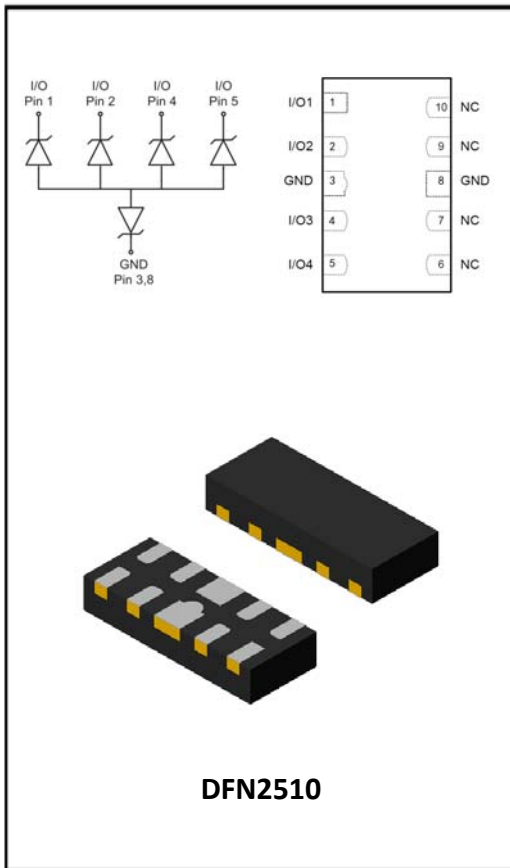


4-Line, Bi-directional, Ultra-low Capacitance, Transient Voltage Suppressor



Features

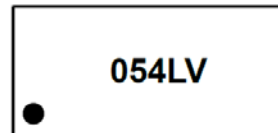
- Operating voltage: 5V
- Transient protection for each line according to IEC61000-4-2(ESD): $\pm 20\text{kV}$ (contact)
IEC61000-4-5(surge): 3A (8/20 μs)
- Ultra low capacitance: $C_j=0.15\text{pF}$ typ
- Ultra low leakage
- Low clamping voltage
- Up to 4 lines protects
- RoHS Compliant

