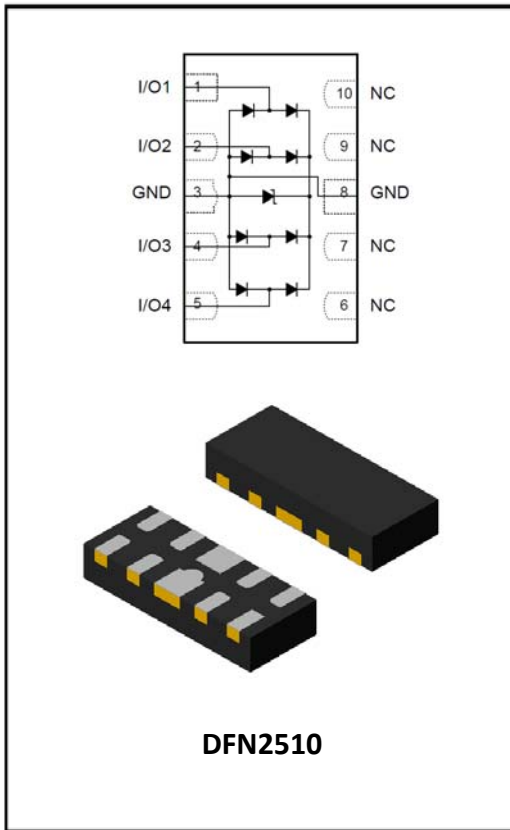


## 4-Line, Uni-directional, Ultra-low Capacitance, Transient Voltage Suppressor



### Features

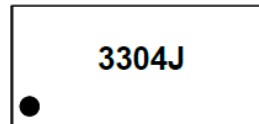
- Operating voltage: 3.3V
- Transient protection for each line according to IEC61000-4-2(ESD):  $\pm 20\text{kV}$  (contact)  
IEC61000-4-5(surge): 6A (8/20 $\mu\text{s}$ )
- Ultra low leakage
- Low clamping voltage
- Up to 4 lines protects
- RoHS Compliant

### Applications

- HDMI1.3 /1.4, USB 2.0/3.0 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

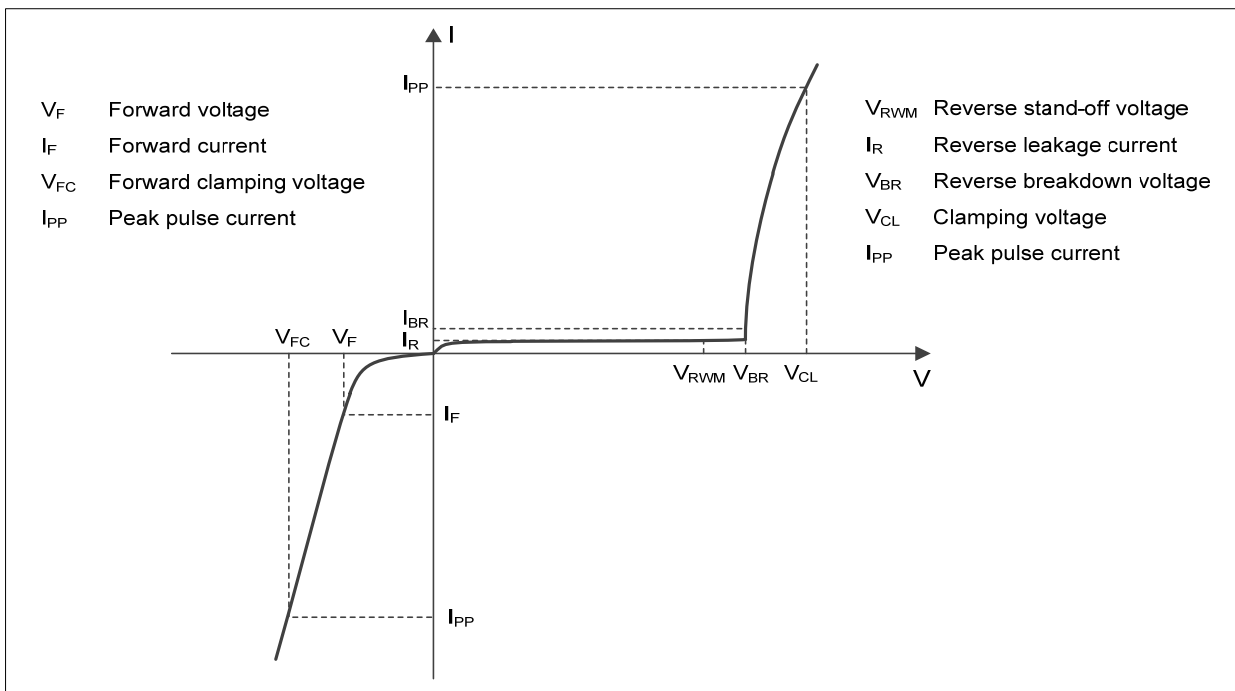
- Package: DFN2510-10 (2.5 $\times$ 1.0 $\times$ 0.5mm)
- Terminals: Tin plated leads, solderabl per J-STD-002 and JESD22-B102
- Polarity: Cathode line denotes the cathode end
- Marking:



