

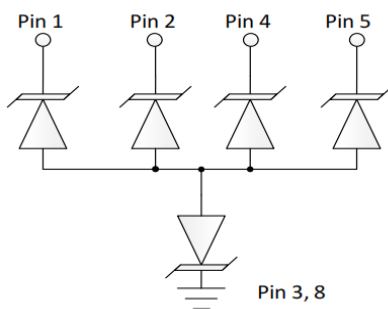
Description

The DC2424P5LVQ is an uni-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data and power line. The DC2424P5LVQ complies with the IEC 61000-4-2 (ESD) standard with $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ contact discharge. It is assembled into a 10-pin 2.5 x 1.0 x 0.5mm lead-free DFN package. The small size and high ESD surge protection make DC2424P5LVQ an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

Mechanical Characteristics

- ◆ Package: DFN2510-10 (2.5 x 1.0 x 0.5mm)
- ◆ Lead Finish: NiPdAu
- ◆ UL Flammability Classification Rating 94V-0
- ◆ Case Material: "Green" Molding Compound
- ◆ Moisture Sensitivity: Level 3 per J-STD-020
- ◆ Terminal Connections: See Diagram Below
- ◆ Marking Information: See Below

Dimensions and Pin Configuration



Features

- ◆ Protects four data lines
- ◆ Ultra low leakage: nA level
- ◆ Low operating voltage: 24V
- ◆ Low clamping voltage
- ◆ Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 30\text{kV}$
 - Contact discharge: $\pm 30\text{kV}$
 - IEC61000-4-4 (EFT) 40A (5/50ns)
 - IEC61000-4-5 (Lightning) : 5A(8/20 μs)
- ◆ ROHS Compliant

Applications

- ◆ Cellular Handsets and Accessories
- ◆ Personal Digital Assistants
- ◆ Notebooks and Handhelds
- ◆ Portable Instrumentation
- ◆ Digital Cameras
- ◆ Peripherals
- ◆ Audio Players
- ◆ Keypads, Side Keys, LCD Displays

Marking Information



245LV= Device Marking Code
Dot denotes Pin1

Ordering Information

Part Number	Marking	Packaging	Reel Size
DC2424P5LVQ	245LV	3000/Tape & Reel	7 inch

Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	170	W
Peak Pulse Current (8/20 μs)	I _{PP}	5	A
ESD per IEC 61000-4-2 (Air)	V _{ESD}	± 30	kV
ESD per IEC 61000-4-2 (Contact)		± 30	
Operating Temperature Range	T _J	-55 to +125	$^\circ\text{C}$
Storage Temperature Range	T _{stg}	-55 to +150	$^\circ\text{C}$

Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise specified)

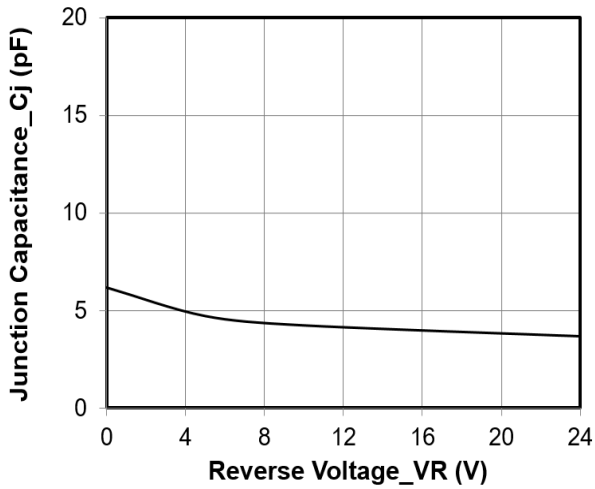
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			24	V	Any I/O pin to ground
Breakdown Voltage	V _{BR}	26.5	30	36	V	I _T = 1mA, any I/O pin to ground
Reverse Leakage Current	I _R			0.2	μA	T = 25C, V _{RWM} = 24V, any I/O pin to ground
				0.3	μA	T = 125C, V _{RWM} = 24V, any I/O pin to ground
Clamping Voltage ⁽¹⁾	V _C			35	V	I _{PP} = 1A (8 x 20 μs pulse), any I/O pin to ground
				35	V	I _{PP} = 5A (8 x 20 μs pulse), any I/O pin to ground
ESD Clamping Voltage ⁽²⁾	V _C		26.2		V	I _{PP} = 4A, t _p = 0.2/100ns (TLP)
			26.3		V	I _{PP} = 16A, t _p = 0.2/100ns (TLP)
Dynamic Resistance ⁽³⁾	R _{DYN}		0.01		Ohm	t _p = 0.2/100ns (TLP)
Junction Capacitance	C _J		6	9	pF	V _R = 0V, f = 1MHz, any I/O pin to ground

(1) Measured using a constant current source.

