Description

The DL1853P6 is a four-channel Transient Voltage Sup-pressor (TVS) based Electrostatic Discharge (ESD) pro-tection diode array for USB chargers and USB On-The-Go (OTG) interfaces. The DL1853P6 provides IEC 61000-4-2 system level ESD Protection featuring 15 V tolerance on the VBUS line. The device is ideal for providing circuit protection for USB charger and OTG applications due to its high-voltage tolerance at the VBUS line and small flow-through package.

Features

- Low clamping voltage
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge: ±25kV
    - Contact discharge: ±20kV
  - IEC61000-4-5 (Lightning) 3A (8/20μs)
- RoHS Compliant

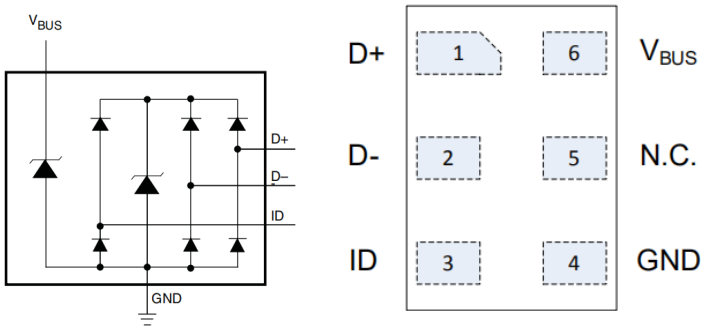
Mechanical Characteristics

- Package: DFN1510-6
- Pb-Free, Halogen Free, RoHS Compliant .
- Terminal Connections: See Diagram Below
- Marking Information: See Below
- Packaging : Tape and Reel

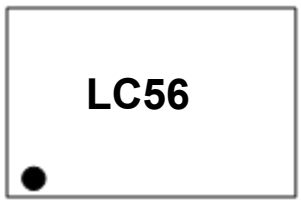
Applications

- Cellular Phones
- Digital Cameras
- Global Positioning Systems (GPS)
- Portable Digital Assistants (PDA)
- Digital Visual Interface (DVI)
- Portable Computers

Dimensions and Pin Configuration



Marking Information



LC56= Device Marking Code

Dot denotes Pin1

Ordering Information

Part Number	Marking	Packaging	Reel Size
DL1853P6	LC56	3000/Tape & Reel	7 inch

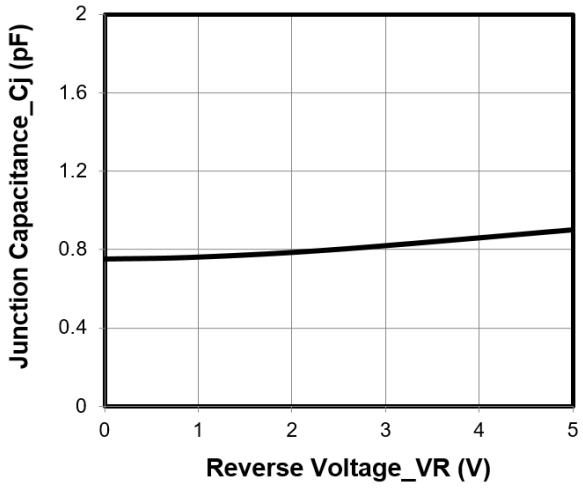
Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	60	W
Peak Pulse Current (8/20μs)	I_{PP}	3	A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	V_{ESD}	±25 ±20	kV
Operating Temperature Range	T_J	−40 to +85	°C
Storage Temperature Range	Tstg	−55 to +125	°C

