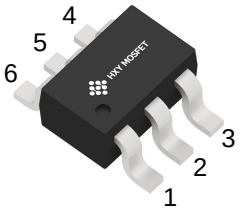
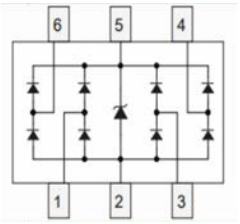
IP4220CZ6-HXY
ESD PROTECTION DIODE

Discription

The IP4220CZ6-HXY is a 5-channel ultra low capacitance rail clamp ESD protection diodes array. Each channel consists of a pair of ESD 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.



SOT-23-6L
(TSOP-6-1.5mm)



Circuit Diagram

Features

★ 5 channels of ESD protection;
★ Provides ESD protectionto IEC61000-4-2 level 4
- ±27kV air discharge
- ±15kV contact discharge;
★ Channel I/O to GND capacitance: 0.4pF(Max)
★ Channel I/O to I/O capacitance: 0.8pF(Max)
★ Low clamping voltage;
★ Low operating voltage;
★ Improved zener structure;
★ ROptimized package for easy high speed data lines PCB layout;
★ RoHS compliant.

Ordering Information

Product ID	Pack	Qty(PCS)
IP4220CZ6-HXY	SOT-23-6L(TSOP-6-1.5mm)	3000

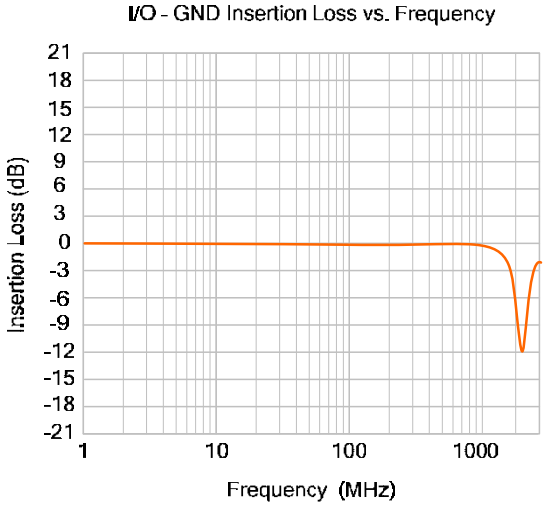
Absolute Ratings (T_{amb}=25°C)

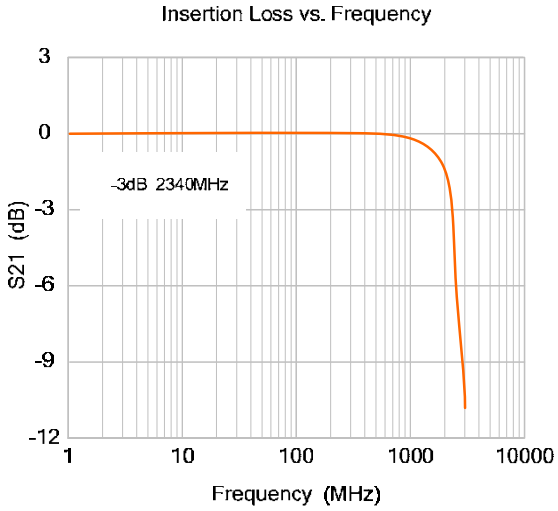
Characteristics	Symbol	Ratings	Unit
Peak Pulse Power(8/20μs)	P_{PP}	55	W
Peak Pulse Current(8/20μs)	I_{PP}	4	A
ESD per IEC 61000-4-2(Air)	V_{ESD1}	±20kV	kV
ESD per IEC 61000-4-2(Contact)	V_{ESD2}	±15kV	kV
Operating Temperature Range	Topr	-55 ~ +125	°C
Storage Temperature Range	Tstg	-55 ~ +150	°C

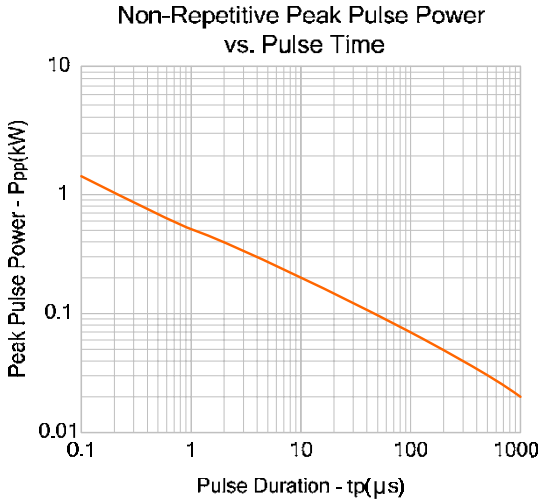
Electrical Characteristics(Tamb=25°C)

