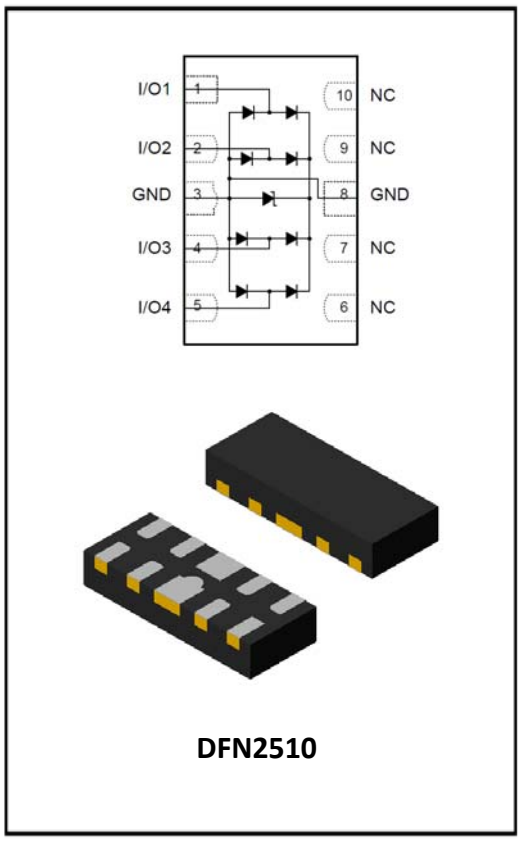
4-Line, Uni-directional, Ultra-low Capacitance, Transient Voltage Suppressor



Features

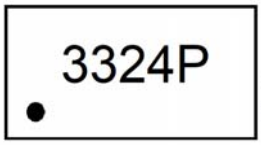
- ●65W peak pulse power (8/20μs)
- ●Ultra low leakage
- ●Operating voltage: 3.3V
- ●Low clamping voltage
- ●Up to 4 lines protects
- ●RoHS Compliant

Applications

- HDMI1.3 /1.4/2.0, USB 2.0/3.0/3.1 Type C
- Monitors and flat panel displays
- Set-top box and Digital TV
- MDDI ports
- Video graphics cards
- Digital Video Interface (DVI)
- Notebook Computers
- PCI Express and Serial SATA Ports

