

4-Line 3.3V ESD Protection Diode Array

Features

- Ultra low leakage : nA level
- Ultra low operating voltage : 3.3V
- Ultra low clamping voltage
- Complies with following standards :
 - IEC 61000-4-2(ESD) immunity test
Air discharge : $\pm 20\text{kV}$, Contact discharge : $\pm 15\text{kV}$
 - IEC61000-4-5 (Lightning) 9A (8/20us)
- RoHS Compliant

Mechanical Data

- Package : DFN2116-8
- Case Material : "Green" Molding Compound.
- Moisture Sensitivity : Level 3 per J-STD-020
- Terminal Connections : See Diagram Below
- Marking Information : See Below

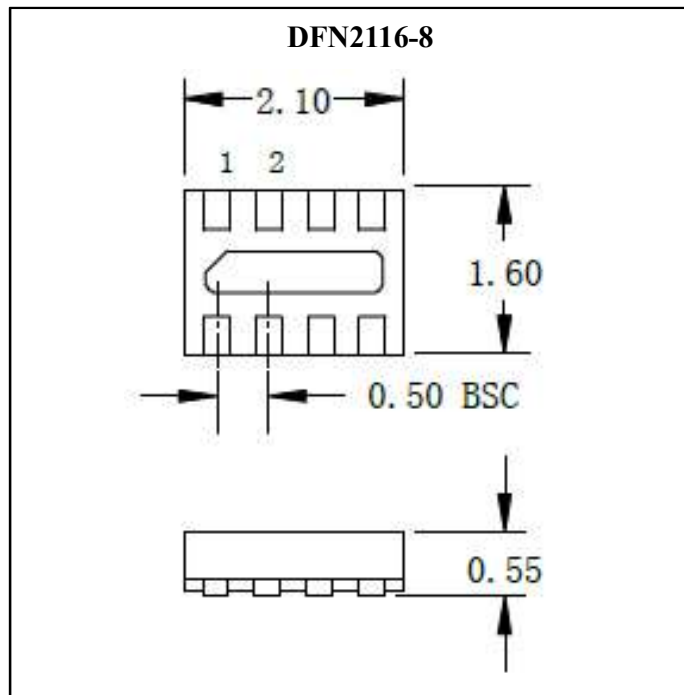
Applications

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Peripherals
- Analog Video
- Keypads, Side Keys, LCD Displays

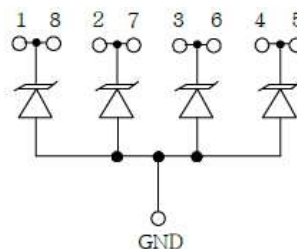
Marking



3304P = Device Marking Code
 YYWW = Date Code
 Dot denotes pin1



Circuit and Pin Schematic



Absolute Maximum Ratings (Ta= 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20us)	Ppk	80	W
Peak Pulse Current (8/20us)	Ipp	9	A
ESD per IEC 61000-4-2 (Air)	V _{ESD}	± 20	kV
ESD per IEC 61000-4-2 (Contact)		± 15	
Operating Junction Temperature Range	T _J	-55 to +125	°C
Storage Temperature Range	T _{STG}	-55 to +150	°C

Electrical Characteristics (Ta= 25°C unless otherwise specified)

Characteristic	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Reverse Working Voltage	V _{RWM}	-	-	3.3	V	
Punch-Through Voltage	V _{PT}	3.5	-	-	V	I _{PT} = 5uA
Snap-Back Voltage	V _{SB}	2.8	-		V	I _{SB} = 50mA
Reverse Leakage Current	I _R	-	-	0.5	uA	V _{RWM} =3.3V
Clamping Voltage (any I/O pin to ground)	V _C	-	-	5.5	V	I _{pp} =1A(8×20us pulse)
Clamping Voltage (any I/O pin to ground)	V _C	-	-	9.0	V	I _{pp} =9A(8×20us pulse)
Junction Capacitance (between I/O pins)	C _J	-	25	30	pF	f=1MHz, V _R =0V
Junction Capacitance (any I/O pin to ground)	C _J	-	14	-	pF	f=1MHz, V _R =3.3V

