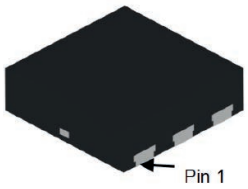
GSEPP5U006
Low Capacitance ESD TVS Array

Features

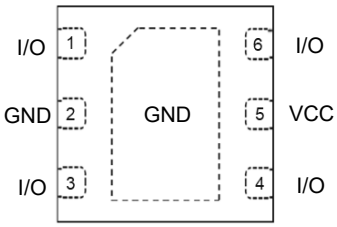
- Ultra low capacitance: 0.6pF typical (I/O to I/O)
- Ultra low leakage: nA level
- Low clamping voltage
- Up to 4 lines and one power line protects
- Complies with following standards:
  -IEC 61000-4-2 (ESD) immunity test
  Air discharge: ±30kV
  Contact discharge: ±30kV
  -IEC 61000-4-5 (Lightning) 12A (8/20μs)
- RoHS compliant



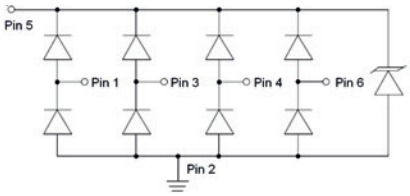
DFN2020-6

Applications

- USB 2.0 power and data line
- Monitors and flat panel displays
- Set-top box and digital TV
- Digital visual interface (DVI)
- Notebook computers
- SIM ports
- 10/100 ethernet



Circuit and Pin Schematic



Schematic Diagram

Absolute Maximum Ratings (T_A=25°C unless otherwise spec

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs), V_{CC} Pin to Ground	P_{PK}	450	W
Peak Pulse Power (8/20μs), Any I/O Pin to Ground		200	
Peak Pulse Current (8/20μs), V_{CC} Pin to Ground	I_{PP}	25	A
Peak Pulse Current (8/20μs), any I/O Pin to Ground		12	
ESD per IEC 61000-4-2 (Air)	V_{ESD}	±30	kV
ESD per IEC 61000-4-2 (Contact)		±30	
Operating Temperature Range	T_J	-55 to +125	°C
Storage Temperature Range	T_{stg}	-55 to +150	°C

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}	Any I/O pin to ground	-	-	5	V
Breakdown Voltage	V_{BR}	I_T=1mA, any I/O pin to ground	6	-	-	V
Reverse Leakage Current	I_R	V_{RWM}=5V, any I/O pin to ground	-	-	0.5	μA
Clamping Voltage	V_C	I_{PP}=25A (8 x 20μs pulse), V_{CC} pin to ground	-	15	18	V
		I_{PP}=12A (8 x 20μs pulse), any I/O pin to ground	-	12	16.7	V
Junction Capacitance	C_J	V_R=0V, f=1MHz, between I/O pins	-	0.6	-	pF
		V_R=0V, f=1MHz, any I/O pin to ground	-	1.5	-	pF

Typical Performance Characteristic (T_A=25°C unless otherwise Specified)

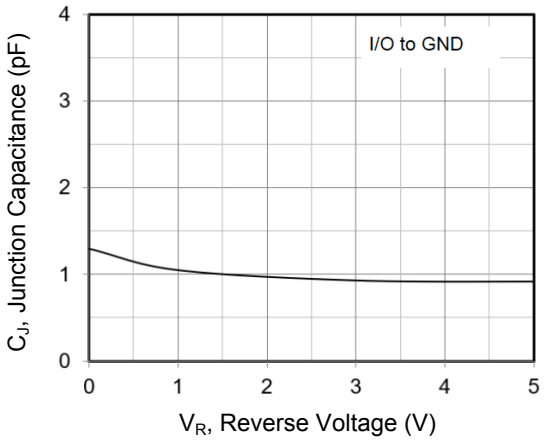


Figure 1. Junction Capacitance vs. Reverse Voltage

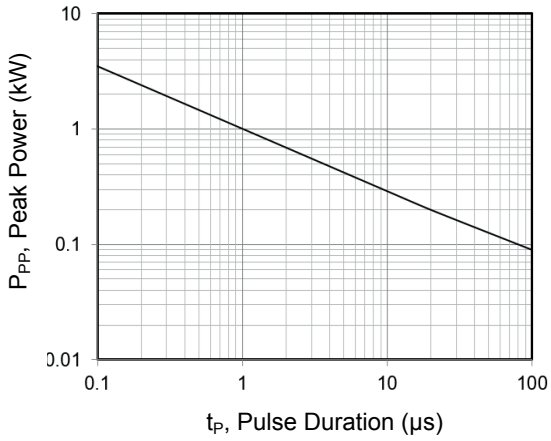


Figure 2. Peak Pulse Power vs. Pulse Time

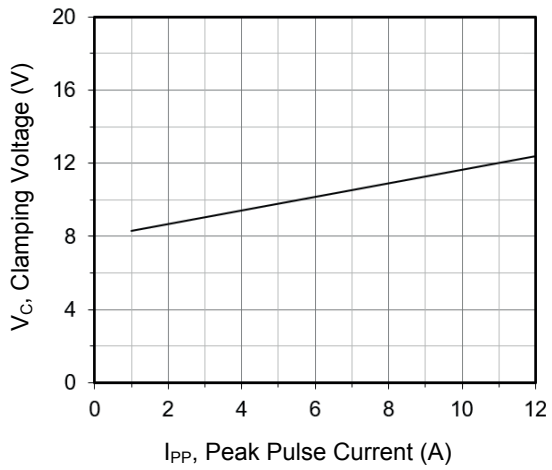


Figure 3. Clamping Voltage vs. Peak Pulse Current (t_p=8/20us)