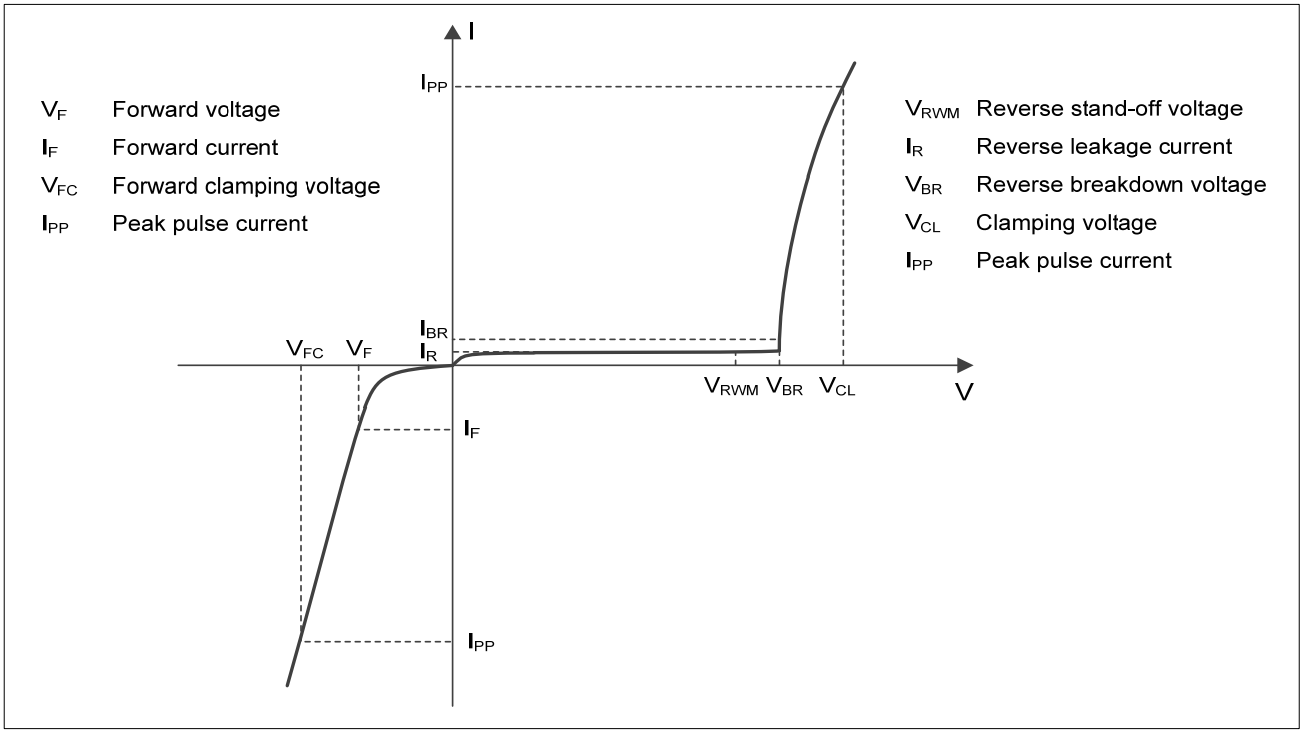
Mechanical Data

- Package: DFN2510-10 (2.5×1.0×0.5mm)
- Terminals: Tin plated leads, solderabl per J-STD-002 and JESD22-B102
- Polarity: Cathode line denotes the cathode end
- Marking:



3324P : 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}	65	W
Peak pulse current (t_p = 8/20μs)	I_{PP}	5	A
ESD according to IEC61000-4-2 air discharge	V_{ESD}	±15	KV
ESD according to IEC61000-4-2 contact discharge		±10	
Junction temperature	T_J	125	℃
Operating temperature	T_{OP}	-40~85	℃
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			3.3
Reverse leakage current	I_R	μA	V_{RWM} = 3.3V, any I/O pin to ground			1.0
Reverse breakdown voltage	$V_{(BR)}$	V	I_T = 1mA, any I/O pin to ground	5.0	6.5	8.0
Clamping voltage [1]	V_{CL}	V	I_{PP} = 16A, t_p = 100ns		16	
Clamping voltage [2]	V_{CL}	V	V_{ESD} = 8kV		16	
Clamping voltage [3]	V_{CL}	V	I_{PP} = 1A, t_p = 8/20μs			9
		V	I_{PP} = 5A, t_p = 8/20μs			13
Junction capacitance	CJ	pF	V_R = 0V, f = 1MHz Any I/O pin to GND		0.5	0.65
			V_R = 0V, f = 1MHz Between any I/O pin		0.25	0.4

Notes:

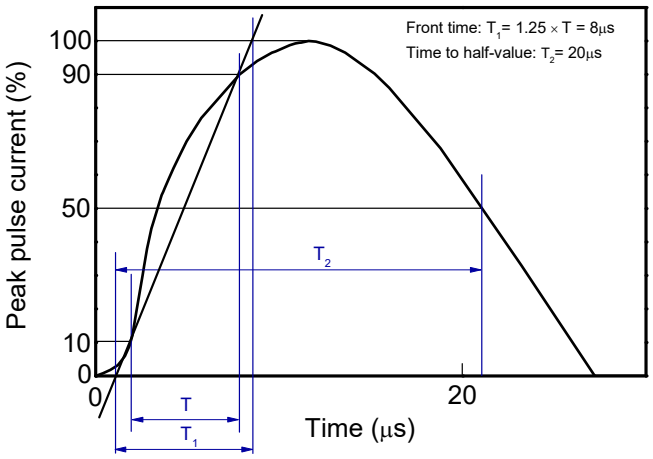
1) TLP parameter: Z_0 = 50Ω, t_p = 100ns, t_r = 2ns, averaging window from 60ns to 80ns.
2) Contact discharge mode, according to IEC61000-4-2.
3) Non-repetitive current pulse, according to IEC61000-4-5.

■Ordering Information (Example)

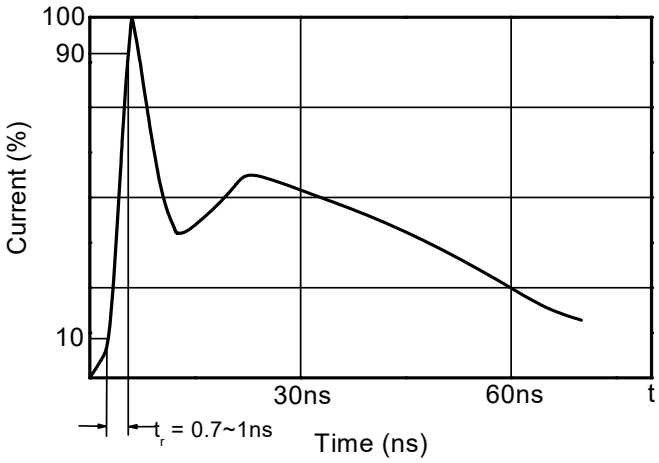
PREFERED P/N	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
3324P	3000	30000	120000	7 reel

■ Characteristics (Typical)