* Note 1. two I/O pins connected together on each line

Ratings and Characteristics Curves (Ta=25°C unless otherwise noted)

Fig.1 Power Derating Curve

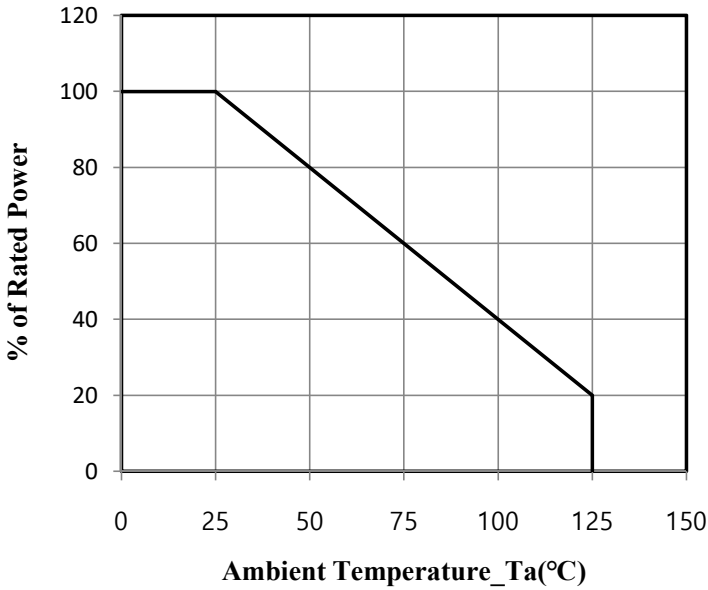


Fig.2 Peak Pulse Power vs. Pulse Time

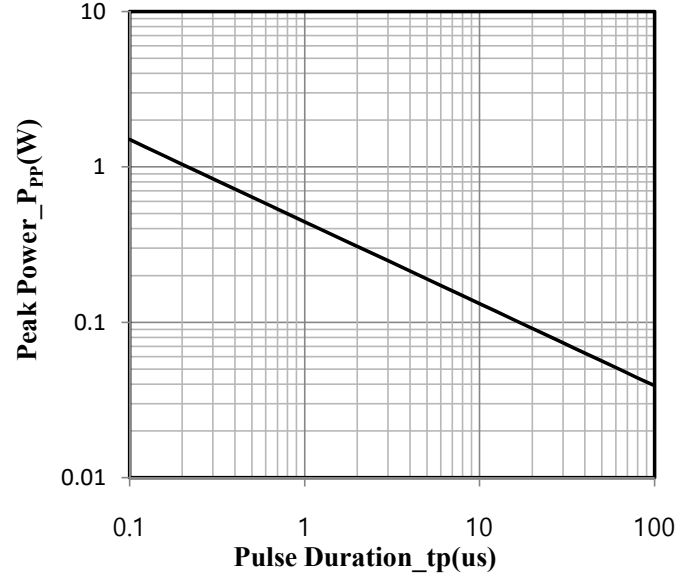


Fig.3 Clamping Voltage vs. Peak Pulse Current (tp=8/20us)

