

Package Dimensions

YS3304P5 is 4-Line Low Capacitance Uni-Directional ElectroStatic Discharge Protection Device, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltagesensitive data lines. YS3304P5 complies with the IEC 61000-4-2 (ESD) standard with $\pm 20\text{KV}$ air and $\pm 20\text{KV}$ contact discharge. It is assembled into a $2.5 \times 1 \times 0.5\text{mm}$ lead-free package. YS3304P5 is an ideal choice to protect MDDI, DVI, HDMI 1.3 & 1.4, USB 2.0 & 3.0, Set-top box and Digital TV, Monitors, flat panel displays, PCI Express, SATA, Video graphics cards, etc.



Features

- 4-Line Low Capacitance Uni-Directional
- Ultra low leakage
- Low operating voltage
- Low clamping voltage
- Silicon technology
- Epoxy resin package
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
Air discharge: $\pm 20\text{KV}$
Contact discharge: $\pm 20\text{KV}$
 - IEC61000-4-4 (EFT) 40A (5/50ns)
 - IEC61000-4-5 (Lightning) 5A (8/20us)
- RoHS Compliant

Mechanical Characteristics

- Package: DFN2510P10 ($2.5 \times 1 \times 0.5\text{mm}$)
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020

Applications

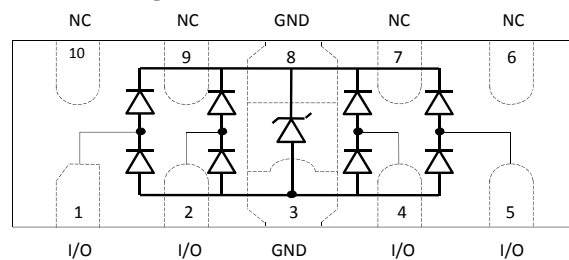
- MDDI, DVI
- HDMI 1.3 & 1.4, USB 2.0 & 3.0
- Set-top box and Digital TV
- Monitors, flat panel displays
- PCI Express, SATA
- Video graphics cards

Marking Information



3324 = Marking Code YYWW = Date Code
Dot denotes Pin1

Pin Configuration



Summary of Packing Options

Package	Packing Description	Packing Quantity	Industry Standard
DFN2510P10	8mm tape/7" reel	3000PCS/Reel	EIA-481-1

Absolute Maximum Ratings

Parameter	Symbol	Value	Units
Reverse Working Voltage	V_{RWM}	3.3	V
Peak Pulse Power (8/20 μ s)	P_{PK}	50	W
Peak Pulse Current (8/20 μ s)	I_{PK}	5	A
ESD per IEC 61000-4-2 (Air)	$V_{ESD-Air}$	20	KV
ESD per IEC 61000-4-2 (Contact)	$V_{ESD-Contact}$	20	KV
Operating Temperature Range	T_J	-55 to 125	$^{\circ}$ C
Storage Temperature Range	T_{STG}	-55 to 150	$^{\circ}$ C

Electrical Parameters

Parameter	Symbol	Min	Typ	Max	Units	Conditions	Remarks
Punch-Through Voltage	V_{PT}	3.5			V	$I_{PT}=2\mu A$	I/O to GND
Snap-Back Voltage	V_{SB}	2.8			V	$I_{SB}=50mA$	I/O to GND
Reverse Leakage Current	I_R			0.5	μA	$V_{RWM}=3.3V$	I/O to GND
Clamping Voltage (8/20 μ s)	V_C			6.5	V	$I_{PP}=1A$	I/O to GND
Maximum Clamping Voltage (8/20 μ s)	V_{CM}			10	V	$I_{PK}=5A$	I/O to GND
Junction Capacitance between I/O pins	C_O		0.6	0.8	pF	$V_R=0V$	f = 1MHz

Rating And Characteristic Curves ($T_A=25^\circ\text{C}$ unless otherwise noted)