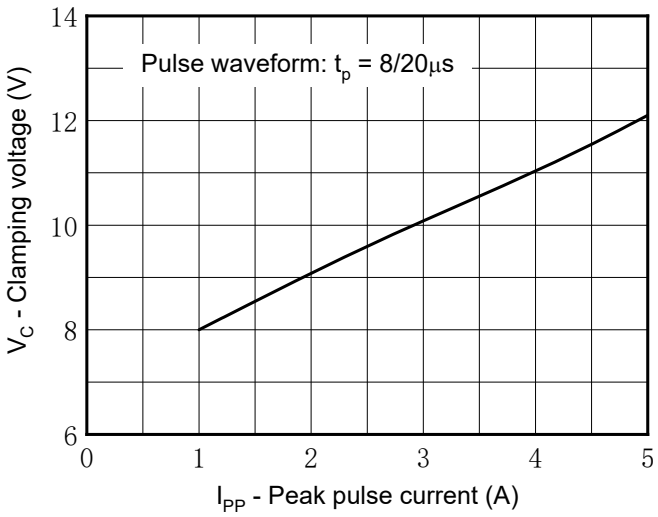
8/20μs waveform per IEC61000-4-5



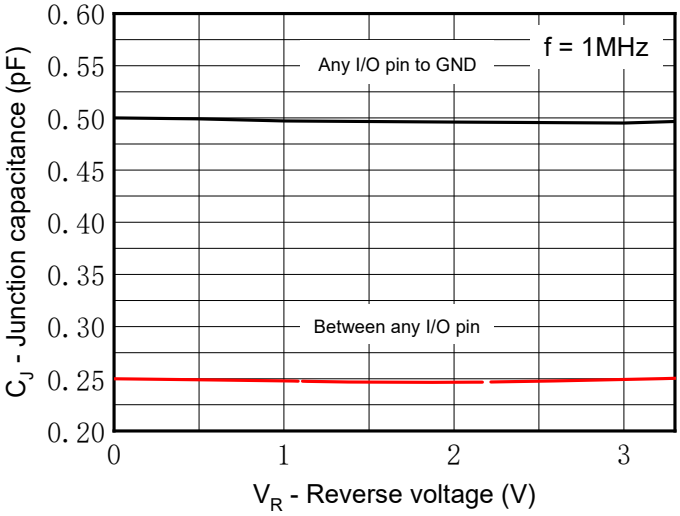
Contact discharge current waveform per IEC61000-4-2