3304J = Device Marking Code

Dot denotes Pin1

### ■Definitions of electrical characteristics





# 3304J

## ■Maximum Ratings

PARAMETER	SYMBOL	LIMITS	UNIT
Peak pulse power ( $t_p = 8/20\mu s$ )	$P_{pk}$	60	W
Peak pulse current ( $t_p = 8/20\mu s$ )	$I_{pp}$	6	A
ESD according to IEC61000-4-2 air discharge	$V_{ESD}$	$\pm 25$	KV
ESD according to IEC61000-4-2 contact discharge		$\pm 20$	
Junction temperature	$T_J$	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			3.3
Reverse leakage current	$I_R$	nA	$V_{RWM} = 3.3V$ , any I/O pin to ground			200
Reverse breakdown voltage	$V_{(BR)}$	V	$I_T = 1mA$ , any I/O pin to ground	3.5		
Clamping voltage	$V_{CL}$	V	$I_{PP} = 1A$ , $t_p = 8/20\mu s$			7
		V	$I_{PP} = 6A$ , $t_p = 8/20\mu s$			10
Junction capacitance	CJ	pF	$V_R = 0V$ , $f = 1MHz$ Any I/O pin to GND		0.6	1.0
			$V_R = 0V$ , $f = 1MHz$ Between I/O pins		0.4	

## ■Ordering Information (Example)

PREFERED P/N	PACKING CODE	UNIT WEIGHT(mg)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
3304J	F1	Approximate 3.48	3000	30000	120000	7 reel

■ Characteristics (Typical)