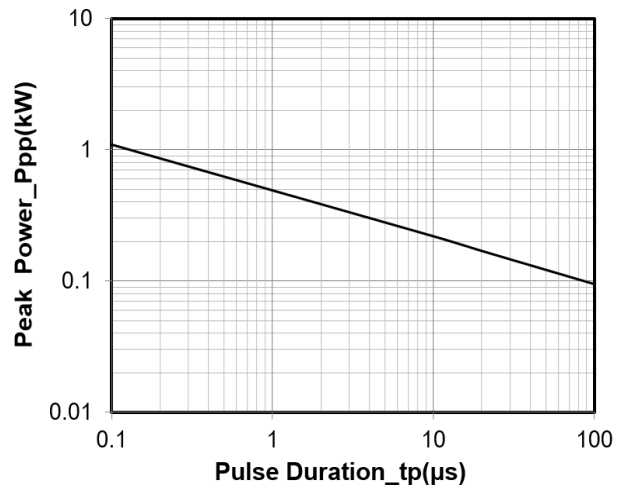
(2) Transmission Line Pulse Test (TLP) Settings: t_p = 100ns, t_r = 0.2ns

(3): Dynamic resistance calculated from I_{TLP} = 4A to I_{TLP} = 16A

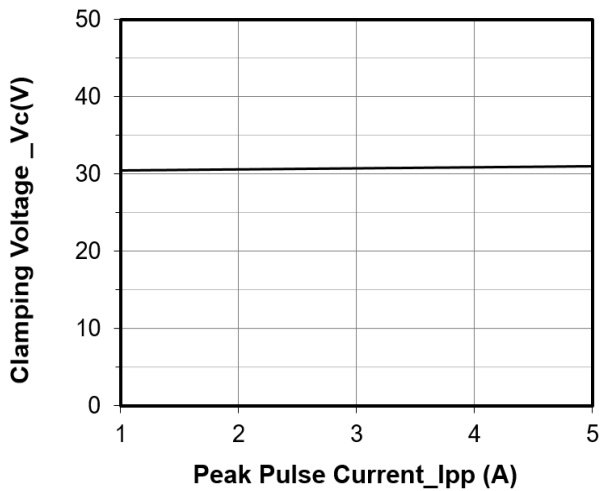
Typical Performance Characteristics (TA=25°C unless otherwise Specified)



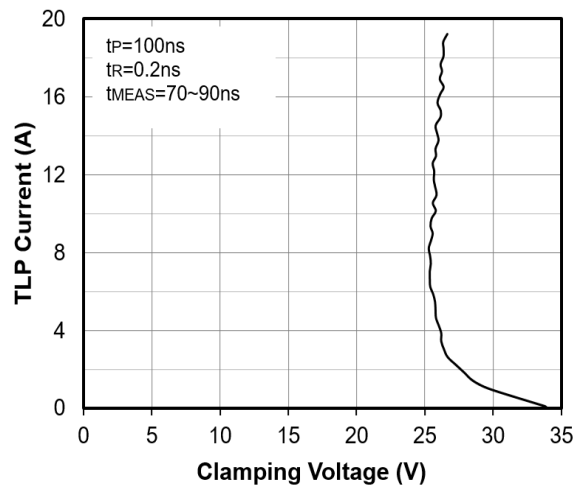
Junction Capacitance vs. Reverse Voltage



