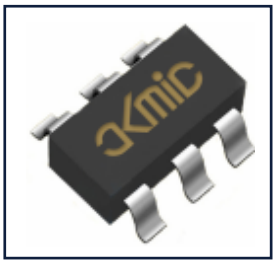
Application information

- Video Graphics Cards
- USB2.0 Power and Data lines protechtion
- 10/100/1000 Ethernet
- Notebooks and PC Computers
- Monitors and Flat Panel Displays
- Digital Video Interface(DVI)
- IEEE 1394 Firewire Ports
- SIM ports



SOT23-6L

Features and benefits

- ESD Protect for 4 high-speed I/O channels
- Provide ESD protechtion for each channel to
  IEC 61000-4-2(ESD)±20kV(air),±15kV(contact)
  IEC 61000-4-5(Lightning)(8/20μs) 4.0A(I/O-GND),17.0A(VDD -GND)
- Low Working Voltage: 5.0V
- Low Capacitance: 0.6pF (I/O-GND)
- Low Clamping Voltage
- Response time is typically < 1 ns
- Array of surge rated diodes with internal equivalent TVS diodes
- Small package saves board space
- RoHS compliant

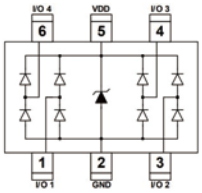
General description

The IP4220CZ6 is designed to protect I/O lines sensitive to capacitive load, such as USB 2.0, ethernet, Digital Video Interface (DVI) and so on, from damage due to ElectroStatic Discharge (ESD). It incorpo-rates four pairs of ultra low capacitance rail-to-rail ESD protection diodes plus a Zener diode to provide protection to signal and supply components from ESD voltages up to 15 kV contact discharge. Protection is supply voltage independent due to the rail-to-rail diodes being connected to the Zener diode. The device is encapsulated in a small 6-lead SOT23-6L Surface-Mounted Device (SMD) plastic package.

Ordering information

Device	Package	Reel Size	Qty(PCS)
IP4220CZ6	SOT23-6L	7 Inch	3000

Ordering information

Marking	Graphic symbol
V05	

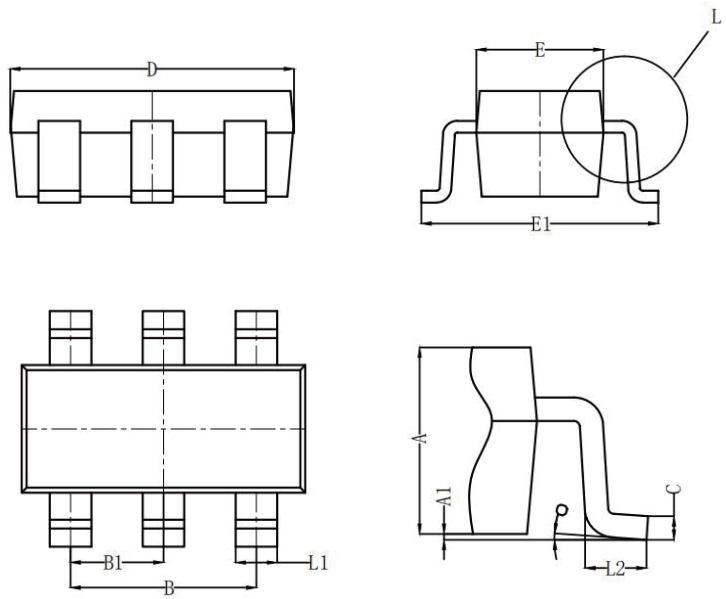
Maximum Ratings (TA = 25 °C, unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (tp = 8/20μs)	P_{PPM}	55	W
Peak Pulse Current(tp = 8/20μs)	I_{PPM}	4	A
Maximum lead temperature for soldering during 10s	T_L	260	°C
Storage Temperature Range	T_{stg}	-55 to +150	°C
Operating Temperature Range	T_{OP}	-40 to +125	°C
ESD voltage IEC 61000-4-2 (air discharge)	V_{ESD}	20	kV
ESD voltage IEC 61000-4-2 (contact discharge)	V_{ESD}	15	kV

