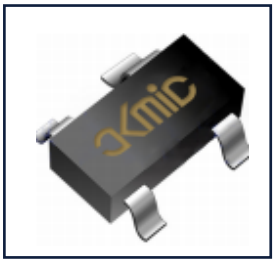
General description

The PRTR5V0U2X are monolithic application specific devices dedicated to ESD protection of high speed inter-faces, such as USB 2.0, Ethernet links and video lines.The very low line capacitance secures a high level of signal integrity without compromising in protecting sensitive chips against the most stringently characterized ESD strikes.

Features and benefits

- ESD Protect for 2 high-speed I/O channels
- Provide ESD protechtion for each channel to
  IEC 61000-4-2(ESD)±30kV(air),±30kV(contact)
  Low Working Voltage: 5.0V
- Low Capacitance: 0.9pF (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



SOT-143

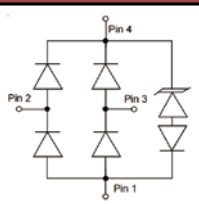
Application information

- Video Graphics Cards
- USB2.0 Power and Data lines protechtion
- 10/100/1000 Ethernet
- Notebooks and PC Computers
- IEEE 1394 Firewire Ports
- Portable electronics
- SIM ports

Ordering information

Device	Package	Reel Size	Qty(PCS)
PRTR5V0U2X	SOT-143	7 Inch	3000

Ordering information

Marking	Graphic symbol
R05	

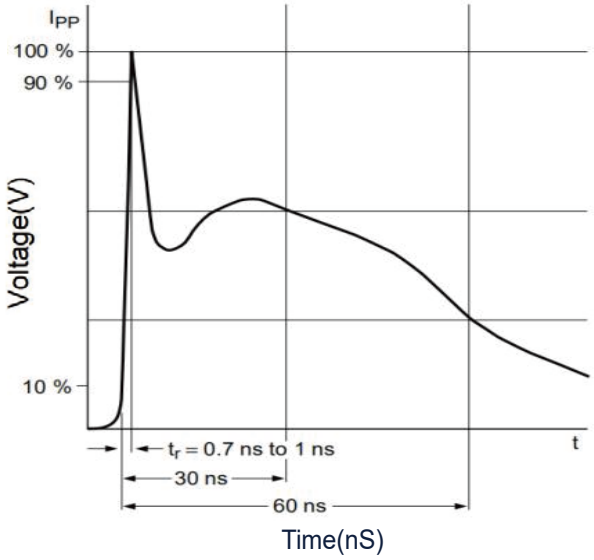
Maximum Ratings (T_A = 25 °C, unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (tp = 8/20μs)	P_{PPM}	100	W
Peak Pulse Current(tp = 8/20μs)	I_{PPM}	6	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}	30	kV
ESD voltage IEC 61000-4-2 (contact discharge)	V_{ESD}	30	kV

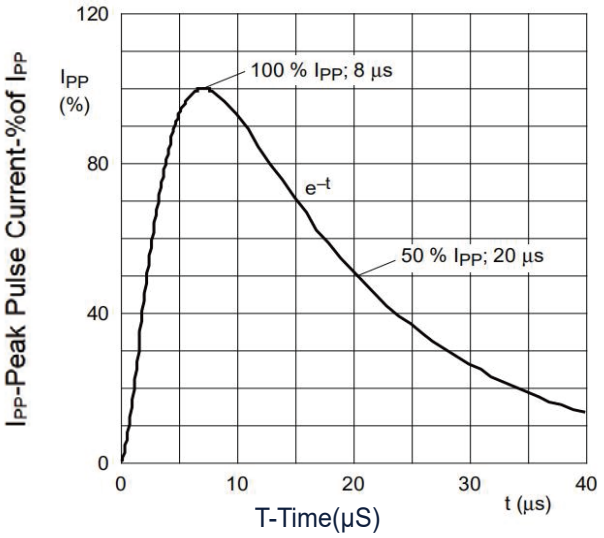
Electrical Characteristics (T_A = 25 °C, unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Condition
Reverse Working Voltage	V_{RWM}	--	--	5.0	V	
Breakdown Voltage	V_{BR}	6.4	--	7.8	V	I_T=1mA
Leakage Current ILeak	I_R	--	--	100	nA	V_{RWM}=5V
Clamping Voltage (I/O to I/O)	V_C	--	--	14.0	V	I_{PP}=6A,Tp=8/20μs
Clamping Voltage (VDD to GND)	V_C	--	--	14.0	V	I_{PP}=9A,Tp=8/20μs
Junction Capacitance	C_J	--	0.4	0.45	pF	V_R=0V, f=1MHz I/O to I/O
Junction Capacitance	C_J	--	0.8	0.9	pF	V_R=0V, f=1MHz I/O to GND

Typical Characteristics

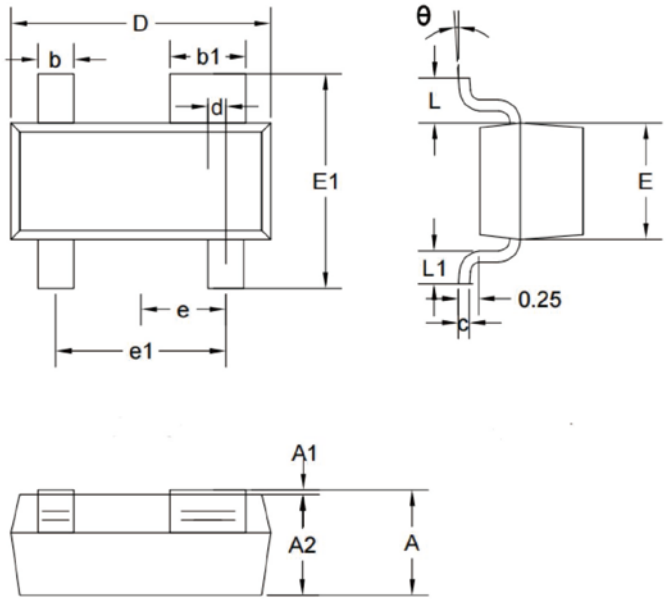


IEC61000−4−2 Pulse Waveform



IEC61000−4−5 8X20µs Pulse Waveform

SOT-143 Package Outline Dimensions



Symbol	Dimensions In Millimet		
	Min	Typ	Max
A	0.950	1.125	1.300
A1	0.000	0.050	0.100
A2	0.900	1.050	1.200
b	0.300	0.400	0.500
b1	0.750	0.850	0.950
c	0.080	0.115	0.150
D	2.800	2.900	3.000
d	0.2TYP		
E	1.200	1.300	1.400
E1	2.250	2.400	2.550
e	0.950TYP		
e1	1.800	1.900	2.000
L	0.550TYP		
L1	0.300	0.400	0.500
e	0°	4°	8°