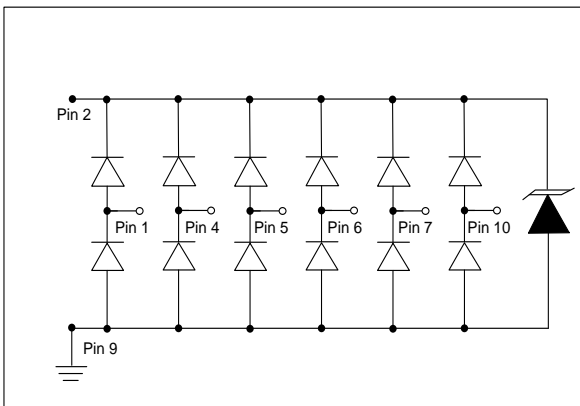
Mechanical Characteristics

- DFN4.1x2-10L package
- Molding compound flammability rating: UL 94V-0
- Marking: Marking Code
- Packaging: Tape and Reel
- RoHS/WEEE Compliant

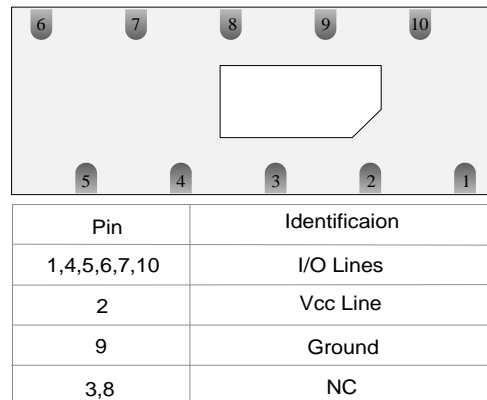
Applications

- USB 3.0
- HDMI 1.4
- High speed port protection
- Portable electronics

Circuit Diagram



Schematic & PIN Configuration

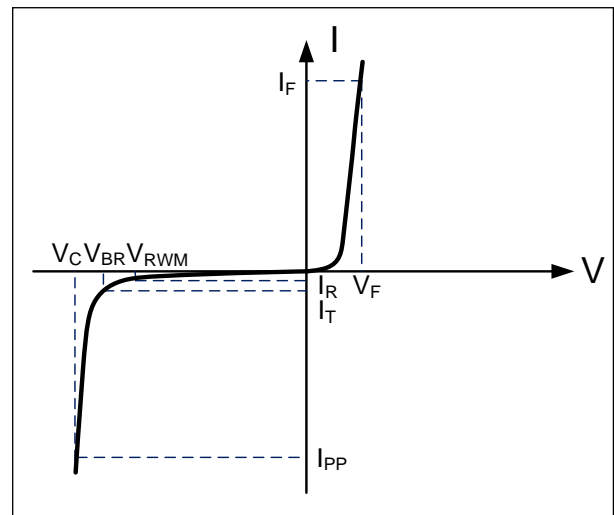


Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power ($t_p = 8/20\mu s$)	P_{PP}	70	Watts
Peak Pulse Current ($t_p = 8/20\mu s$)	I_{pp}	4.0	A
ESD per IEC 61000-4-2(Air)	V_{ESD}	+/-17	kV
ESD per IEC 61000-4-2(contact)		+/-12	
Operating Temperature	T_J	-55 to + 125	°C
Storage Temperature	T_{STG}	-55 to +150	°C

Electrical Parameters (T=25°C)

Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum 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

