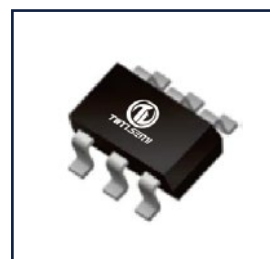


General description

The ESD0504F 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 incorporates 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 SOT363 Surface-Mounted Device (SMD) plastic package.

Features and benefits

- ESD Protect for 4 high-speed I/O channels
- Provide ESD protection for each channel to
 - IEC 61000-4-2(ESD) $\pm 20\text{kV}$ (air), $\pm 15\text{kV}$ (contact)
 - IEC 61000-4-5(Lightning)(8/20 μs) 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



SOT-363

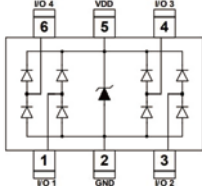
Application information

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

Ordering information

Device	Package	Reel Size	Qty(PCS)
ESD0504F	SOT-363	7 Inch	3000

Ordering information

Marking	Naming rule	Graphic symbol
F54	ESD0504F 产品名称 product name	
5T		

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

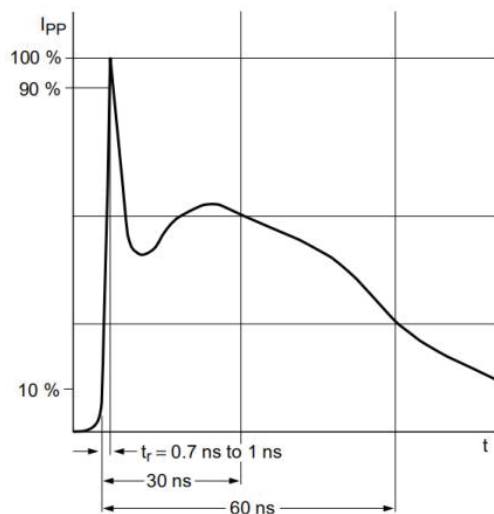
Parameter	Symbol	Value	Unit
Peak Pulse Power (tp = 8/20μs)	P _{PPM}	55	W
Peak Pulse Current(tp = 8/20μs)	I _{PPM}	4	A
Maximum lead temperature for soldering during 10s	T _L	260	°C
Storage Temperature Range	T _{stg}	-55 to +150	°C
Operating Temperature Range	T _{OP}	-40 to +125	°C
ESD voltage IEC 61000-4-2 (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)

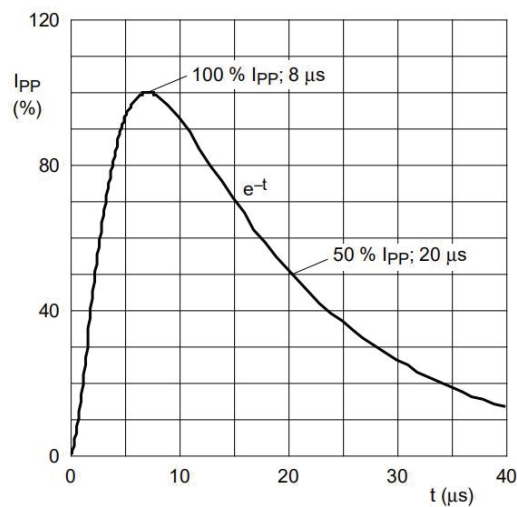
Parameter	Symbol	Min	Typ	Max	Unit	Condition
Reverse Working Voltage	V _{RWM}	--	--	5.0	V	
Breakdown Voltage	V _{BR}	6	--	8.5	V	I _T =1mA
Leakage Current I _{Leak}	I _R	--	--	100	nA	V _{RWM} =5V
Clamping Voltage(I/O-GND)	V _C	--	--	13.0	V	I _{PP} =4A, T _p =8/20μs
Clamping Voltage(VDD-GND)	V _C	--	--	17.0	V	I _{PP} =17A, T _p =8/20μs
Junction Capacitance	C _j	--	0.3	0.4	pF	V _R =0V, f=1MHz, I/O to GND
Junction Capacitance	C _j	--	0.6	0.7	pF	V _R =0V, f=1MHz, I/O to I/O



Typical Characteristics



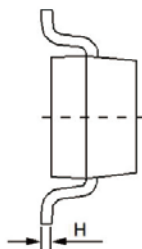
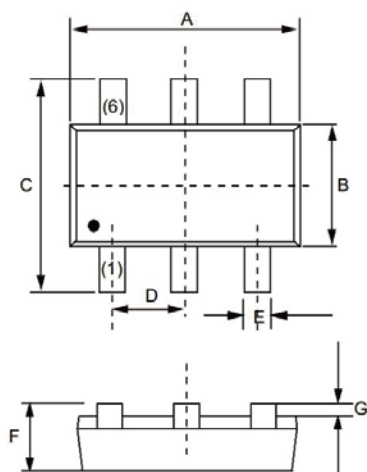
IEC61000-4-2 Waveform



IEC 61000-4-5 Waveform(8/20μs pulse)

Package Outline Dimensions

SOT363



SYMBOL	Dimensions (mm)	
	Min	Max
A	2.0	2.2
B	1.10	1.40
C	2.10	2.50
D	0.65BSC	
E	0.15	0.35
F	0.90	1.1
G	0.00	0.12
H	0.05	0.20