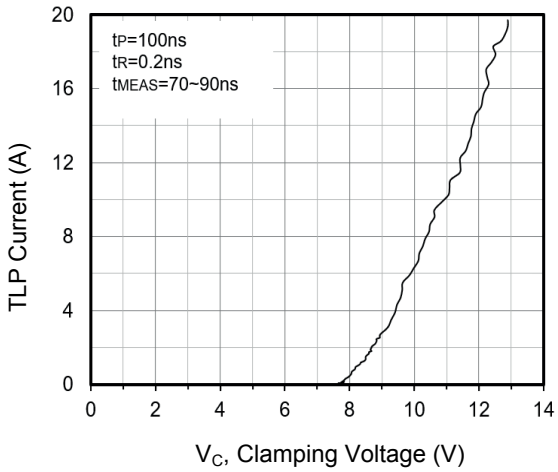


Figure 4. TLP Measurement

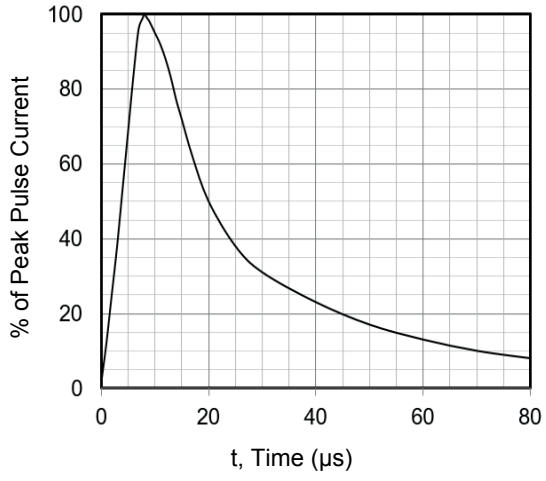


Figure 5. 8 X 20μs Pulse Waveform

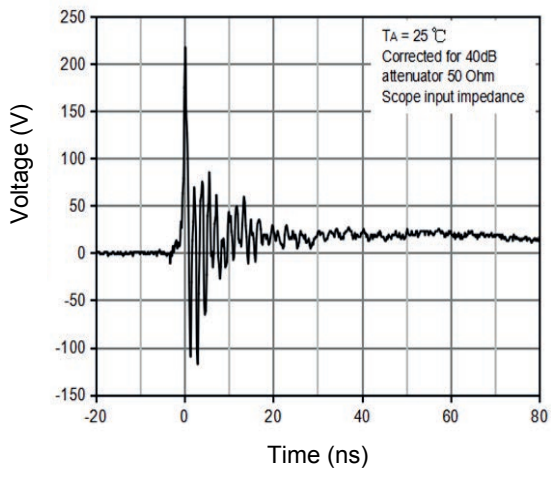
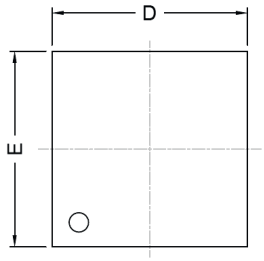
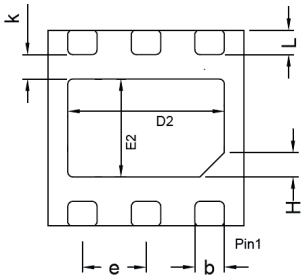


Figure 6. ESD Clamping Voltage 8 kV Contact per IEC61000-4-2

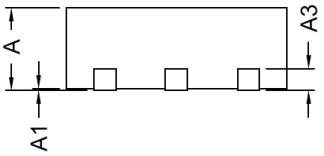
Package Outline Dimensions (DFN2020-6)



TOP VIEW



BOTTOM VIEW



SIDE VIEW

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.50	0.60	0.020	0.024
A1	-	0.05	-	0.002
A3	0.20 REF		0.008 REF	
b	0.25	0.35	0.010	0.014
D	1.95	2.05	0.077	0.081
D2	1.50	1.70	0.059	0.067
E	1.95	2.05	0.077	0.081
E2	0.90	1.10	0.035	0.043
e	0.65 BSC		0.026 BSC	
L	0.20	0.30	0.008	0.012
k	0.20	0.35	0.008	1.378
H	0.18	0.25	0.007	0.984

Order Information

Device	Package	Marking	Carrier	Quantity
GSEPP5U006	DFN2020-6	534P	Tape & Reel	3,000pcs / Reel