Description

The DL3382P6 is a bi-directional TVS diode, utilizing leading monolithic silicon technology to provide fast re-sponse time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive high-speed data lines. The DL3382P6 has an ultra-low capacitance with a typical value at 0.4pF, and complies with the IEC 61000-4-2 (ESD) with ±30V air and ±30kV contact discharge. It is assembled into a small 1.6x1.0x0.50mm lead-free DFN package. The small size, ultra-low capacitance and high surge current capa-bility make DL3382P6 an ideal choice to protect cell phone, Ethernet interfaces, communications equipment, security cameras, industrial equipment, and other high speed ports.

Features

- Ultra small package: 1.6 x1.0 x0.75mm
- Ultra low capacitance: 0.4pF typical
- Ultra low leakage: nA level
- Operating voltage: 3.3V
- Low clamping voltage
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    discharge: ±30kV
    Contact discharge: ±30kV
  - IEC 61000-4-5 (Lightning)12A 8/20μs
- Dynamic Resistance: 0.30 Ohms (Typ)
- Very small PCB area

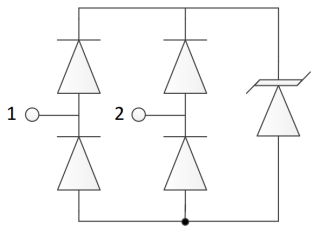
Mechanical Characteristics

- Package: DFN1610-6
- Pb-Free, Halogen Free, RoHS Compliant .
- Moisture Sensitivity: Level 3 per J-STD-020
- Nominal Dimensions: 1.6 x 1.0 x 0.50 mm
- Terminal Connections: See Diagram Below
- Marking Information: See Below
- Marking : Marking Code

Applications

- Cellular Handsets and Accessories
- Display Ports
- MDDI Ports
- USB Ports
- Digital Visual Interface (DVI)
- PCI Express and Serial SATA Ports

Dimensions and Pin Configuration



Circuit Schematic

Marking Information

3382P = Device Marking Code

Dot denotes Pin1

Ordering Information

Part Number	Marking	Packaging	Reel Size
DL3382P6	3382P	3000/Tape & Reel	7 inch

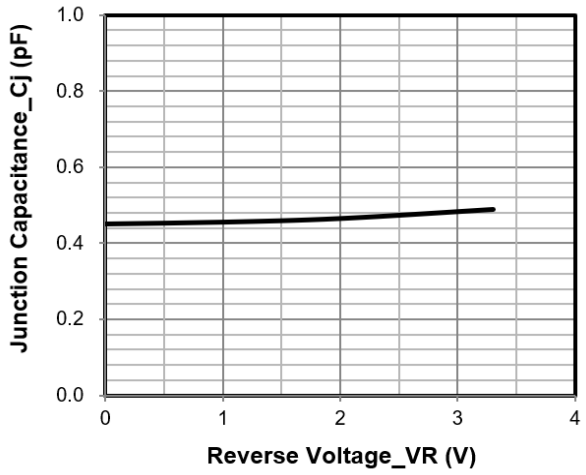
Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power(8/20μs)	Ppk	200	W
Peak Pulse Current(8/20μs)	Ipp	12	A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	V_{ESD}	±30 ±30	kV
Operating Temperature Range	T_J	−40 to +125	°C
Storage Temperature Range	Tstg	−55 to +150	°C

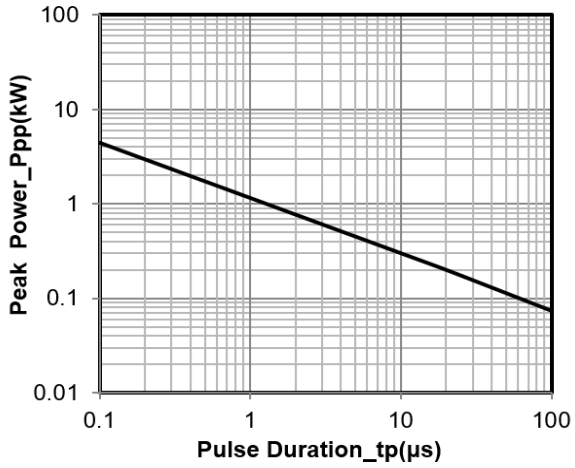
Electrical Characteristics (T_A=25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			3.3	V	Pin 1 to Pin 2
Breakdown Voltage	V_{BR1}	3.8	4.6	6.0	V	I_T = 2μA ,Pin 1 to Pin 2
	V_{BR2}	4.0	5.0	6.2	V	I_T = 50mA ,Pin 1 to Pin 2
Reverse Leakage Current	I_R			0.05	μA	V_{RWM} = 3.3V,Pin 1 to Pin 2
Clamping Voltage	V_C		12	16.5	V	I_{PP} = 12A ,Pin 1 to Pin 2 (8 x 20μs pulse)
ESD Clamping Voltage	V_C		7		V	IPP = 4A, tp = 0.2/100ns (TLP), Pin 1 to Pin 2
ESD Clamping Voltage	V_C		10.5		V	IPP = 16A, tp = 0.2/100ns (TLP), Pin 1 to Pin 2
Junction Capacitance	C_J		0.4	0.5	pF	VR = 0V, f = 1MHz,Pin 1 to Pin 2