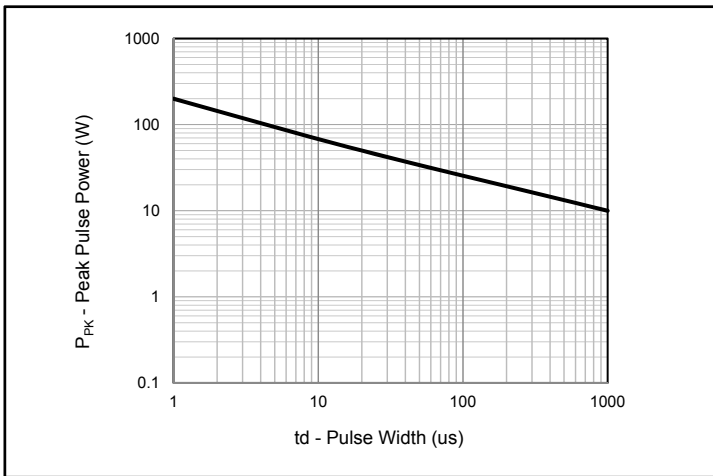


Fig.1 - Peak Pulse Power Rating

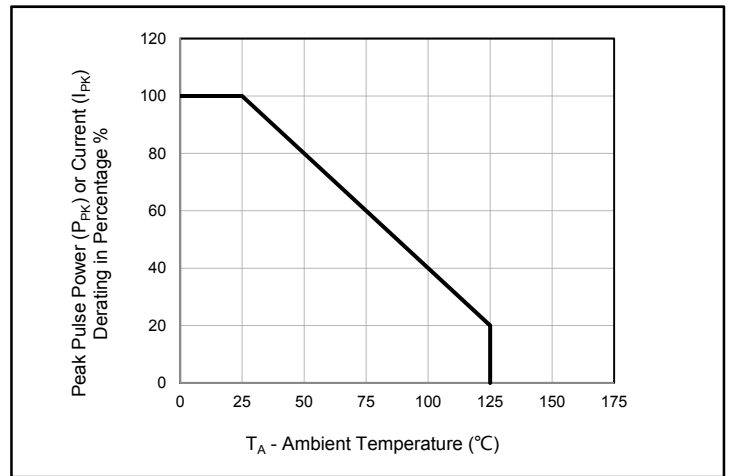


Fig.2 - Pulse Derating Curve

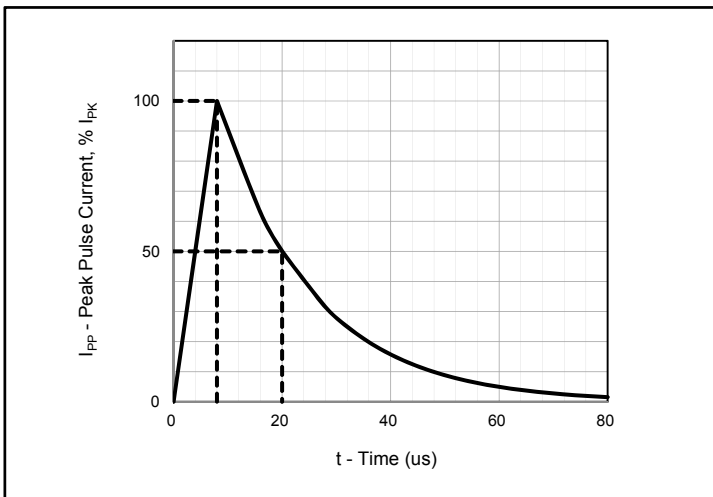


Fig.3 - 8/20us Pulse Waveform

