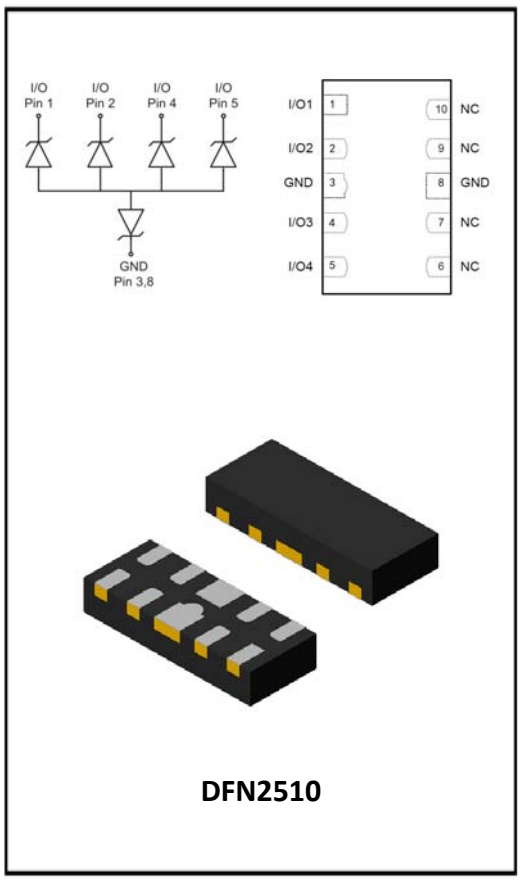
4-Line, Bi-directional, Ultra-low Capacitance, Transient Voltage Suppressor



DFN2510

Features

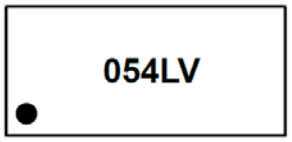
- Operating voltage: 5V
- Transient protection for each line according to
  IEC61000-4-2(ESD): ±20kV (contact)
  IEC61000-4-5(surge): 3A (8/20μs)
- Ultra low capacitance: Cj=0.15pF typ
- Ultra low leakage
- Low clamping voltage
- Up to 4 lines protects
- RoHS Compliant

Applications

- HDMI 1.3/1.4/2.0, USB 2.0/3.0 and MDDI ports
- Monitors and flat panel displays0
- Set-top box and Digital TV
- Video graphics cards
- Digital Visual Interface (DVI)
- Notebook Computers
- PCI Express and Serial SATA Ports

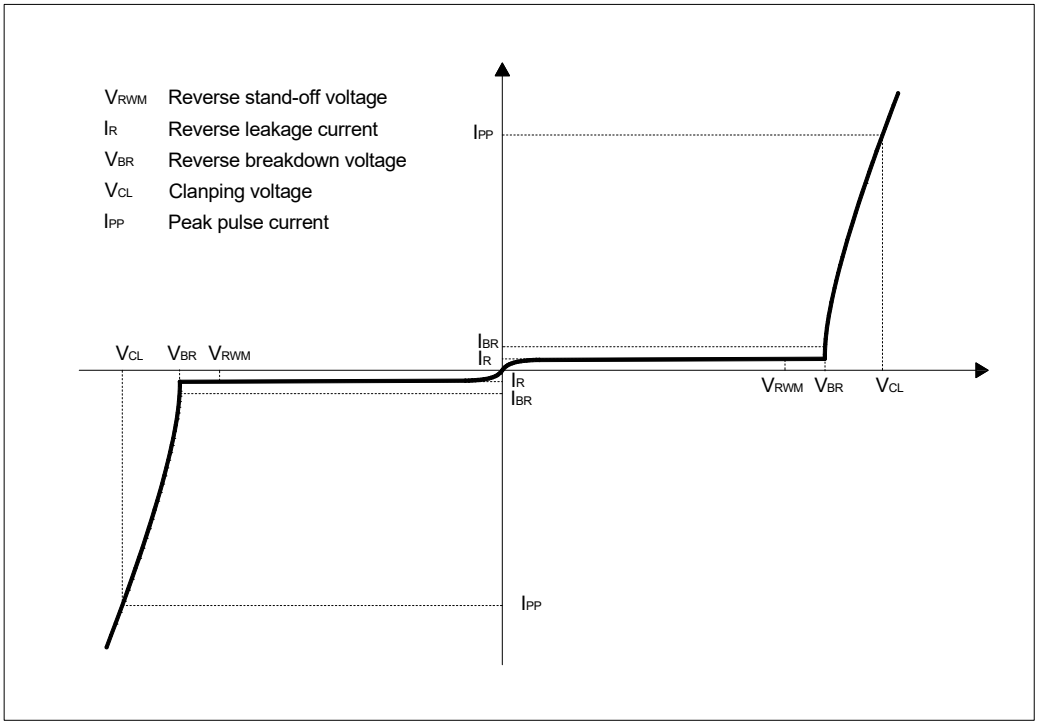
Mechanical Data

- Package: DFN2510-10 (2.5×1.0×0.5mm)
- Terminals: Tin plated leads, solderabl per
  J-STD-002 and JESD22-B102
- Moisture Sensitivity: Level 3 per J-STD-020
- Marking Information: See Below