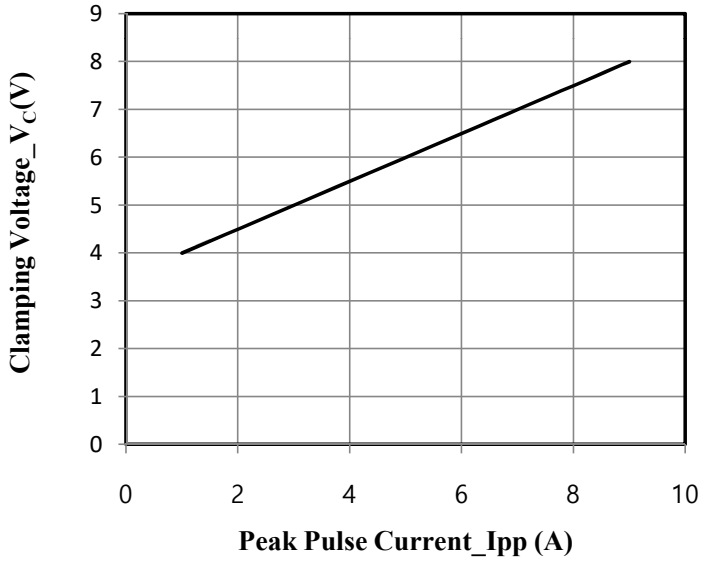


Fig.4 Junction Capacitance vs. Reverse Voltage

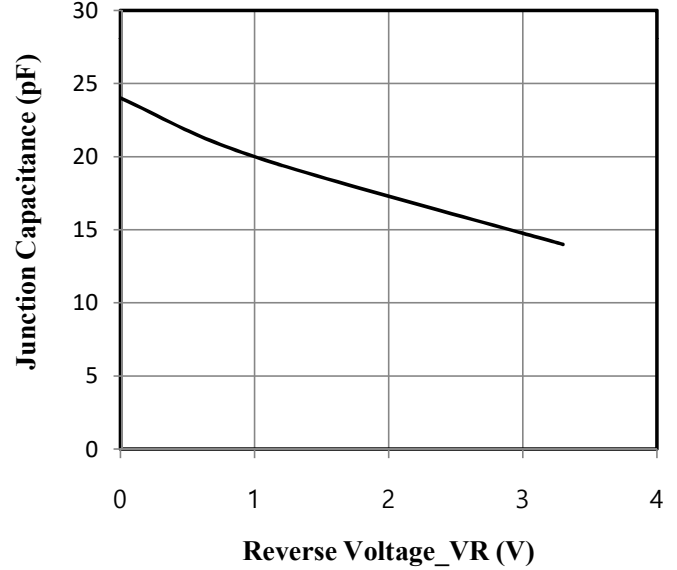
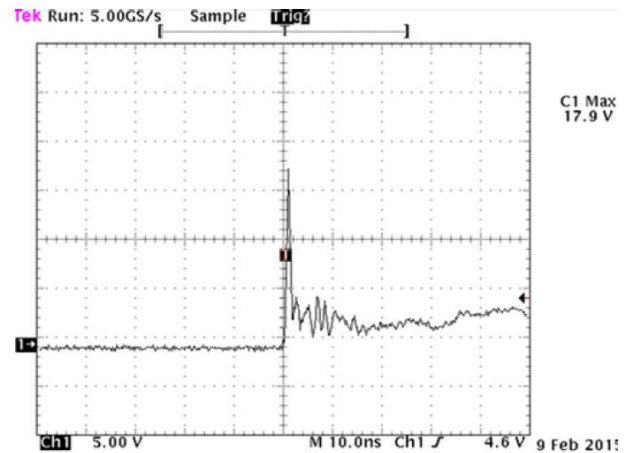
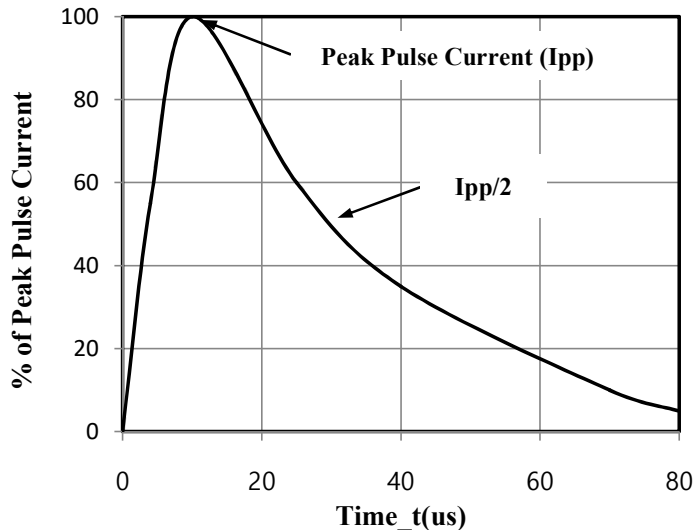