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

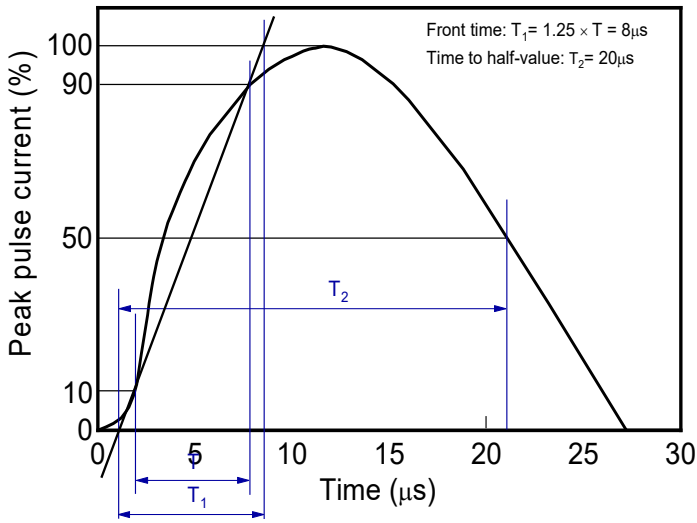


Fig.2 Contact discharge current waveform per IEC61000-4-2



Fig.3 Clamping voltage vs. Peak pulse current

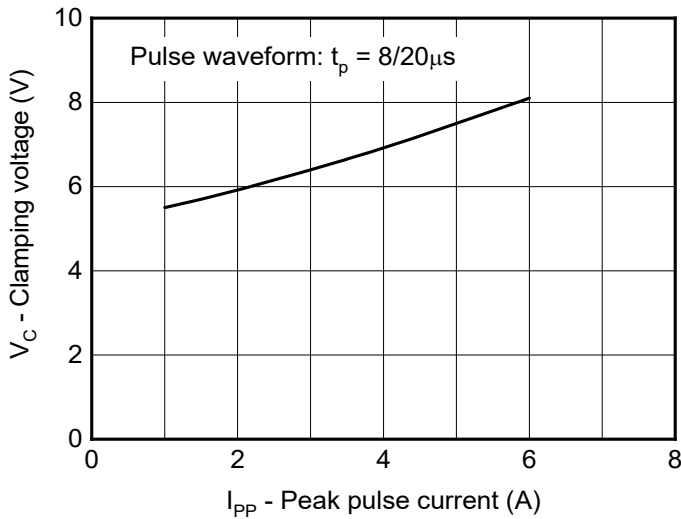


Fig.4 Capacitance vs. Reverse voltage

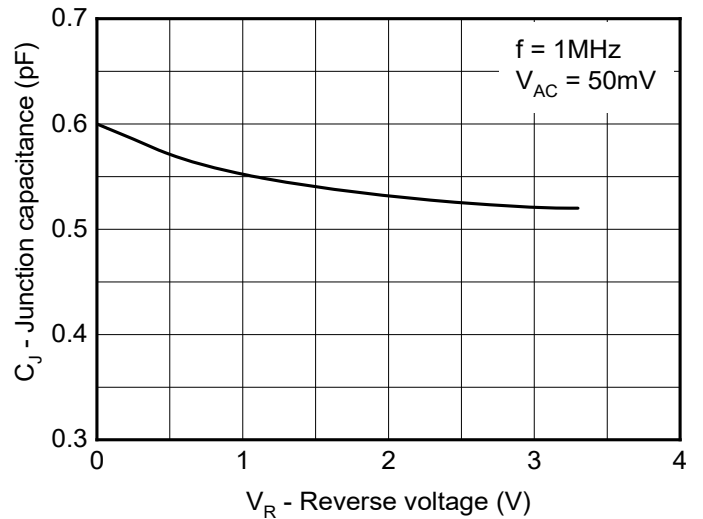


Fig.5 Non-repetitive peak pulse power vs. Pulse time

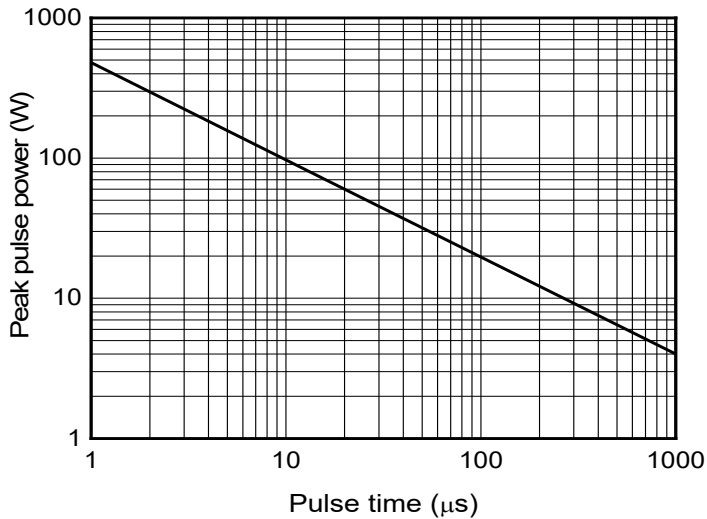
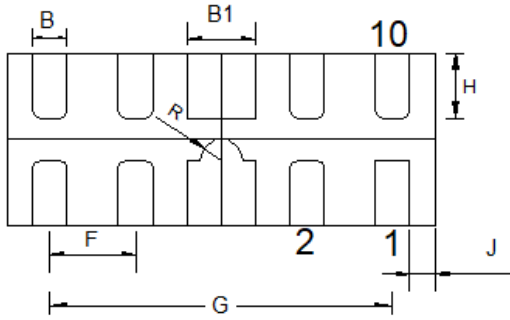
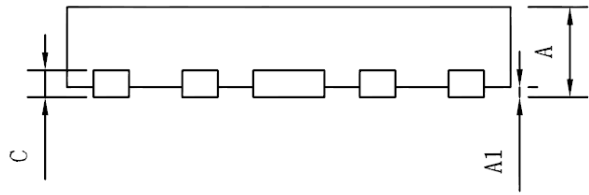
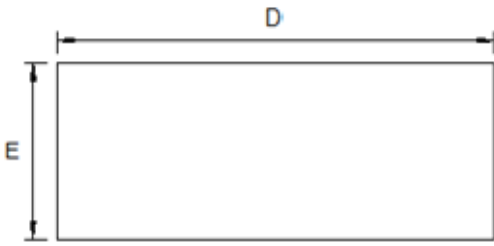


Fig.6 Power derating vs. Ambient temperature

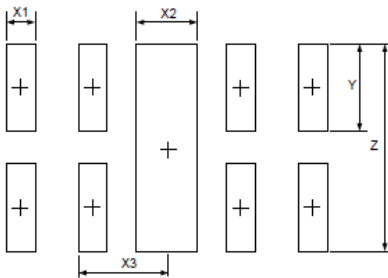


## ■ Outline Dimensions



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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