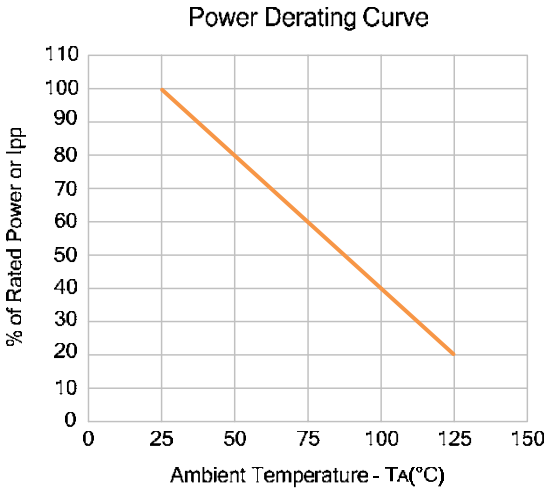
Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Reverse Working Voltage	V_{RWM}	Any I/O pin to GND			5	V
Reverse Breakdown Voltage	V_{BR}	I_t=1mA; Any I/O pin to GND	6			V
Reverse Leakage Current	I_R	V_{RWM} =5V, T=25°C; Any I/O pin to GND			1	μA
Positive Clamping Voltage	V_{C1}	I_{PP}=4A, t_P=8/20μs; Positive pulse; Any I/O pin to GND		8.5	12.0	V
Negative Clamping Voltage	V_{C2}	I_{PP}=4A, t_P=8/20μs; Negative pulse; Any I/O pin to GND		1.8		V
Junction Capacitance Between Channel	C_{J1}	V_R=0V, f=1MHz; Between I/O pins		0.3	0.4	pF
Junction Capacitance Between I/O And GND	C_{J2}	V_R=0V, f=1MHz; Any I/O pin to GND		0.6	0.8	pF

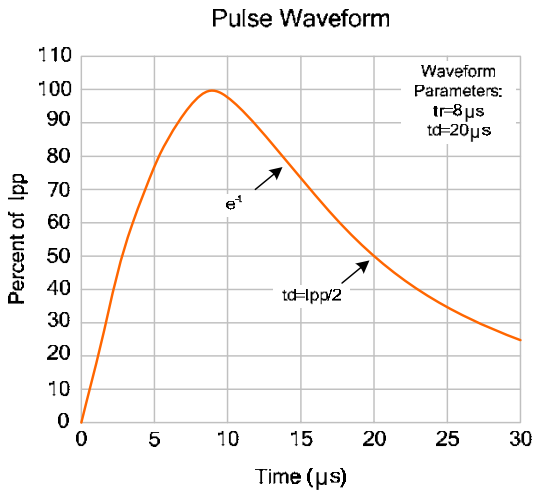
Typical Electrical Characteristics Curve

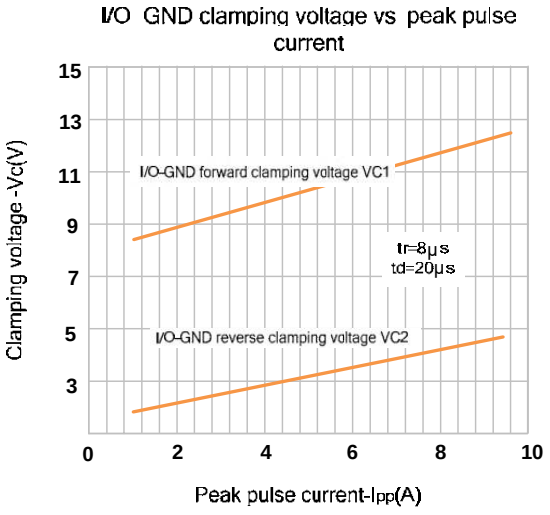


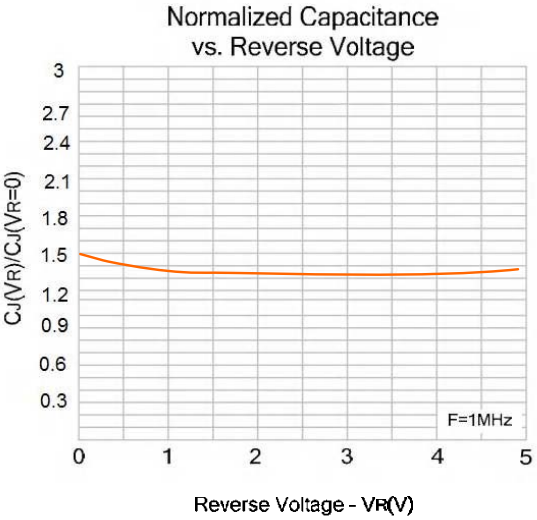



Non-Repetitive Peak Pulse Power
vs. Pulse Time
Peak Pulse Power - Ppp(kW)
10
1
0.1
0.01
0.1
1
10
100
1000
Pulse Duration - tp(μs)