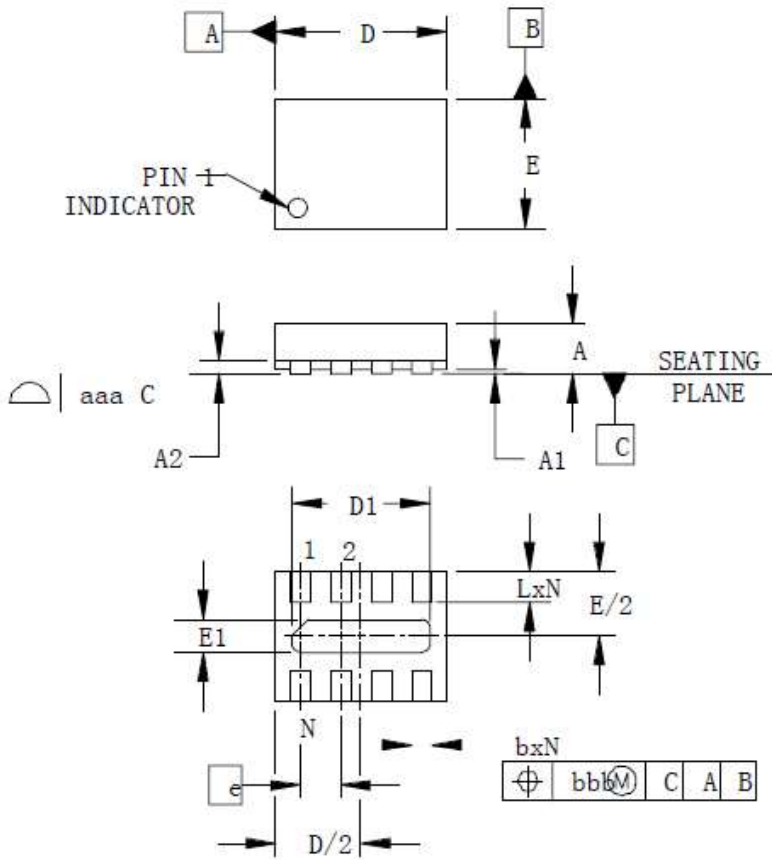
Fig.5 8 × 20us Pulse Waveform



**Note : Data is taken with a 10× attenuator
ESD Clamping Voltage
8kV Contact per IEC61000-4-2**



DFN2116-8 Package Outline Drawing

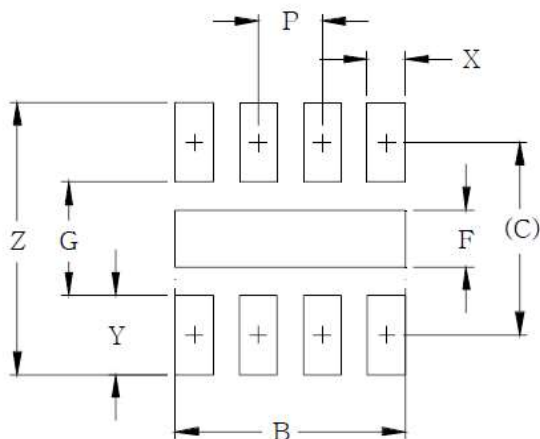


DIM	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	.020	.022	.024	0.50	0.55	0.60
A1		.001	.002	0.00	.003	0.05
A2	(0.006)			(0.15)		
b	.007	.010	.012	0.20	0.25	0.30
D	.079	.083	.087	2.00	2.10	2.20
D1	.061	.067	.071	1.55	1.70	1.80
E	.059	.063	.067	1.50	1.60	1.70
E1	.010	.016	.020	0.25	0.40	0.50
e	.020 BSC			0.50 BSC		
L	.011	.013	.015	0.28	0.33	0.38
N	6			6		
aaa	.003			0.08		
bbb	.004			0.10		

NOTES:

1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).
2. COPLANARITY APPLIES TO THE EXPOSED PAD AS WELL AS THE TERMINALS.

Suggested Land Pattern



DIM	DIMENSIONS	
	INCHES	MILLIMETERS
B	.071	1.80
C	.060	1.52
F	.018	0.45
G	.035	0.89
P	.020	0.50
X	.012	0.30
Y	.025	0.63
Z	.085	2.15