



### Discription

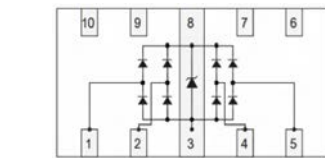
The HAZ1213-04F is a 4-channel ultra low capacitance rail clam ESD protection diodes array. Each channel consists of a pair of diodes that steer positive or negative ESD current to either the positive or negative rail . A zener diode is integrated in to the array between the positive and negative supply rails. In the typical applications,the negative rail pin (assigned as GND) is connected with system ground. The Positive ESD current is steered to the ground through an ESD diode and Zener diode and the positive ESD voltage is clamped to the zener voltage.



DFN2510-10L

### Features

- ★ 4 channels of ESD protection;
- ★ Provides ESD protection to IEC61000-4-2 level 4
  - ±15kV air discharge
  - ±10kV contact discharge;
- ★ Channel I/O to GND capacitance: 0.4pF (Max)
- ★ Channel I/O to I/O capacitance: 0.6pF (Max)
- ★ Low clamping voltage;
- ★ Low operating voltage;
- ★ Improved zener structure;
- ★ Optimized package for easy high speed data lines PCB layout
- ★ RoHS compliant and Halogen Free.



Circuit Diagram

### Ordering information

Product ID	Pack	Qty(PCS)
HAZ1213-04F	DFN2510-10L	3000

### Absolute Ratings(Tamb = 25°C)

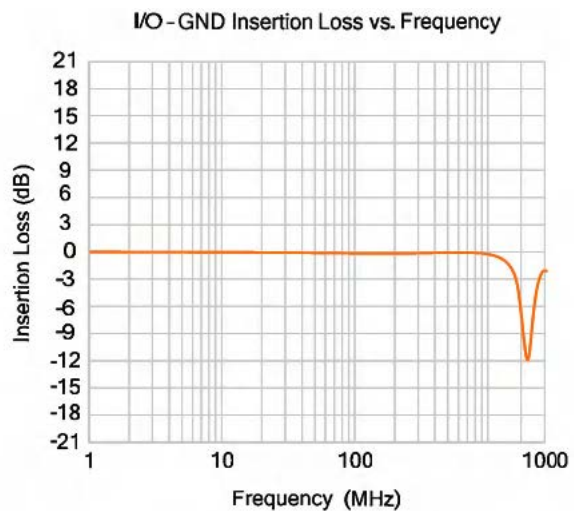
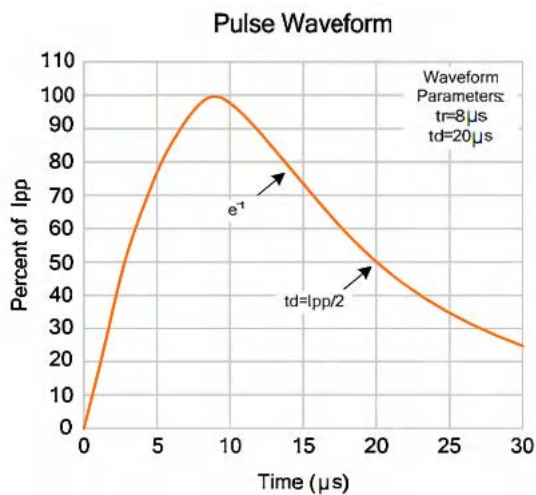
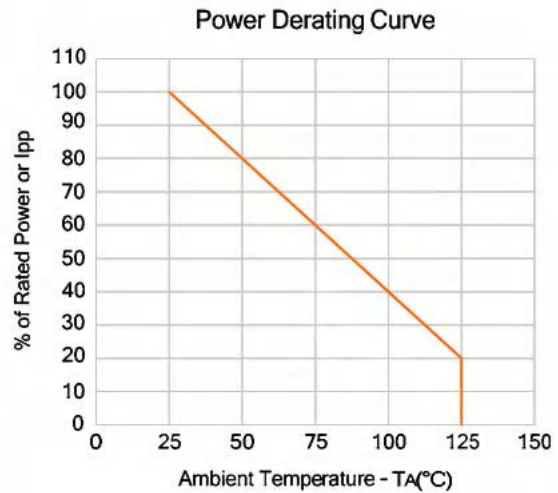
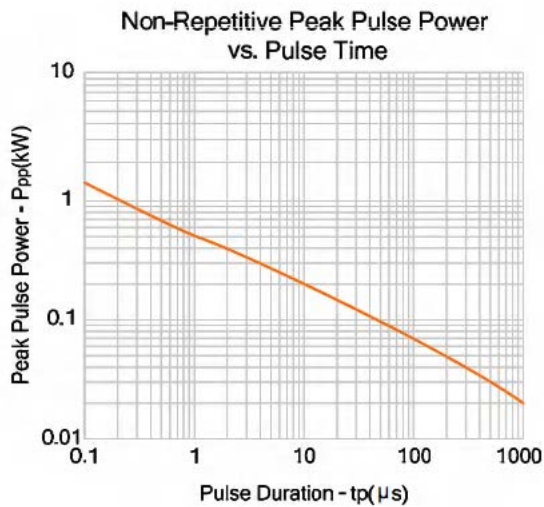
Symbol	Parameter	Value	Units
P <sub>PP</sub>	Peak Pulse Power (t <sub>p</sub> = 8/20μs)	70	W
I <sub>PP</sub>	Peak Pulse Current(8/20us)	4	A
T <sub>L</sub>	Maximum lead temperature for soldering during 10s	260	°C
T <sub>stg</sub>	Storage Temperature Range	-55 to +150	°C
T <sub>op</sub>	Operating Temperature Range	-40 to +125	°C
T <sub>j</sub>	Maximum junction temperature	150	°C
	IEC61000-4-2 (ESD)	air discharge contact discharge	± 15 ± 10 KV