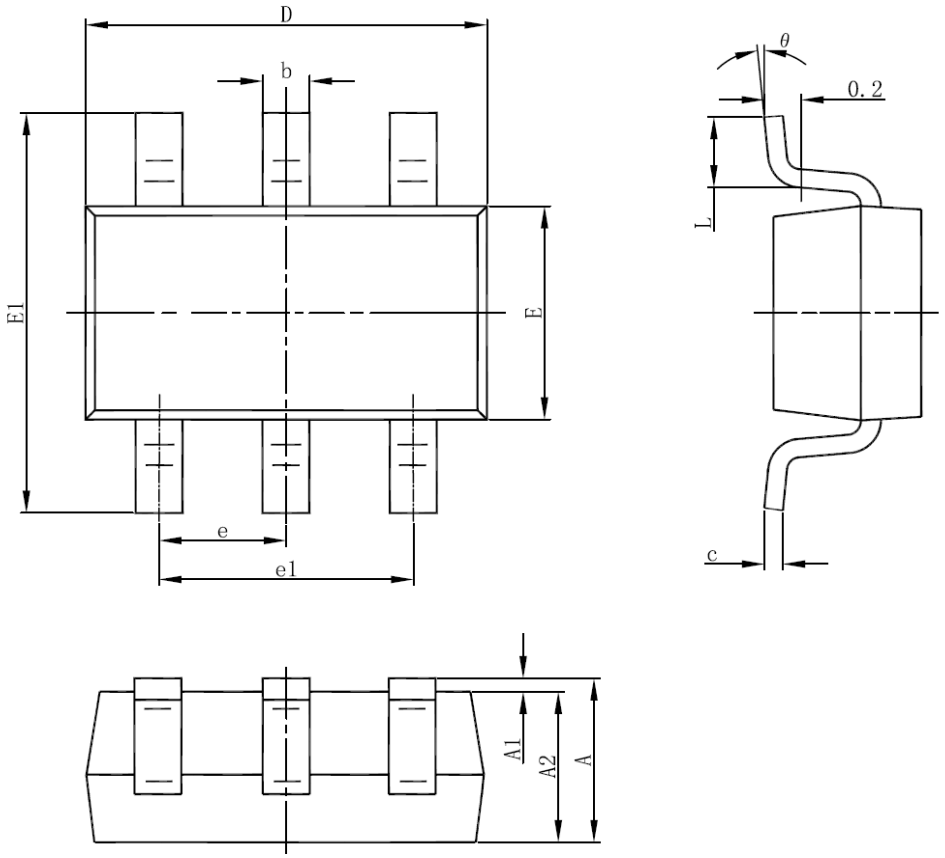

Power Derating Curve
% of Rated Power or Ipp
110
100
90
80
70
60
50
40
30
20
10
0
0
25
50
75
100
125
150
Ambient Temperature - TA(°C)


Pulse Waveform
Percent of Ipp
110
100
90
80
70
60
50
40
30
20
10
0
0
5
10
15
20
25
30
Time (μs)
Waveform
Parameters:
tr=8μs
td=20μs
e-1
td=Ipp/2


I/O GND clamping voltage vs peak pulse
current
Clamping voltage -Vc(V)
15
13
11
9
7
5
3
0
2
4
6
8
10
Peak pulse current-Ipp(A)
I/O-GND forward clamping voltage VC1
tr=8μs
td=20μs
I/O-GND reverse clamping voltage VC2


Normalized Capacitance
vs. Reverse Voltage
CJ(VR)/CJ(VR=0)
3
2.7
2.4
2.1
1.8
1.5
1.2
0.9
0.6
0.3
0
1
2
3
4
5
F=1MHz
Reverse Voltage - VR(V)

SOT-23-6L(TSOP-6-1.5mm) Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

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HC3D10170A HMCP602-I/SN HT7150 SD15C TPSMB28A-VR US2M HAD8542ARZ HXY8205ES
HXY2300MI MMBT3904T SQJA04EP-T1_BE3 SS1045 BZT52C13 HESDNC5VB1AF-B HOPA2340UA