

LC0504F



Description

The LC0504F is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium.

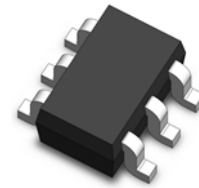
Feature

- 150 Watts Peak Pulse Power per Line ($t_p=8/20\mu s$)
- Protects up to four I/O lines & power line
- Low capacitance (1.2pF typ.) for high-speed interfaces
- Working voltages : 5V
- Ultra-small package requires less than 2.1mm² of PCB area
- IEC61000-4-2 (ESD) $\pm 15kV$ (air), $\pm 8kV$ (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)
- IEC61000-4-5 (Lightning) 3A (8/20 μs)

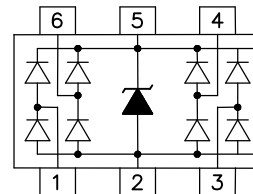
Applications

- USB 2.0 High Speed
- 10/100/1000 Ethernet Ports
- High-Definition Multimedia Interface (HDMI)
- Digital Visual Interface (DVI)
- Monitors and Flat Panel Displays
- Video Graphics Cards
- IEEE 1394 Fire-wire Ports High Speed

SOT-363



Functional Diagram



Mechanical Characteristics

- JEDEC SOT-363 Package
- Molding Compound Flammability Rating : UL 94V-0
- Weight 6.2 Milligrams (Approximate)
- Quantity Per Reel : 3,000pcs
- Reel Size : 7 inch
- Lead Finish : Lead Free

Mechanical Characteristics

Symbol	Parameter	Value	Units
P_{PP}	Peak Pulse Power ($t_p=8/20\mu s$ waveform)	150	W
T_L	Lead Soldering Temperature	260 (10sec)	°C
T_{STG}	Storage Temperature Range	-55 to +150	°C
T_{OP}	Operating Temperature Range	-55 to +150	°C
	IEC61000-4-2 (ESD)		
	Air Discharge	± 15	KV
	Contact Discharge	± 8	
	IEC61000-4-4 (EFT)	40	A
	IEC61000-4-5 (Lightning)	3	A

Electrical Characteristics (@ 25°C Unless Otherwise Specified)

Part Number	V _{RWM} (V) (Max.)	V _B (V) (Min.)	I _T (mA)	V _C @1A (Max.)	V _C		I _R (μA) (Max.)	C (pF) (Typ.)
					(Max.)	(@A)		
LC0504F	5.0	6.0	1	9.8	20.0	3.0	1	1.2