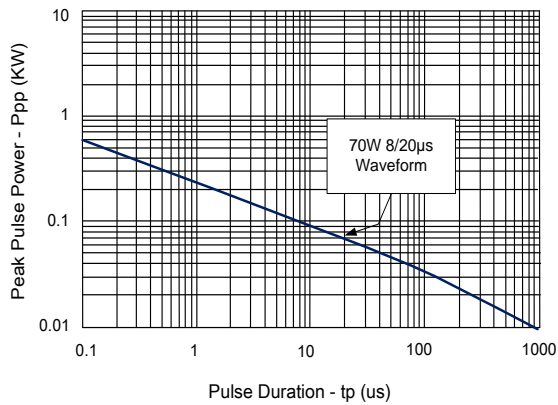


Electrical Characteristics

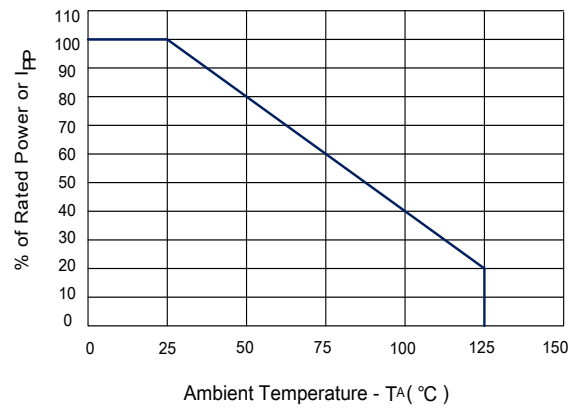
Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RWM}	Any I/O pin to ground			5.0	V
Reverse Breakdown Voltage	V_{BR}	$I_t = 1mA$ Any I/O pin to ground	6.0			V
Reverse Leakage Current	I_R	$V_{RWM} = 5V, T = 25^\circ C$ Any I/O pin to ground			1	μA
Clamping Voltage	V_C	$I_{pp} = 4A, t_p = 8/20\mu s$ Any I/O pin to ground			15	V
Junction Capacitance	C_j	$V_R = 0V, f = 1MHz$ I/O pin to GND			0.8	pF
		$V_R = 0V, f = 1MHz$ Between I/O pins		0.3	0.4	pF

Typical Characteristics

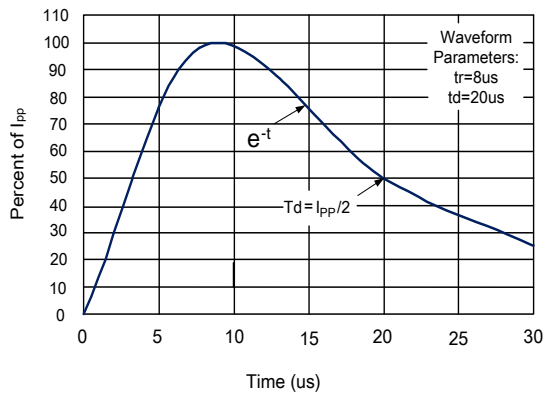
Non-Repetitive Peak Pulse Power vs. Pulse Time



