

DESCRIPTION

The KZ1045-SP is an ultra-low capacitance Transient Voltage Suppressor (TVS) designed to protection for high-speed data interfaces. With typical capacitance of 0.2pF only, KZ1045-SP is designed to protect parasitic-sensitive systems against over-voltage and over-current transient events. It complies with IEC 61000-4-2 (ESD), Level 4(±15KV air, ±8KV contact discharge), IEC61000-4-4 (electrical fast transient-EFT) (40A, 5/50ns),very fast charged device model (CDM)ESD and cable discharge event(CDE),etc.

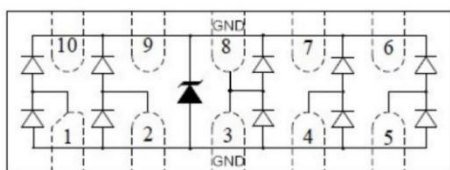
The KZ1045-SP uses ultra-small DFN2510 package. Each KZ1045-SP a is device can protect four high-speed data lines. The combined features of ultra-low capacitance, ultra-small size and high ESD robustness make The KZ1045-SP ideal for high-speed data ports and high-frequency lines (e.g., HDMI &DVI) applications. The low clamping voltage of the

KZ1045-SP guarantees a minimum stress on the protected IC.

ORDERING INFORMATION

- ◇Package: DFN2510
- ◇Marking: T54SP
- ◇Material: Halogen free
- ◇Packing: Tape & Reel
- ◇Quantity per reel: 3,000pcs

PIN CONFIGURATION



FEATURES

- ◇Transient protection for high-speed data lines
IEC 61000-4-2(ESD) ±25KV(Air)
±20KV(Contact)
IEC 61000-4-4(EFT)40A(5/50ns)
Cable Discharge Event(CDE)
- ◇Package optimized for high-speed lines
- ◇Ultra-small package(2.5mm*1.0mm*0.50mm)
- ◇Protects four data lines
- ◇Low capacitance:0.2pF for each channel
- ◇Low leakage current
- ◇Low clamping voltage
- ◇Each I/O pin can withstand over 1000 ESD strikes for ±8KV contact discharge

MACHANICAL DATA

- ◇DFN2510 package
- ◇Flammability Rating: UL 94V-0
- ◇Terminal: Matte tin plated.
- ◇Packaging: Tape and Reel
- ◇High temperature soldering guaranted:260°C/10s
- ◇Reel size: 7 inch

APPLICATIONS

- ◇Serial ATA
- ◇PCI Express
- ◇Desktops, Servers and Notebooks
- ◇MDDI Ports
- ◇USB 2.0/3.0 and Data Line Protection
- ◇Display Ports
- ◇High Definition Multi-Media Interface (HDMI)
- ◇Digital Visual Interface (DVI)

PACKAGE OUTLINE



ABSOLUTE MAXIMUM RATING

Symbol	Parameter	Value	Units
P_{PP}	Peak Pulse Power(8/20 μ s)	100	W
V_{ESD}	ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	± 25 ± 20	kV
T_{OPT}	Operating Temperature	-55/+125	°C
T_{STG}	Storage Temperature	-55/+150	°C

ELECTRICAL CHARACTERISTICS (Tamb=25. °C)

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V_{RWM}	Reverse Working Voltage	Any I/O pin to GND			5.0	V
V_{BR}	Reverse Breakdown Voltage	$I_T = 1mA$ Any I/O pin to GND	6.0		10.0	V
I_R	Reverse Leakage Current	$V_{RWM} = 5V$ Any I/O pin to GND			1.0	μA
V_C	Clamping Voltage	$I_{PP} = 1A, t_p = 8/20\mu s$ Any I/O pin to GND			15	V
		$I_{PP} = 4A, t_p = 8/20\mu s$ Any I/O pin to GND			25	V
C_{ESD}	Parasitic Capacitance	$V_R = 0V, f = 1MHz$ Between I/O and GND		0.2	0.25	pF
C_{ESD}	Parasitic Capacitance	$V_R = 0V, f = 1MHz$ Between I/O and I/O		0.2	0.25	pF

Note: I/O pins are pin 1,2,4,5, GND pins are pin 3,8.