Applications

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

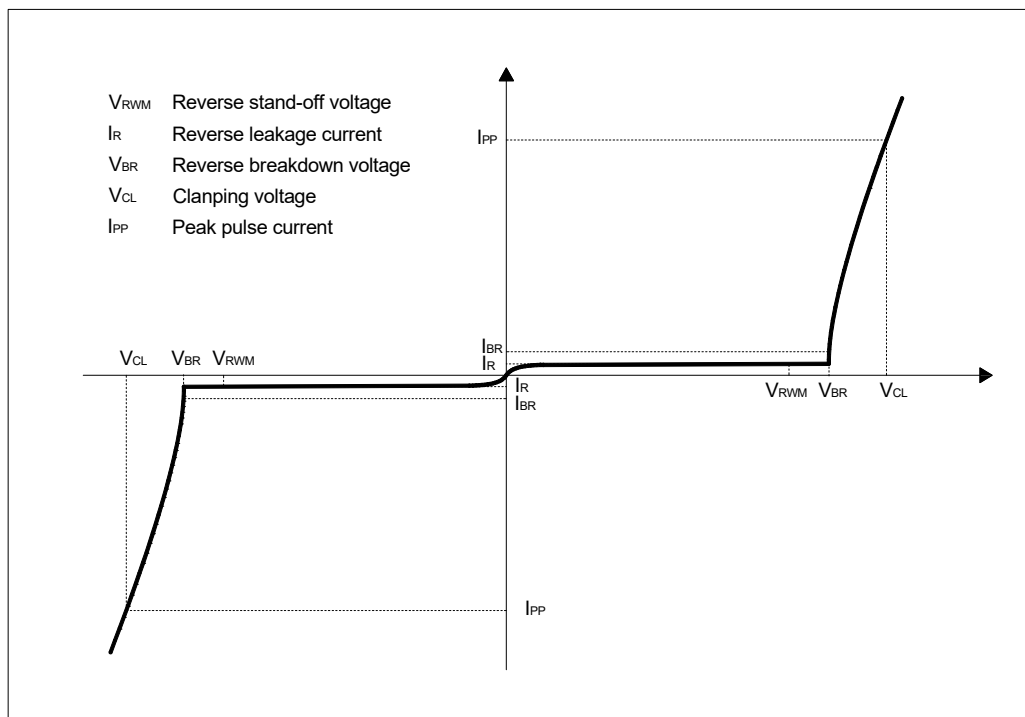
Mechanical Data

- Package: DFN2510-10 (2.5 \times 1.0 \times 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





ESDULC0504P5

■Maximum Ratings

PARAMETER	SYMBOL	LIMITS	UNIT
Peak pulse power ($t_p = 8/20\mu s$)	P_{pk}	45	W
Peak pulse current ($t_p = 8/20\mu s$)	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	$^{\circ}C$
Storage temperature	T_{STG}	-55~150	$^{\circ}C$

■Electrical Characteristics ($T_a=25^{\circ}C$ 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	$I_{PP} = 3A$, $t_p = 8/20\mu s$		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 8/20 μ s waveform per IEC61000-4-5