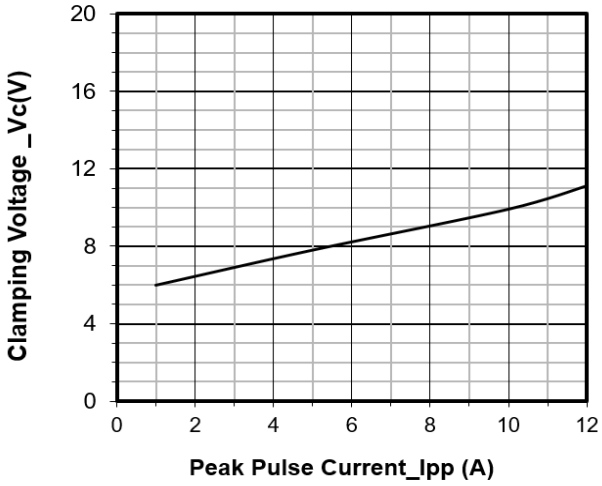
Typical Performance Characteristics (T_A=25℃ unless otherwise Specified)



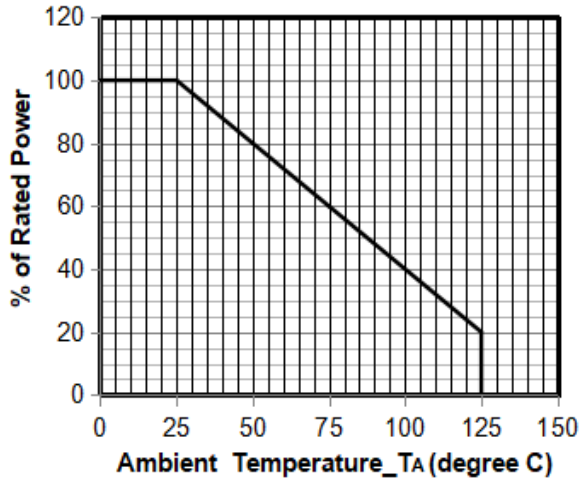
Junction Capacitance vs. Reverse Voltage