### Electrical Characteristics (Ta= 25°C)

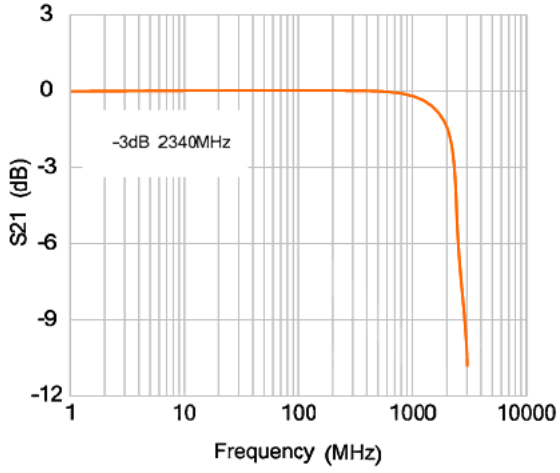
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Reverse Working Voltage	VRWM	–	–	3.3	V	Any I/O pin to GND
Reverse Breakdown Voltage	VBR	5.6	–	–	V	It =1mA; Any I/O pin to GND
Reverse Leakage Current	IR	–	–	1	μA	VRWM =3.3V, T=25°C; Any I/O pin to GND
Positive Clamping Voltage	VC1	–	8	20	V	I <sub>PP</sub> =4A, t <sub>P</sub> =8/20μs; Positive pulse; Any I/O pin to GND
Negative Clamping Voltage	VC2	–	1.8	–	V	I <sub>PP</sub> =1A, t <sub>P</sub> =8/20μs; Negative pulse; Any I/O pin to GND
Junction Capacitance Between Channel	C <sub>J1</sub>	–	0.3	0.4	pF	VR=0V, f=1MHz; Between I/O pins
Junction Capacitance Between I/O And GND	C <sub>J2</sub>	–	0.6	0.8	pF	VR=0V, f=1MHz; Any I/O pin to GND

### Typical Characteristics

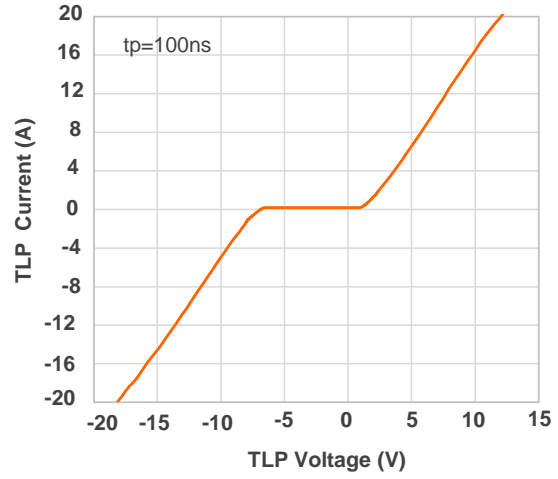




Insertion Loss vs. Frequency

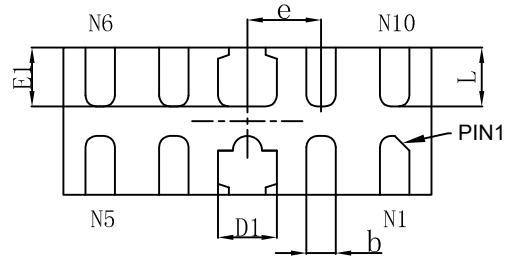
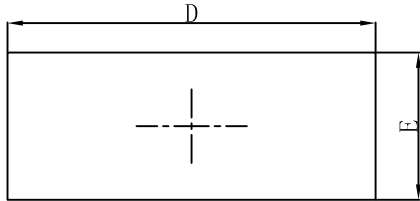


TLP Measurement

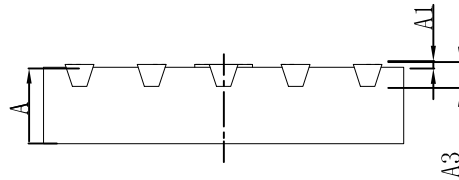




### Outline And Dimensions



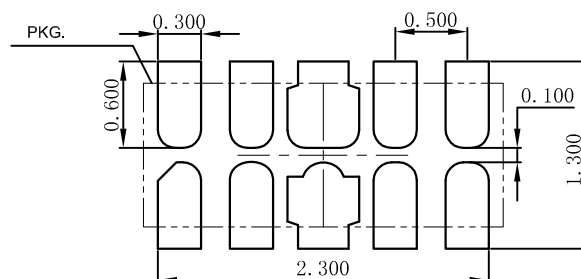
**Bottom View**



**Side View**

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.450	0.550	0.017	0.022
A1	0.000	0.050	0.000	0.002
A3	0.152REF.		0.006REF.	
D	2.450	2.550	0.096	0.100
E	0.950	1.050	0.037	0.041
D1	0.350	0.450	0.014	0.018
E1	0.350	0.450	0.014	0.018
b	0.150	0.250	0.006	0.010
e	0.500TYP.		0.020TYP.	
L				

### Soldering Footprint





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