054LV= Device Marking Code
Dot denotes Pin1

■Definitions of electrical characteristics



■Maximum Ratings

PARAMETER	SYMBOL	LIMITS	UNIT
Peak pulse power (t_p = 8/20μs)	P_{pk}	45	W
Peak pulse current (t_p = 8/20μs)	I_{PP}	3	A
ESD according to IEC61000-4-2 air discharge	V_{ESD}	±20	KV
ESD according to IEC61000-4-2 contact discharge		±20	
Junction temperature	T_J	-55~125	℃
Storage temperature	T_{STG}	-55~150	℃

■Electrical Characteristics（T_a=25℃ Unless otherwise specified）

PARAMETER	Symbol	UNIT	Conditions	Min	Typ	Max
Reverse maximum working voltage	V_{RWM}	V	Any I/O pin to ground			5.0
Reverse leakage current	I_R	μA	V_{RWM} = 5.0V, any I/O pin to ground			0.5
Reverse breakdown voltage	V_{BR}	V	I_T = 1mA, any I/O pin to ground	6.0		
Clamping voltage[1)]	V_{CL}	V	I_{PP} = 3A, t_p = 8/20μs		15	16
Junction capacitance	CJ	pF	V_R = 0V, f = 1MHz Any I/O pin to GND		0.15	0.2

Notes:

(1). Non-repetitive current pulse, according to IEC61000-4-5

■Ordering Information (Example)

PREFERED P/N	PACKING CODE	UNIT WEIGHT(mg)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
ESDULC0504P5	F1	Approximate 3.48	3000	30000	120000	7 reel

■ Characteristics (Typical)