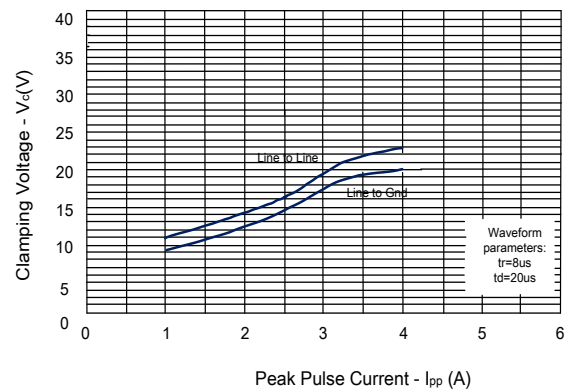
Power Derating curve



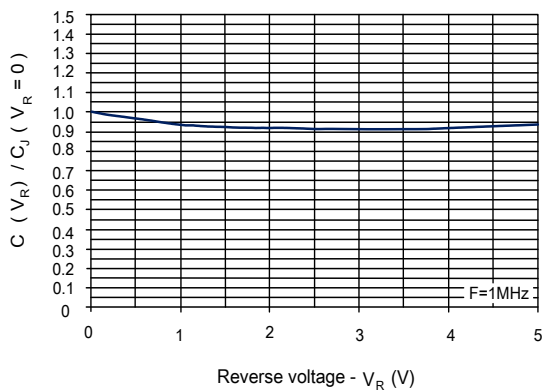
Pulse Waveform



Clamping Voltage vs. Peak Pulse Current

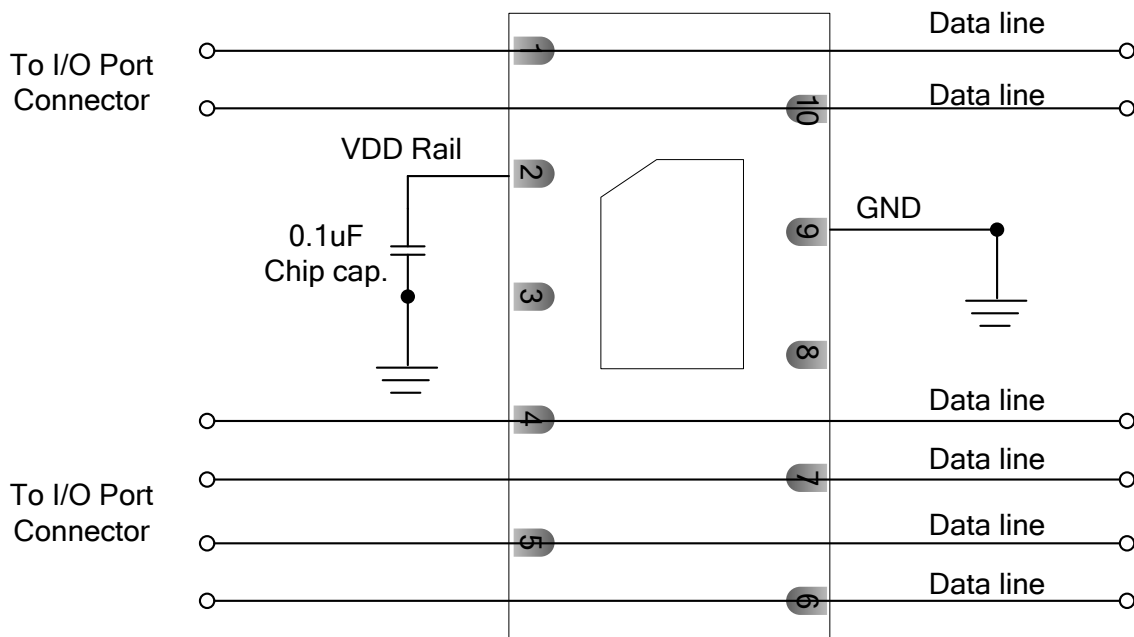


Normalized Capacitance vs. Reverse Voltage



Reference Application

WE05-6R1N is designed to protect high speed data ports from ESD transients. For high speed ports above 5 Gb/s such as USB 3.0, differential signaling is used where the need to keep impedance constant is a critical requirement. The use of a DFN4.1x2-10L package using a “feed through” layout provides a minimum impedance change on the high speed data line while the ultralow capacitance performance of the device limits the signal loss degradation of each channel.



USB3.0 ESD Protection by using WE05-6R1N.

Outline Drawing –DFN4.1x2-10L

PACKAGE OUTLINE

DFN4.1x2-10L

DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.45	0.55	0.018	0.022
A1	0.000	0.050	.0000	.0002
A3	0.152REF		0.006REF	
D	4.024	4.176	0.158	0.164
E	1.924	2.076	0.076	0.082
D1	1.300	1.500	0.051	0.059
E1	0.700	0.900	0.028	0.035
b	0.150	0.250	0.006	0.010
e	0.800TYP		0.031TYP-	
k	0.200MIN		0.008MIN	
L	0.224	0.376	0.009	0.015

NOTES:

- 1.CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).
2. THIS LAND PATTERN IS FOR REFERENCE PURPOSES ONLY. CONSULT YOUR MANUFACTURING TO ENSURE YOUR COMPANYS MANNUFACTURING GUIDELINES ARE MET.

Marking Codes

Part Number	WE05-6R1N	Marking Code	WE05-6R1N
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CONTACT INFORMATION

SHANGHAI CHANGYUAN WAYON CIRCUIT PROTECTION CO., LTD.

No.1001, Shiwan(7) Road, Pudong District, Shanghai, P.R.China.201202

Tel: 86-21-50310888 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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