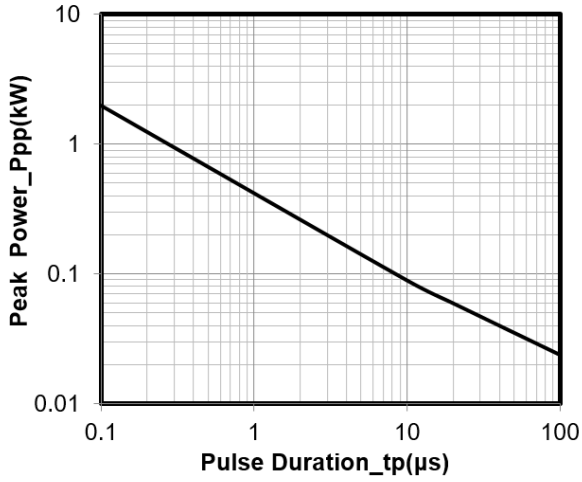
Electrical Characteristics (T_A=25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			15	V	V_{BUS} to GND
				5.5		D+, D-, ID pins to GND
Breakdown Voltage	V_{BR}	20	24		V	I_T = 1mA ,V_{BUS} to GND
		6	8		V	I_T = 1mA ,D+,D-,ID pins to GND
Reverse Leakage Current	I_R		0.1	0.5	μA	V_{IO} = 2.5V, V_{BUS} = 5V, D+, D-, ID pins to GND
			0.1	0.5		V_{BUS} = 19V, V_{BUS} to GND
Forward Voltage	V_F			1.2	V	I_F = 10mA
Clamping Voltage	V_C			20	V	I_{PP} = 3A, D+, D-, ID pins to GND
Junction Capacitance	C_{J_IO}		0.8	1.0	pF	V_{IO} = 2.5V, f = 1MHz, D+, D-, ID pins to GND
	C_{J_VBUS}		13	15	pF	V_{BUS} = 5V, f = 1MHz, V_{BUS} to GND

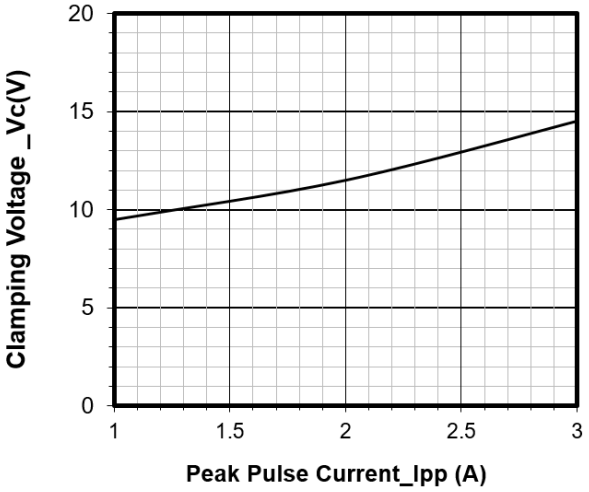
Typical Performance Characteristics (T_A=25℃ unless otherwise Specified)



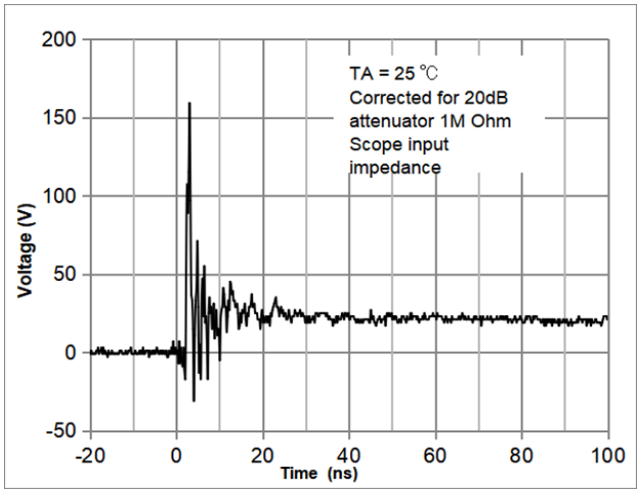
Junction Capacitance vs. Reverse Voltage