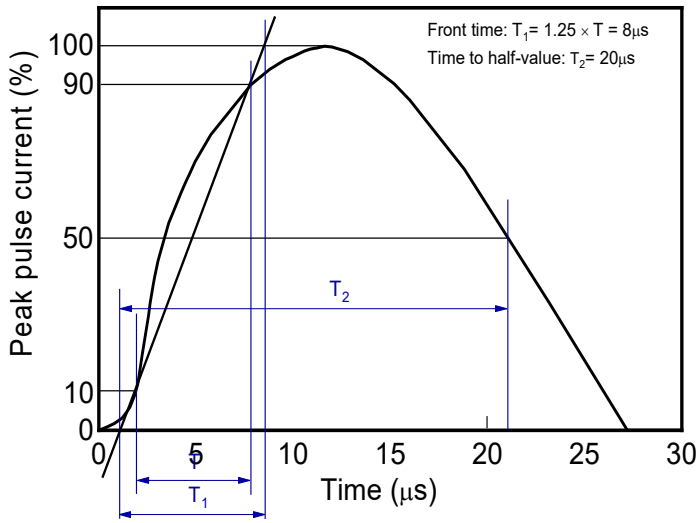


Fig.2 Contact discharge current waveform per IEC61000-4-2

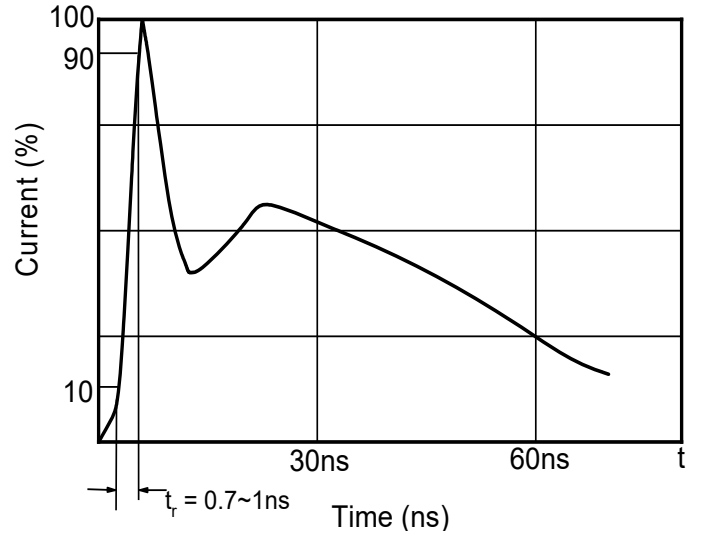


Fig.3 Clamping voltage vs. Peak pulse current

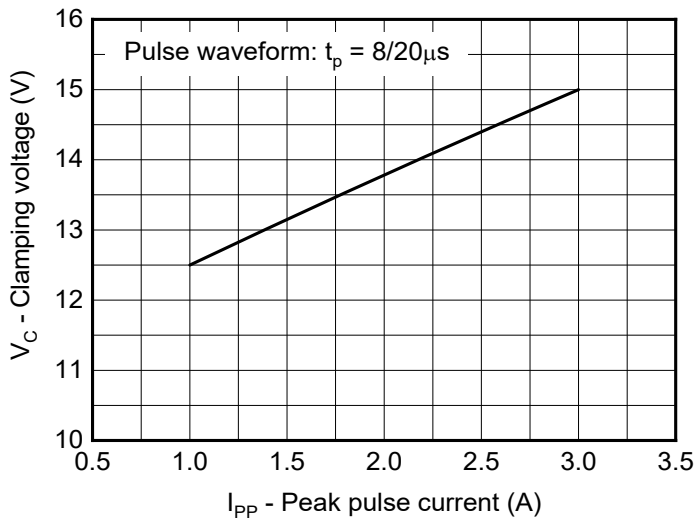


Fig.4 Capacitance vs. Reverse voltage

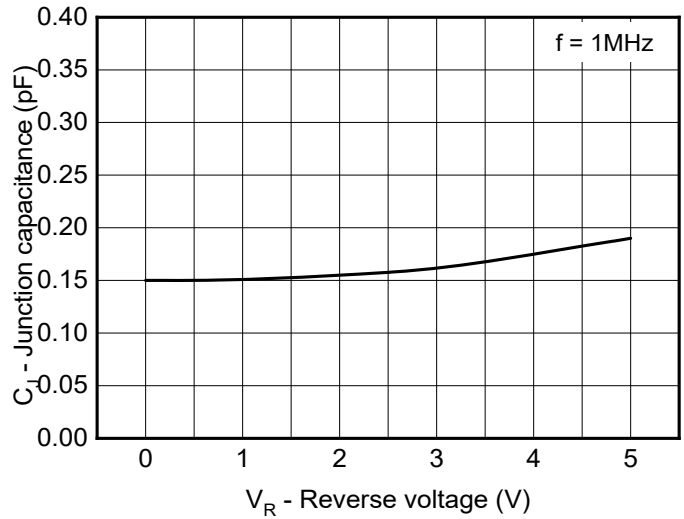


Fig.5 Non-repetitive peak pulse power vs. Pulse time

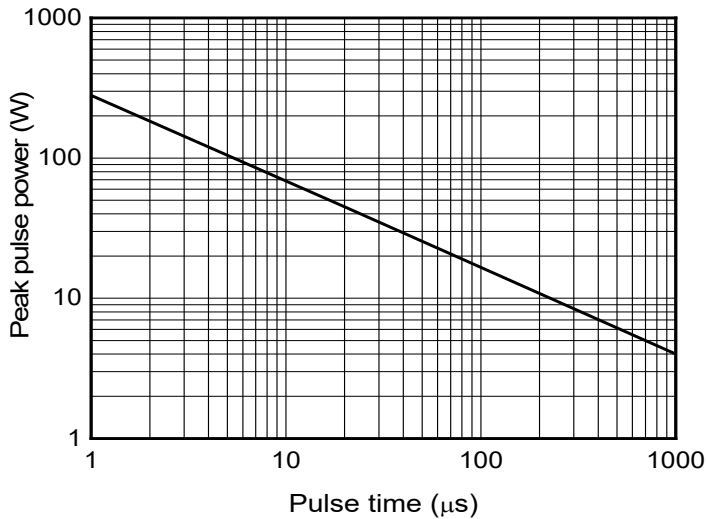


Fig.6 Power derating vs. Ambient temperature