ELECTRICAL CHARACTERISTICS CURVE

Fig 1 Power Derating Curve

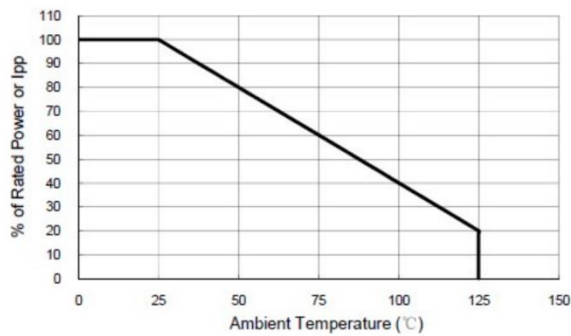


Fig 2 Clamping Voltage vs Peak Pulse Current

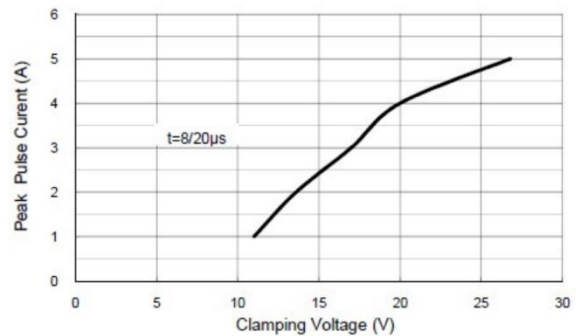


Fig 3 Voltage Sweeping of I/O to I/O or GND

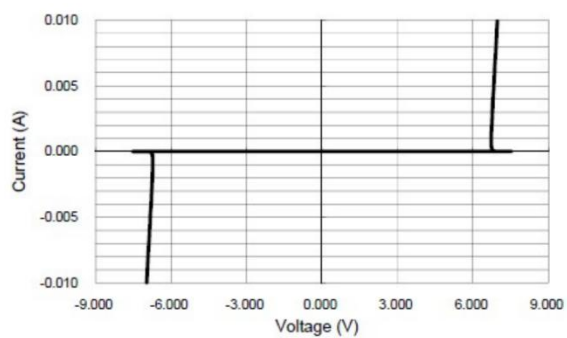
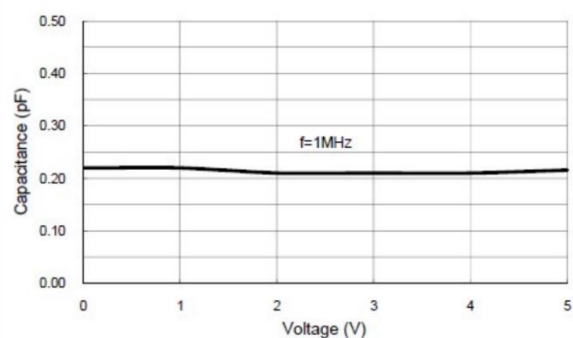
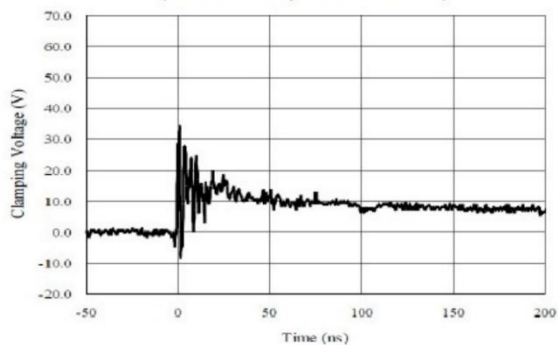


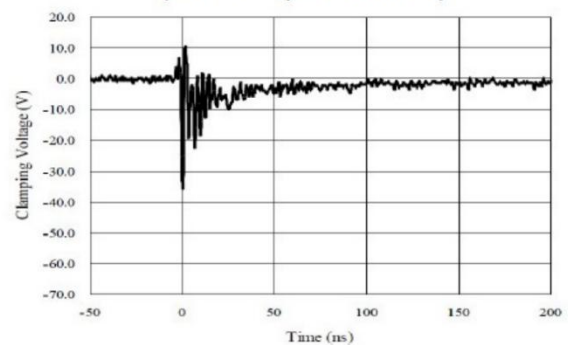
Fig 4 Voltage vs Capacitance I/O to I/O or GND

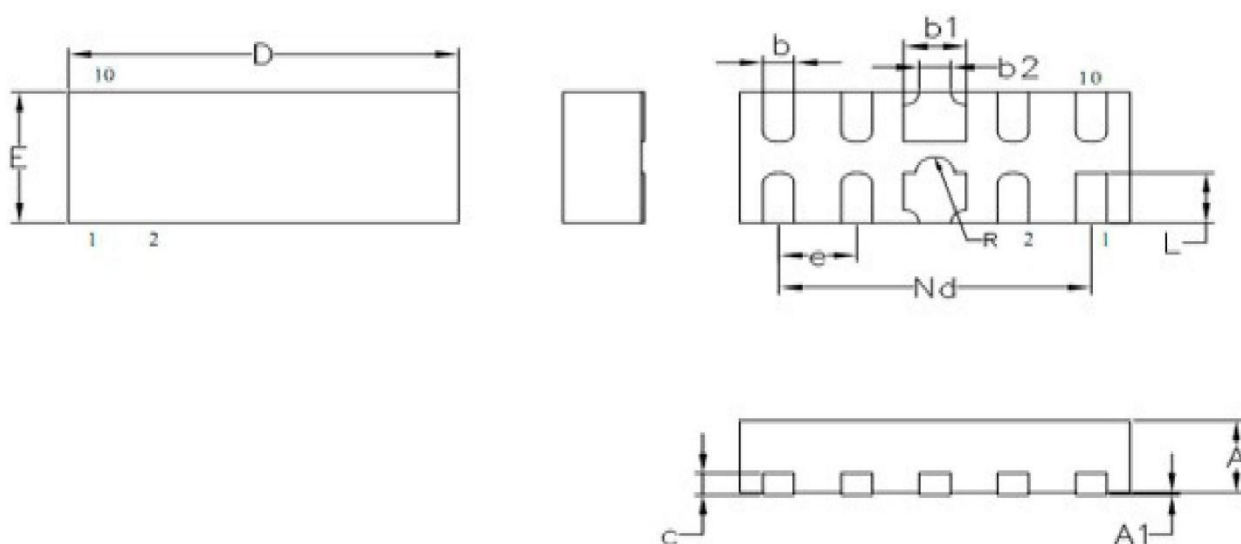


**Fig 5 ESD Clamping of I/O to GND
(+8kV Contact per IEC 61000-4-2)**



**Fig 6 ESD Clamping of I/O to GND
(-8kV Contact per IEC 61000-4-2)**



DFN2510 PACKAGE OUTLINE DIMENSIONS


Symbol	Dimensions (mm)		
	Min.	Nom.	Max.
D	2.45	2.50	2.55
E	0.95	1.00	1.05
b1	0.35	0.40	0.45
b2	0.20REF		
b	0.15	0.20	0.25
L	0.33	0.38	0.43
Nd	2.00BSC		
e	0.50BSC		
R	0.10	0.125	0.15
A	0.45	0.50	0.55
c	0.15REF		
A1	0.00	-	0.05