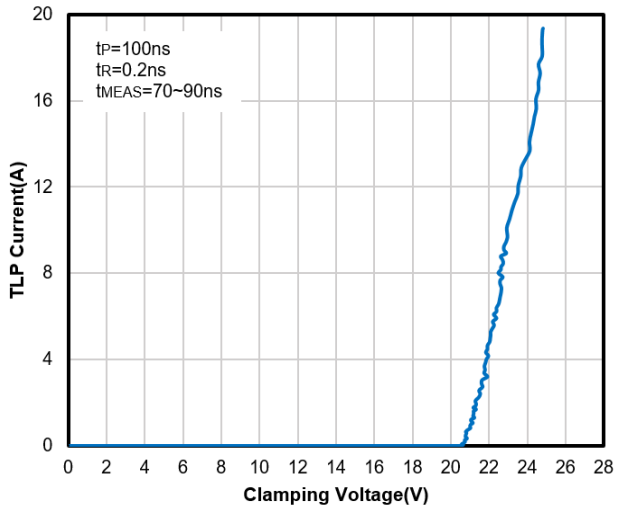
Peak Pulse Power vs. Pulse Time



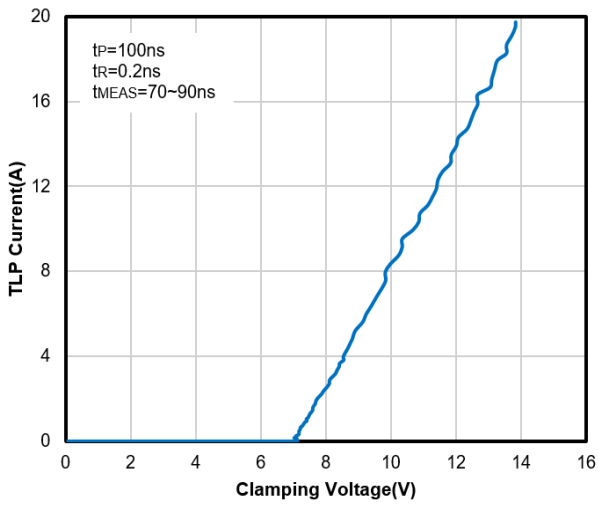
Clamping Voltage vs. Peak Pulse Current



ESD Clamping Voltage
8 kV Contact per IEC61000−4−2

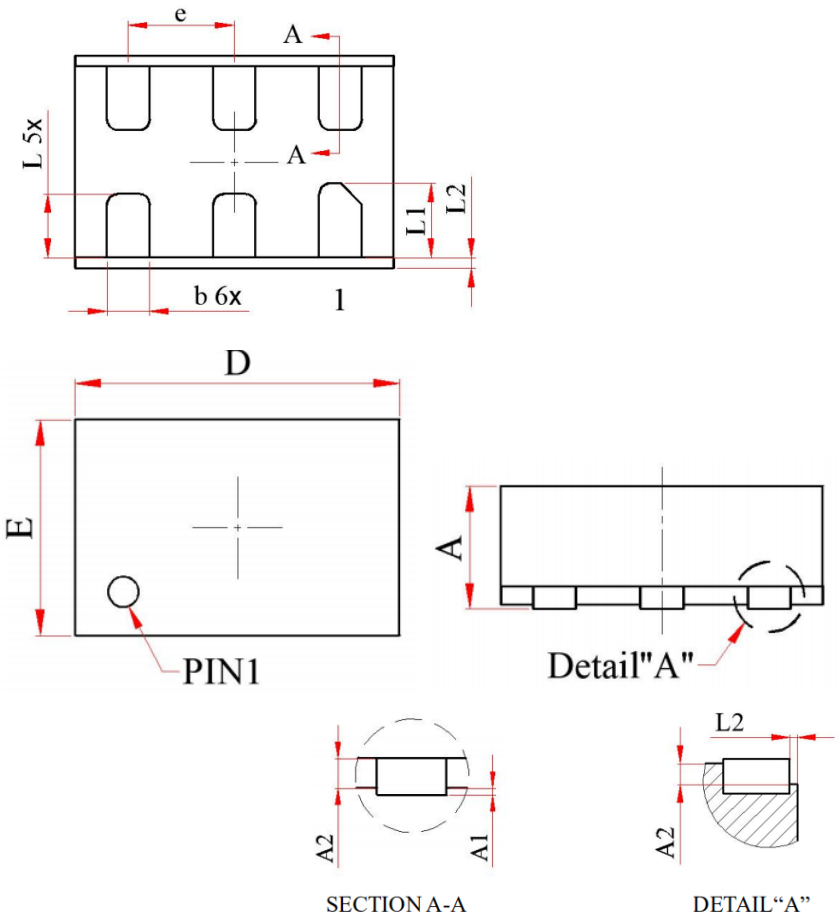


TLP Curve (V_{BUS})



TLP Curve (D+,D-,ID)

DFN1510-6 Package Outline Drawing



SYM	MILLIMETERS		
	MIN	NOM	MAX
A	0.500	--	0.600
A1	- -	--	0.005
A2	0.050	--	0.250
b	0.150	0.200	0.250
D	1.450	1.500	1.550
E	0.950	1.000	1.050
e	0.50BSC		
L	0.250	0.300	0.350
L1	0.300	0.350	0.400
L2	0.010	0.050	0.090