Characteristic Curves

Fig1. 8/20μs Pulse Waveform

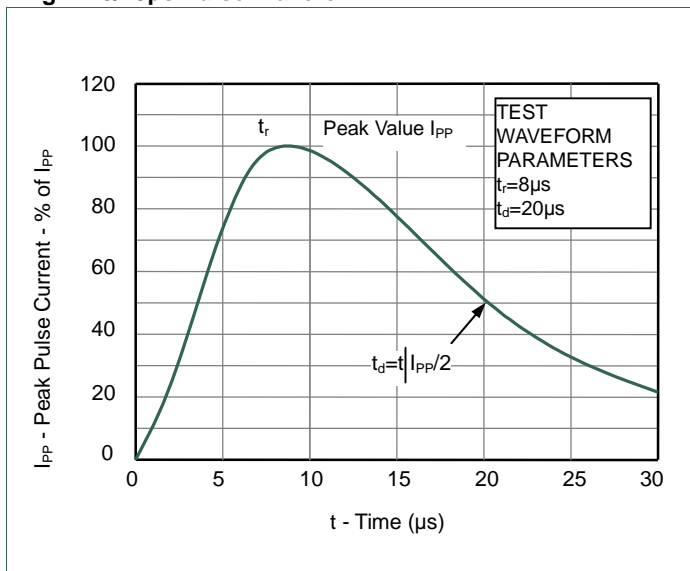


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

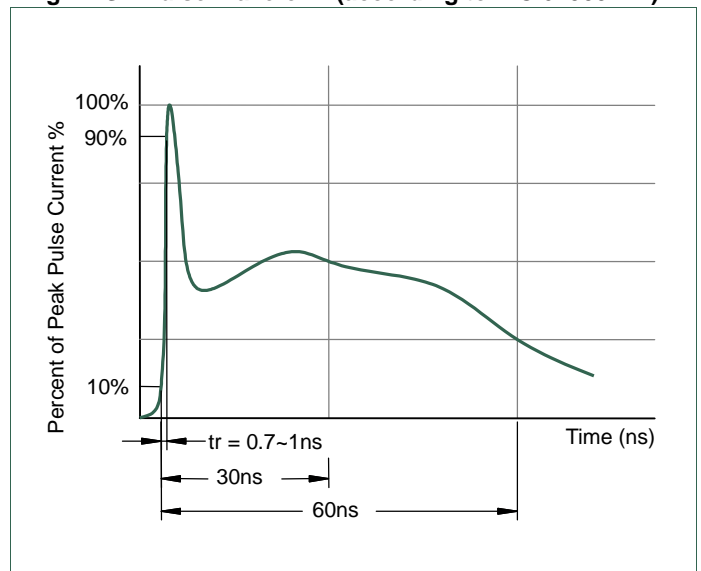
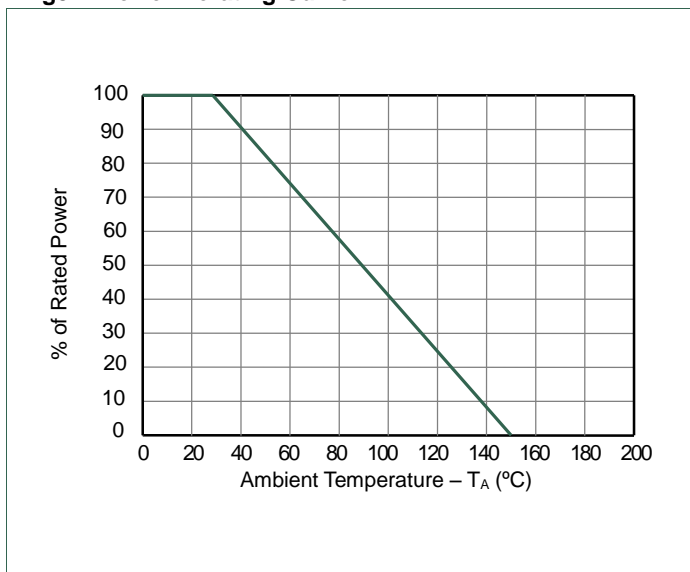


Fig3. Power Derating Curve



Characteristic Curves

Fig4. ESD Clamping (+8KV Contac per IEC61000-4-2)