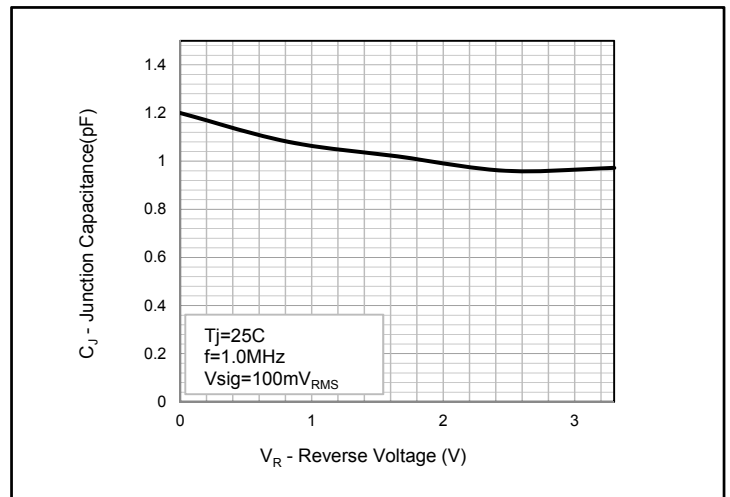


Fig.4 - Typical Junction Capacitance

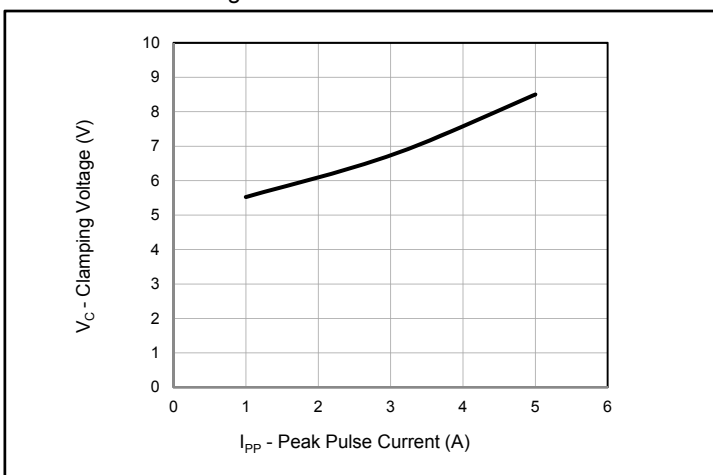


Fig.5 - Clamping Voltage

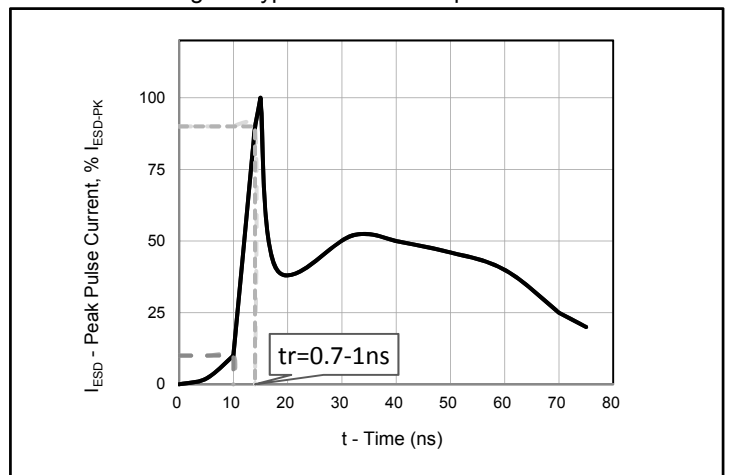
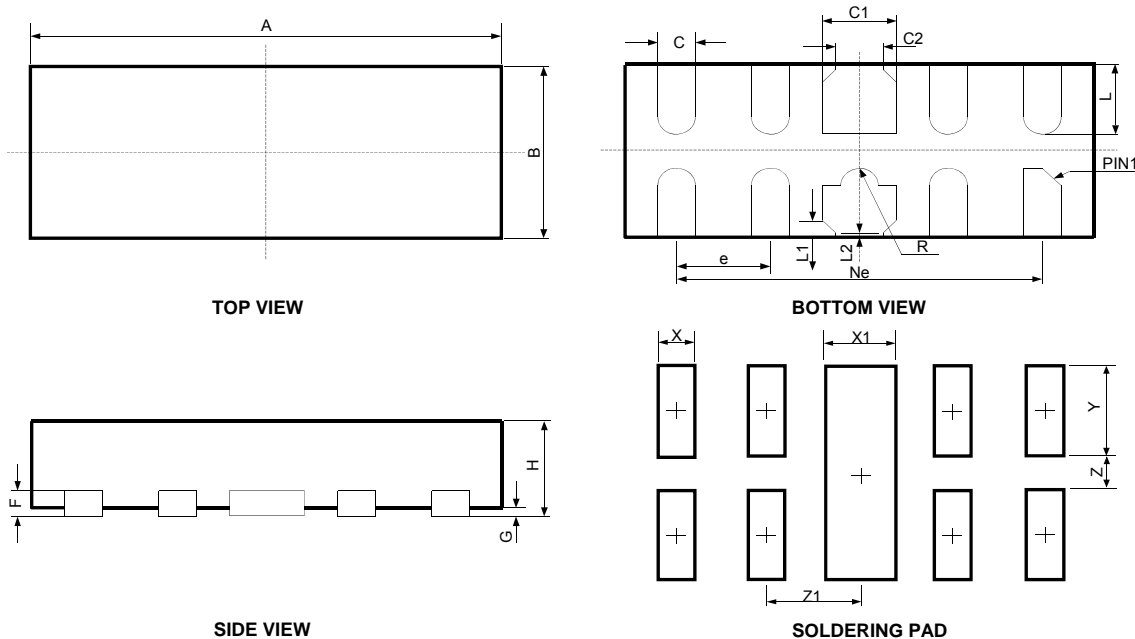