Electrical Characteristics (TA = 25 °C, unless otherwise specified)

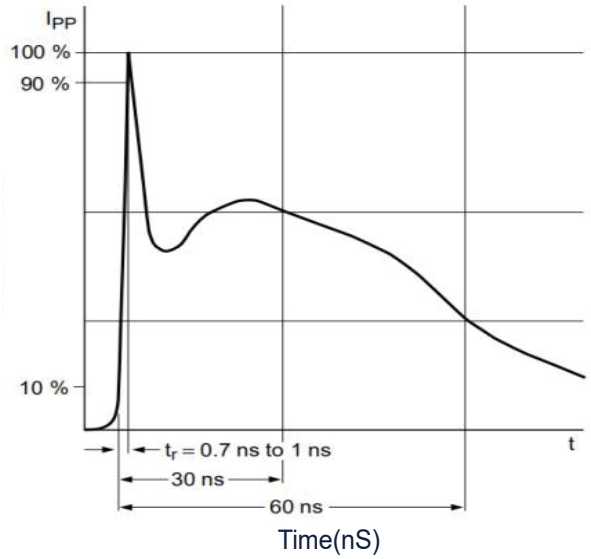
Parameter	Symbol	Min	Typ	Max	Unit	Condition
Reverse Working Voltage	V_{RWM}	--	--	5.0	V	
Breakdown Voltage	V_{BR}	6	--	8.5	V	I_T=1mA
Leakage Current ILeak	I_R	--	--	100	nA	V_{RWM}=5V
Clamping Voltage (I/O-GND)	V_C	--	--	13.0	V	I_{PP}=4A,Tp=8/20μs
Clamping Voltage (VDD to GND)	V_C	--	--	17.0	V	I_{PP}=17A,Tp=8/20μs
Junction Capacitance	C_J	--	0.3	0.4	pF	V_R=0V, f=1MHz I/O to I/O
Junction Capacitance	C_J	--	0.6	0.7	pF	V_R=0V, f=1MHz I/O to GND

SOT23-6L Package Outline Dimensions

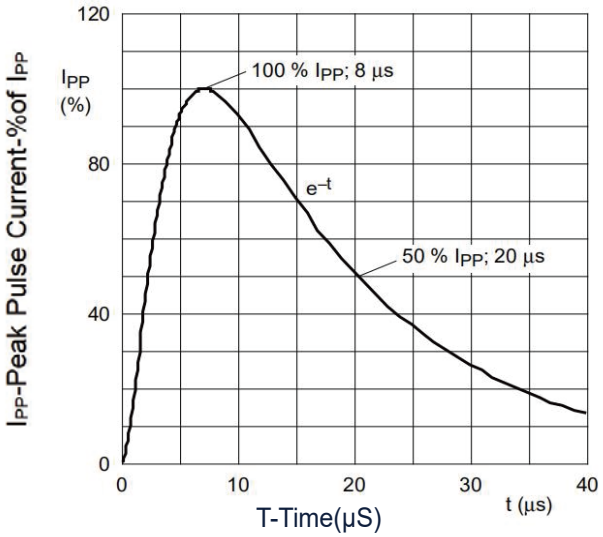


Symbol	Dimensions In Millimet	
	Min	Max
A	1.050	1.150
A1	0.000	0.100
L1	0.300	0.500
C	0.100	0.200
D	2.810	3.030
E	1.500	1.700
E1	2.650	2.950
B	1.800	2.000
B1	0.950typ	
L2	0.300	0.600
O	0°	8°

Typical Characteristics



IEC61000-4-2 Pulse Waveform



IEC61000-4-5 8X20µs Pulse Waveform