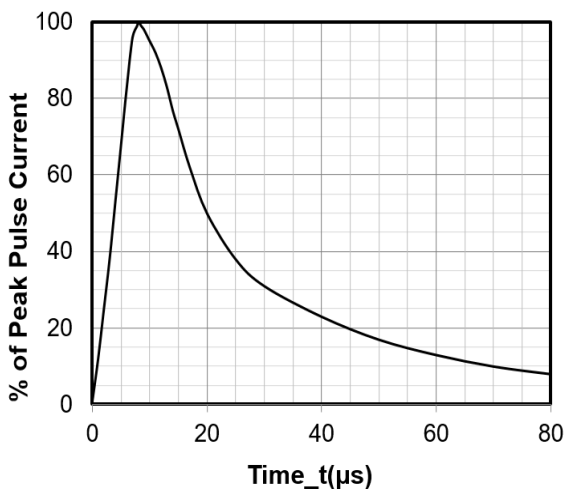
Peak Pulse Power vs. Pulse Time



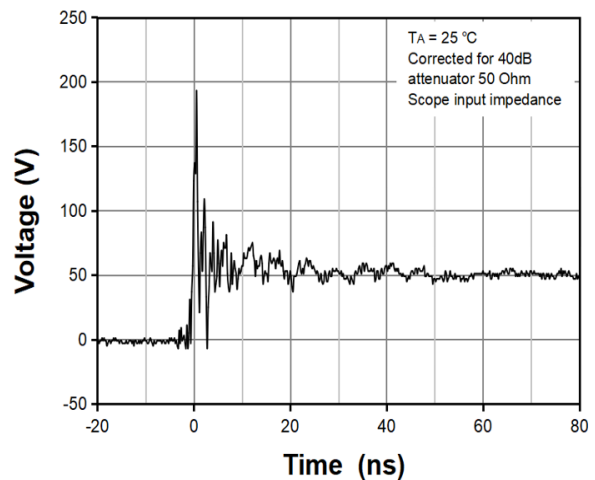
Clamping Voltage vs. Peak Pulse Current



TLP Curve



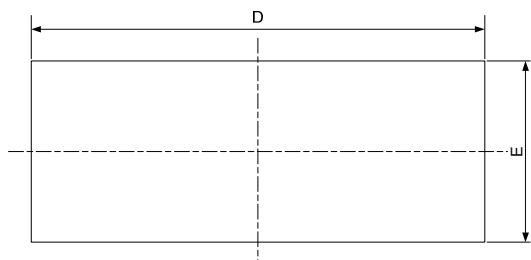
8X20μs Pulse Waveform



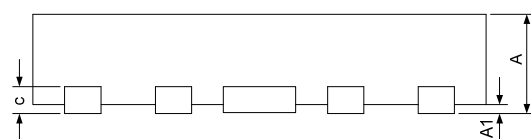
ESD Clamping Voltage

8 kV Contact per IEC61000-4-2

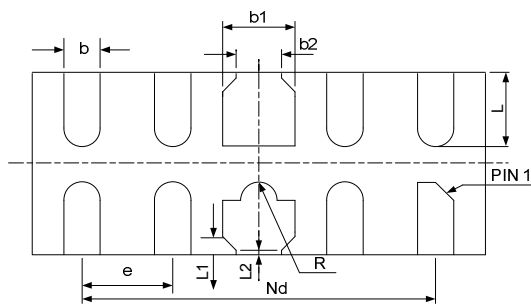
DFN2510-10 Package Outline Drawing



TOP VIEW



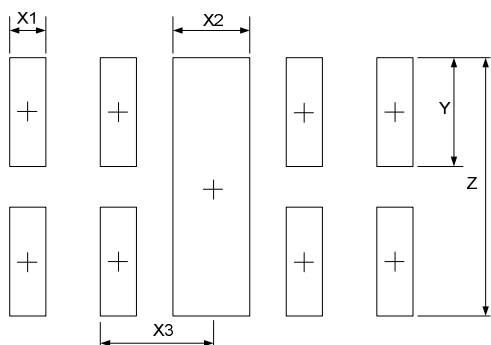
SIDE VIEW



BOTTOM VIEW

SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.45	0.50	0.55	0.018	0.020	0.022
A1	0.00	0.02	0.05	0.000	0.001	0.002
b	0.15	0.20	0.25	0.006	0.008	0.010
b1	0.35	0.40	0.45	0.014	0.016	0.018
b2	0.20	0.25	0.30	0.008	0.010	0.012
c	0.10	0.15	0.20	0.004	0.006	0.008
D	2.45	2.50	2.55	0.098	0.100	0.102
e	0.50BSC			0.020BSC		
Nd	2.00BSC			0.080BSC		
E	0.95	1.00	1.05	0.038	0.040	0.042
L	0.35	0.40	0.45	0.014	0.016	0.018
L1	0.075REF			0.003REF		
L2	0.050REF			0.002REF		
h	0.08	0.12	0.15	0.003	0.005	0.006
R	0.05	0.10	0.15	0.002	0.004	0.006

Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
X1	0.200	0.008
X2	0.400	0.016
X3	0.500	0.020
Y	0.600	0.024
Z	1.400	0.056

Contact Information

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