Fig.1 8/20μs waveform per IEC61000-4-5

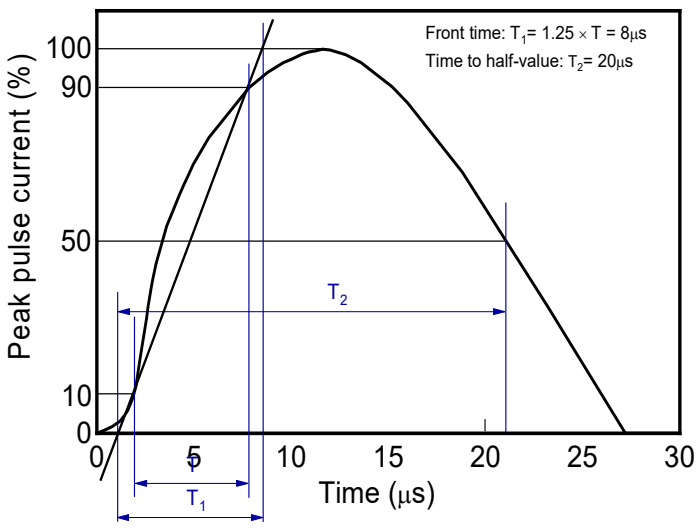


Fig.2 Contact discharge current waveform per IEC61000-4-2

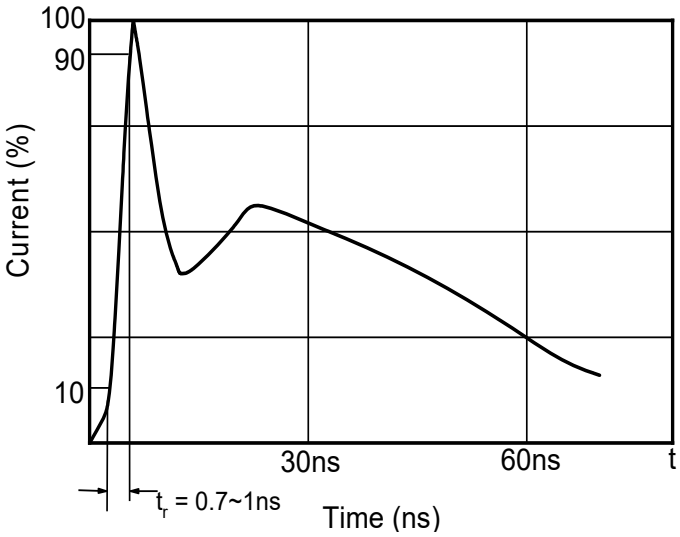


Fig.3 Clamping voltage vs. Peak pulse current

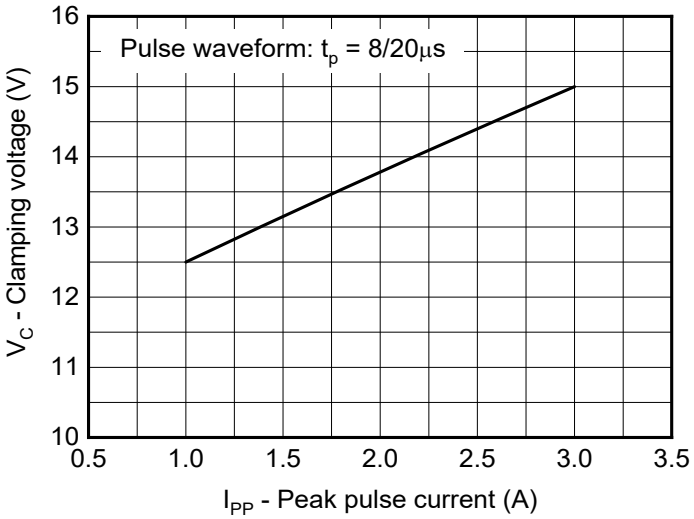


Fig.4 Capacitance vs. Reverse voltage

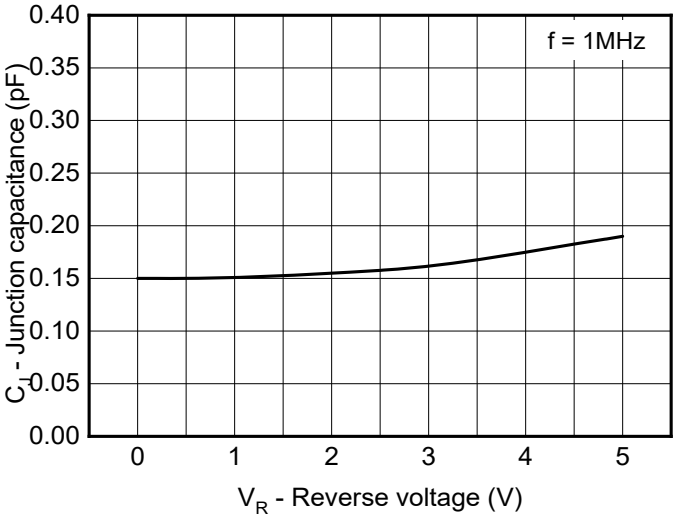


Fig.5 Non-repetitive peak pulse power vs. Pulse time

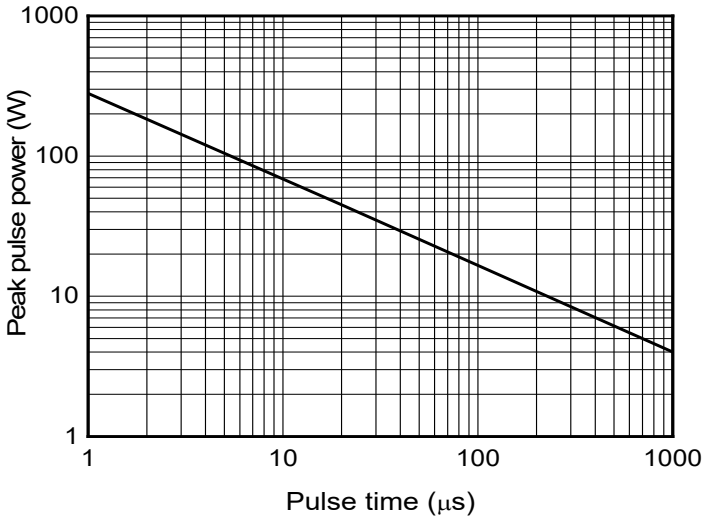


Fig.6 Power derating vs. Ambient temperature

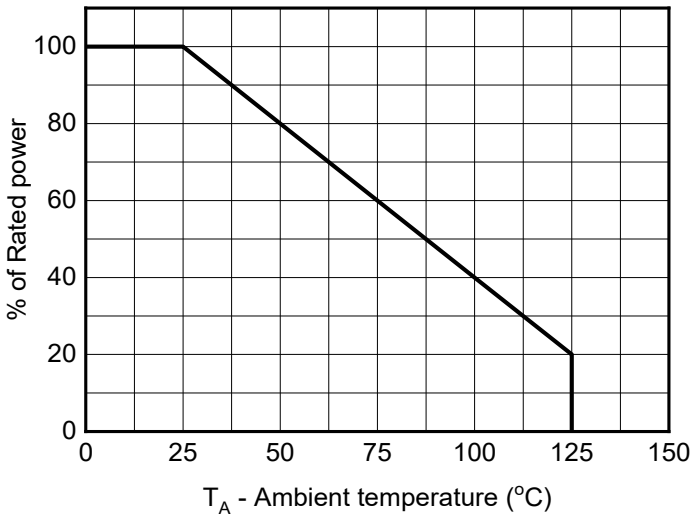
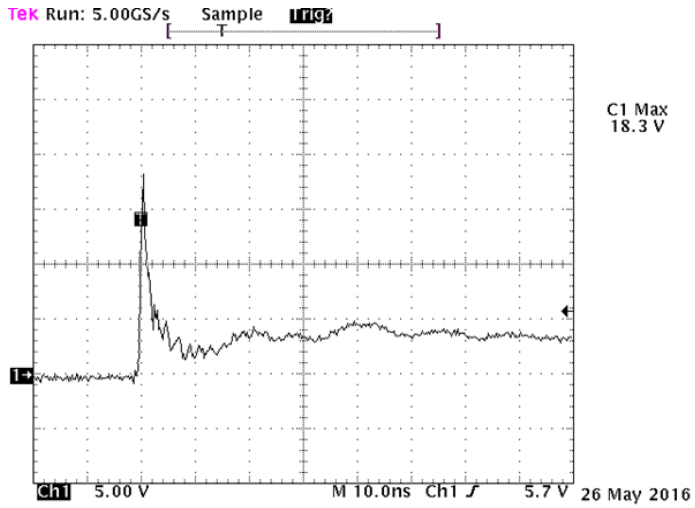
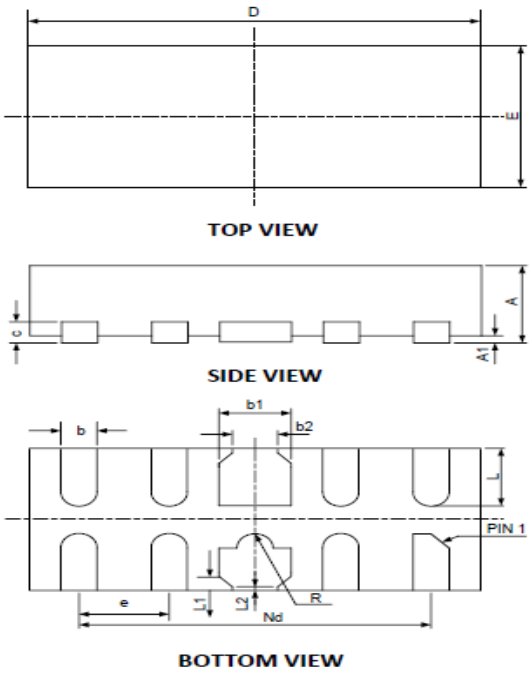


Fig.7 ESD clamping
(+8kV contact discharge per IEC61000-4-2)

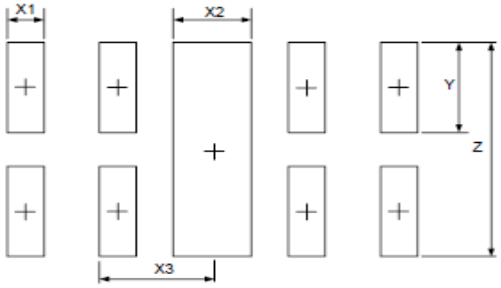


■ Outline Dimensions



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.500	0.550	0.600	0.020	0.022	0.024
A1	0.000	0.020	0.050	0.000	0.001	0.002
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
b2	0.200 REF			0.008 REF		
c	0.150 REF			0.006 REF		
D	2.450	2.500	2.550	0.098	0.100	0.102
e	0.500 BSC			0.020 BSC		
Nd	2.000 BSC			0.080 BSC		
E	0.950	1.000	1.050	0.038	0.040	0.042
L	0.330	0.380	0.430	0.013	0.015	0.017
L1	0.075REF			0.003REF		
L2	0.050REF			0.002REF		
h	0.080	0.120	0.150	0.003	0.005	0.006
R	0.050	0.100	0.150	0.002	0.004	0.006

■ Soldering Footprint



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

Notes:
This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.

Notice

All products, product specifications and data are subject to change without notice to improve reliability, function or design or otherwise. Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in STARSEA's terms and conditions of sale for such products, STARSEA assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of STARSEA products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.