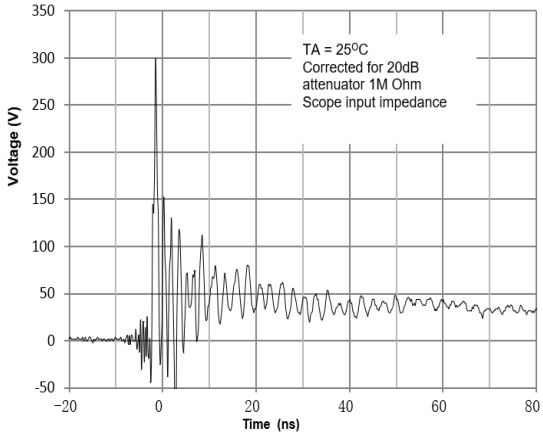
Peak Pulse Power vs. Pulse Time



Clamping Voltage vs. Peak Pulse Current

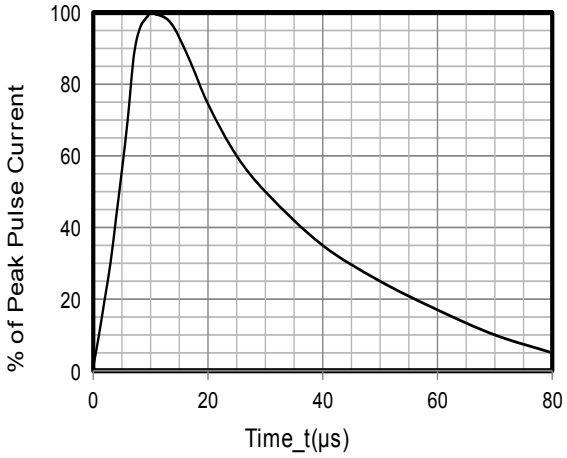


Power Derating Curve

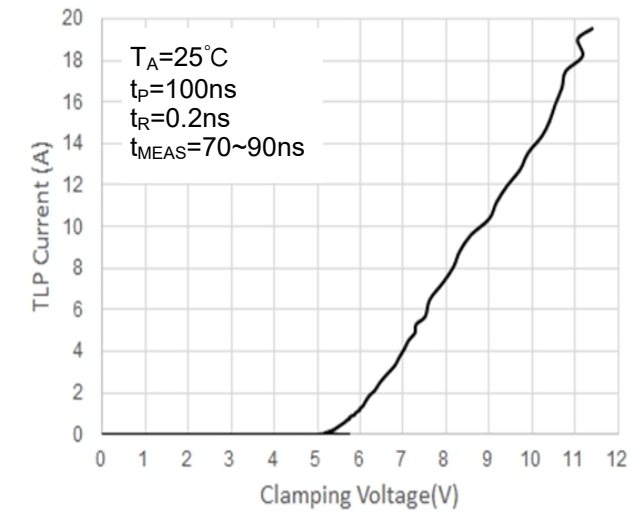


ESD Clamping Voltage

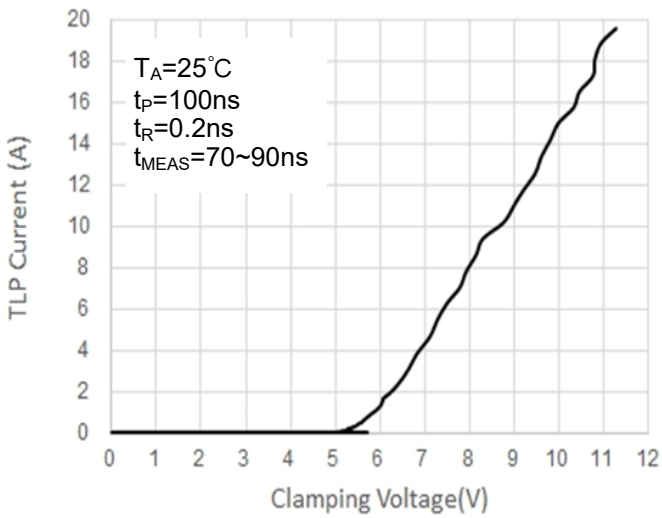
8 kV Contact per IEC61000−4−2



8 X 20μs Pulse Waveform

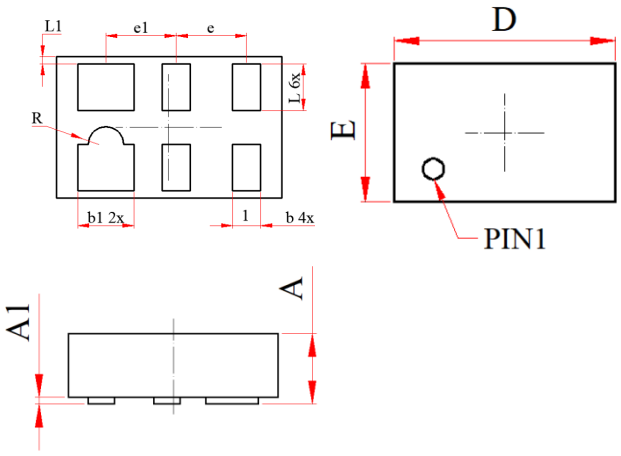


TLP IV Curve (Positive Pulse)



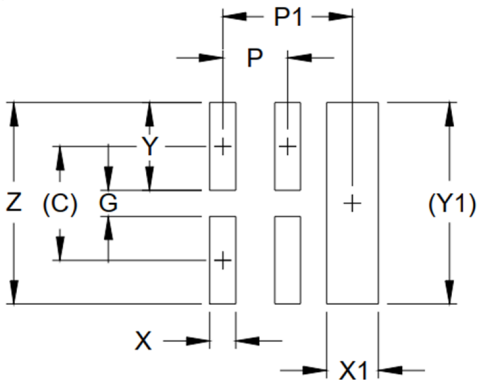
TLP IV Curve (Negative Pulse)

DFN1610-6 Package Outline Drawing



SYM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.450	--	0.550	0.018	--	0.022
A1	0.025	0.050	0.075	0.001	0.002	0.003
D	1.550	1.600	1.650	0.061	0.063	0.065
E	0.950	1.000	1.050	0.037	0.039	0.041
b	0.150	0.200	0.250	0.006	0.008	0.010
b1	0.350	0.400	0.450	0.014	0.016	0.018
L	0.300	0.350	0.400	0.012	0.014	0.016
L1	0.000	0.030	0.060	0.000	0.001	0.002
R	0.125 REF			0.005 REF		
e	0.500 BSC			0.020 BSC		
e1	0.500BSC			0.020 BSC		

Suggested Land Pattern



DIMENSIONS		
DIM	INCHES	MILLIMETERS
C	(.034)	(0.87)
G	.007	0.19
P	.020	0.50
P1	.039	1.00
X	.008	0.20
X1	.016	0.40
Y	.027	0.68
Y1	(.061)	(1.55)
Z	.061	1.55

Contact Information

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