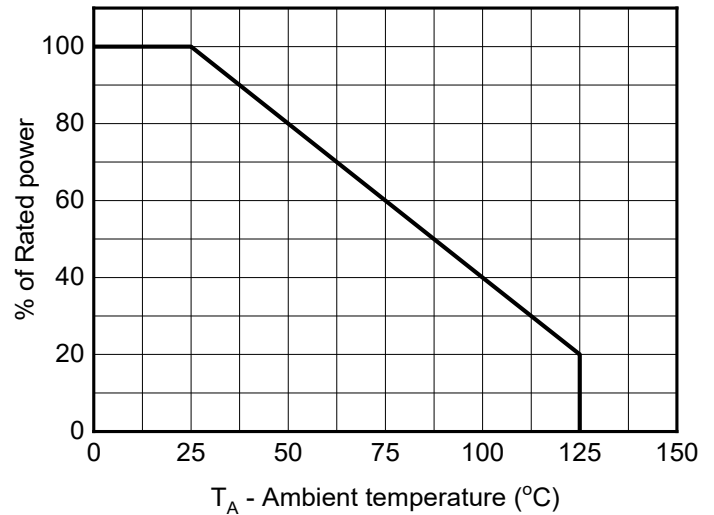
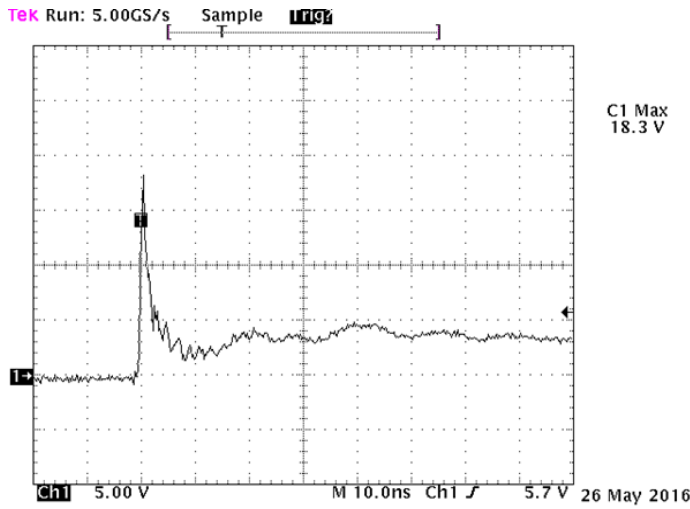
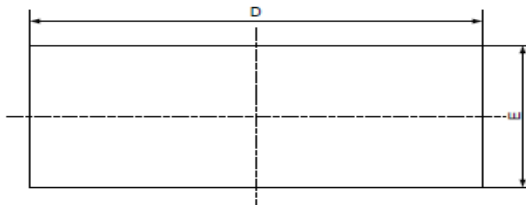


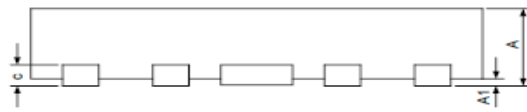
Fig.7 ESD clamping
(+8kV contact discharge per IEC61000-4-2)



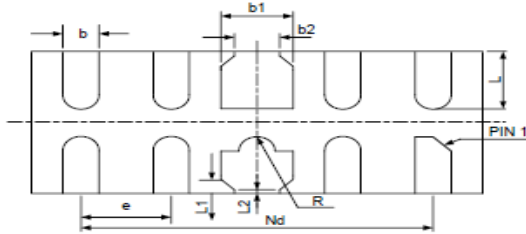
Outline Dimensions



TOP VIEW



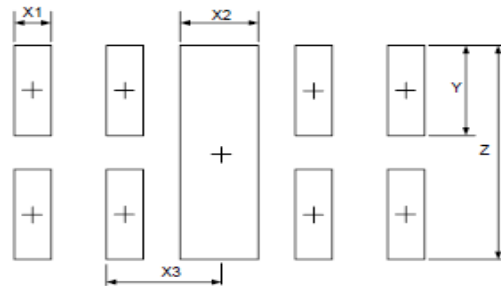
SIDE VIEW



BOTTOM VIEW

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.



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