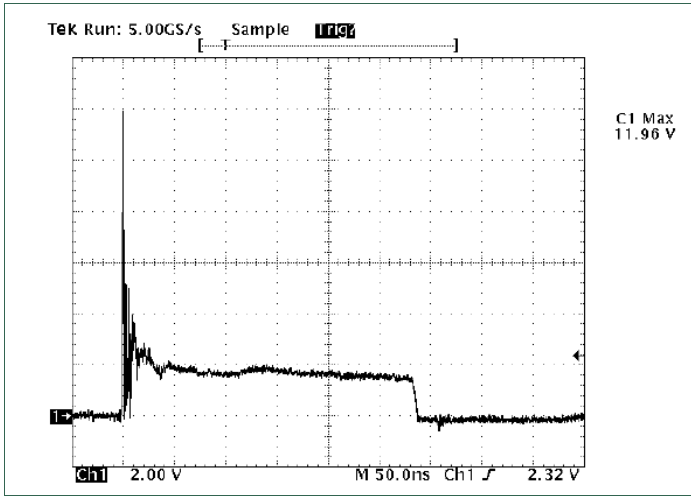
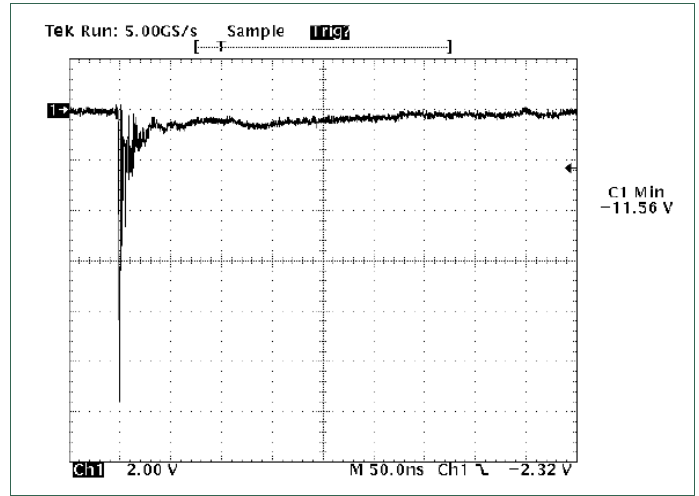
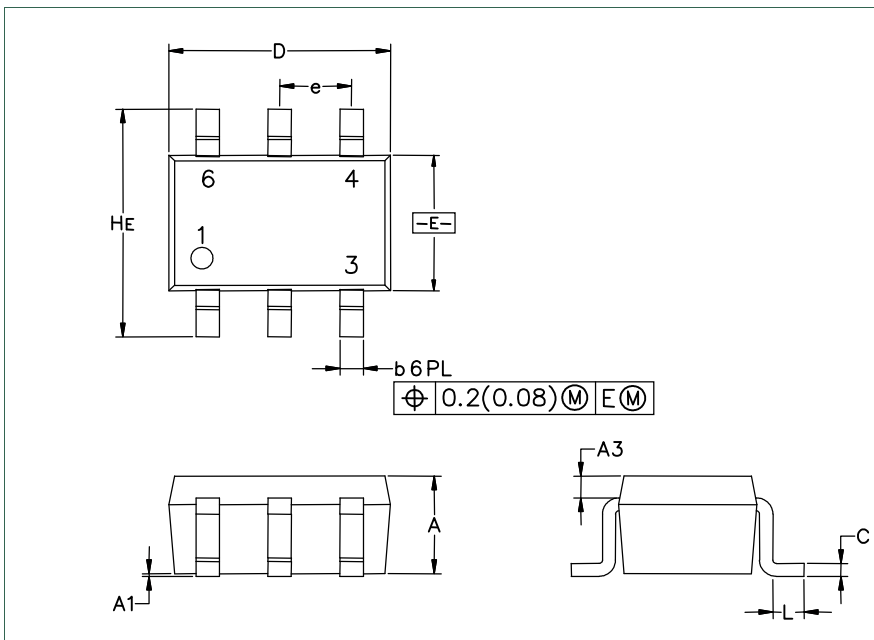


Fig5. ESD Clamping (-8KV Contac per IEC61000-4-2)

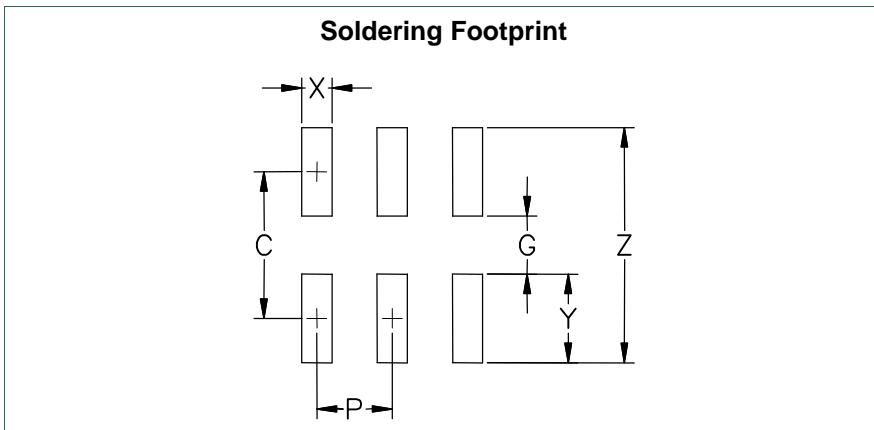


SOT-363 Package Outline & Dimensions



Symbol	Inches			Millimeters		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	0.031	0.037	0.043	0.80	0.95	1.10
A1	0.000	0.002	0.004	0.00	0.05	0.10
A3	0.08 REF			0.2 REF		
b	0.004	0.008	0.012	0.10	0.21	0.30
C	0.004	0.005	0.010	0.10	0.14	0.25
D	0.070	0.078	0.086	1.80	2.00	2.20
E	0.045	0.049	0.053	1.15	1.25	1.35
e	0.026 BSC			0.65 BSC		
L	0.004	0.008	0.012	0.10	0.20	0.30
HE	0.078	0.082	0.086	2.00	2.10	2.20

Soldering Footprint



Symbol	Inches	Millimeters
C	0.0748	1.9
G	0.055	1.40
P	0.025	0.65
X	0.0157	0.40
Y	0.019	0.50
Z	0.0945	2.4