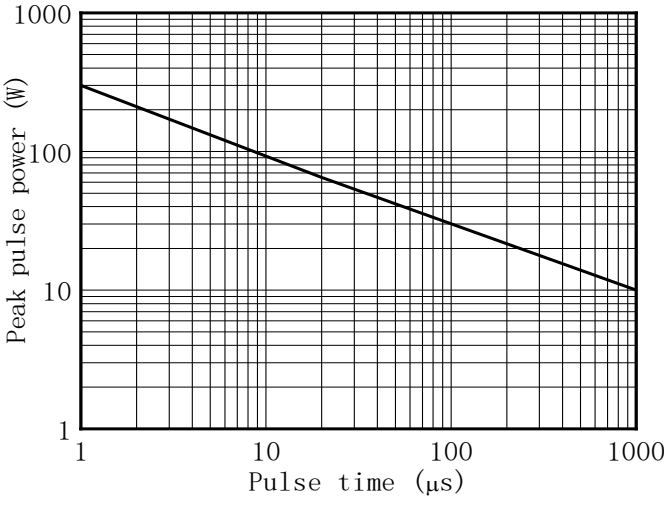
Clamping voltage vs. Peak pulse current



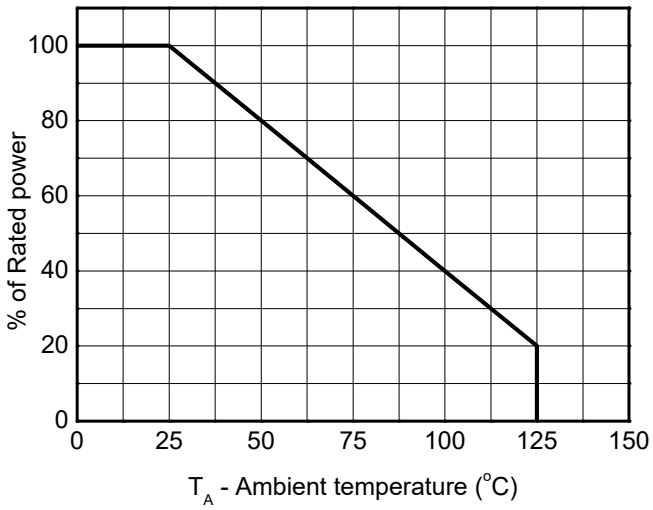
Capacitance vs. Reverse voltage



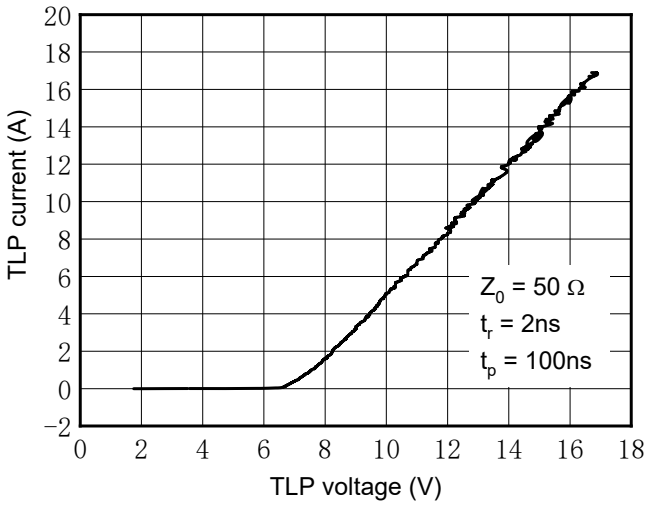
Non-repetitive peak pulse power vs. Pulse time



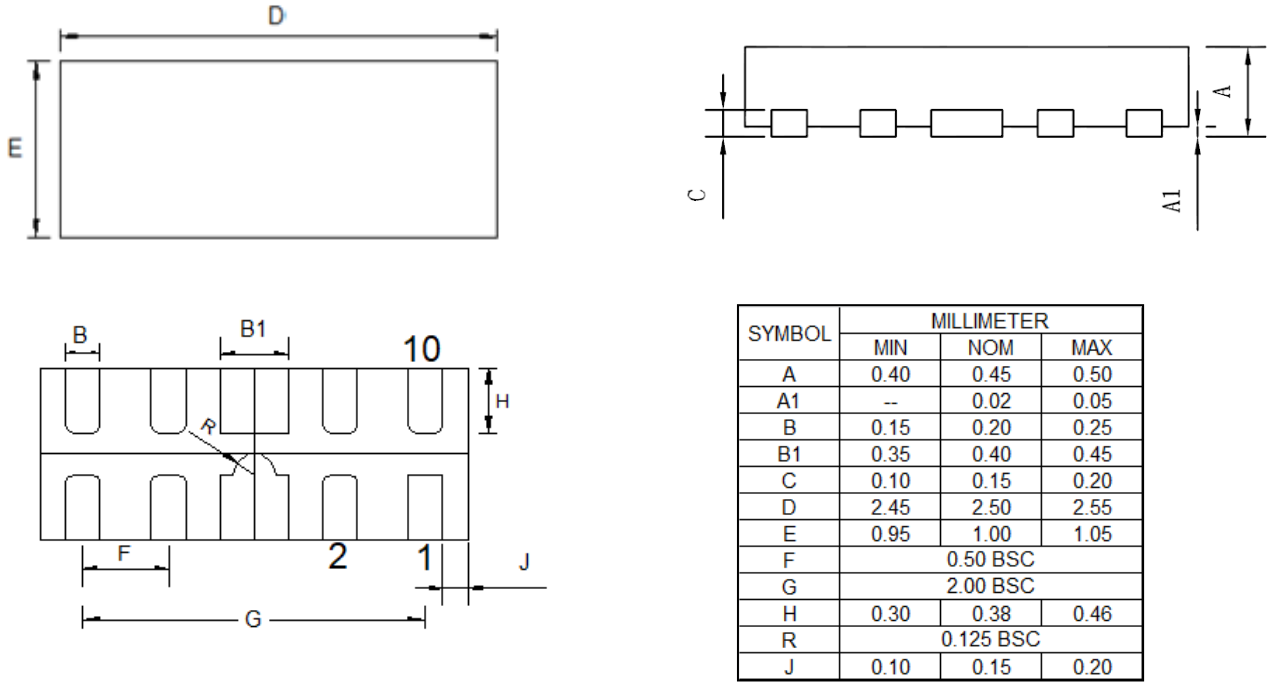
Power derating vs. Ambient temperature



TLP Measurement

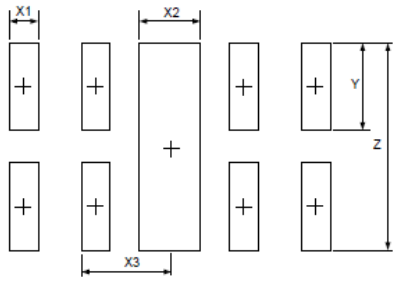


■ Outline Dimensions



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.40	0.45	0.50
A1	--	0.02	0.05
B	0.15	0.20	0.25
B1	0.35	0.40	0.45
C	0.10	0.15	0.20
D	2.45	2.50	2.55
E	0.95	1.00	1.05
F	0.50 BSC		
G	2.00 BSC		
H	0.30	0.38	0.46
R	0.125 BSC		
J	0.10	0.15	0.20

■ 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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