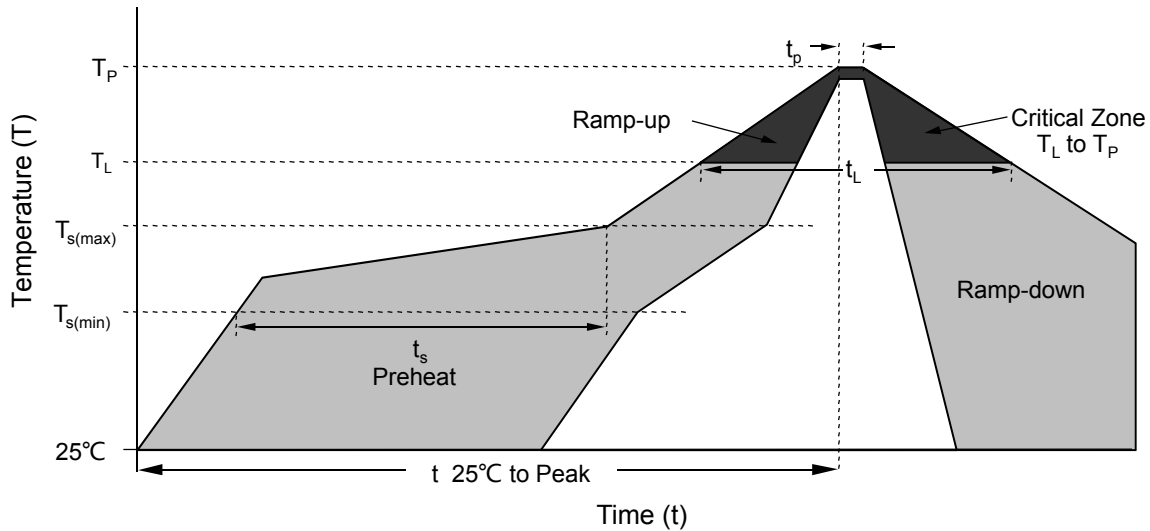
Fig.6 - ESD Pulse Waveform (IEC61000-4-2)

Package Dimensions



DFN2510P10						
Dimension	Inches			Millimeters		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.096	0.098	0.1	2.45	2.5	2.55
B	0.037	0.039	0.041	0.95	1	1.05
C	0.006		0.01	0.15		0.25
L	0.014		0.018	0.35		0.45
F	0.004		0.008	0.1		0.2
G	-		0.002	-		0.05
H	0.018	0.02	0.022	0.45	0.5	0.55
e		0.02			0.5	
Ne		0.079			2	
C1	0.014		0.018	0.35		0.45
C2	0.008		0.012	0.2		0.3
L1		0.003			0.075	
L2		0.002			0.05	
R	0.002		0.006	0.05		0.15
X		0.008			0.2	
Y		0.024			0.6	
Z		0.008			0.2	
X1		0.016			0.4	
Z1		0.02			0.5	

Soldering Parameters



Reflow Condition		Lead-free assembly
Pre Heat	- Temperature Min ($T_{s(min)}$)	150°C
	- Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Time (t_L)	60 – 150 secs
Peak Temperature (T_P)		260 ^{+0/-5} °C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 secs
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (t)		8 minutes Max.
Do not exceed		260°C

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