



## 4-Line Ultra Low Capacitance TVS Diode Array

### Features

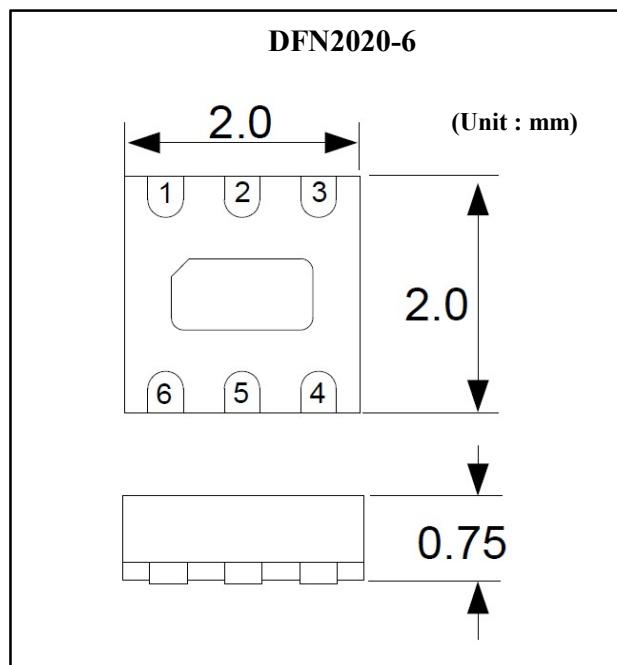
- Ultra low capacitance : 0.3pF typical (I/O to I/O)
- Ultra low leakage : nA level
- Operating voltage : 5V
- Low clamping voltage
- Up to 4 lines and one power line protects
- Complies with following standards :
  - IEC 61000-4-2(ESD) immunity test  
Air discharge :  $\pm 25\text{kV}$ , Contact discharge :  $\pm 20\text{kV}$
  - IEC61000-4-5(Lightning) 5A (8/20us)
- RoHS Compliant

### Mechanical Data

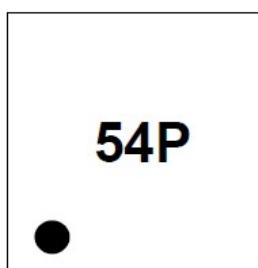
- Package : DFN2020-6
- Lead Finish : NiPdAu
- Case Material : "Green" Molding Compound.
- Moisture Sensitivity : Level 3 per J-STD-020
- Terminal Connections : See Diagram Below
- Marking Information: See Below

### Applications

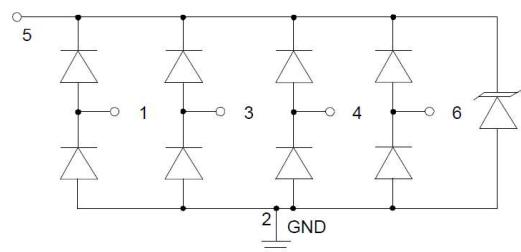
- USB 2.0 and USB OTG
- Multi Media Card Interfaces
- SD Card Interfaces
- MDDI Ports
- SIM Ports



### Marking and Circuit



54P=Device Marking Code  
Dot denotes Pin1



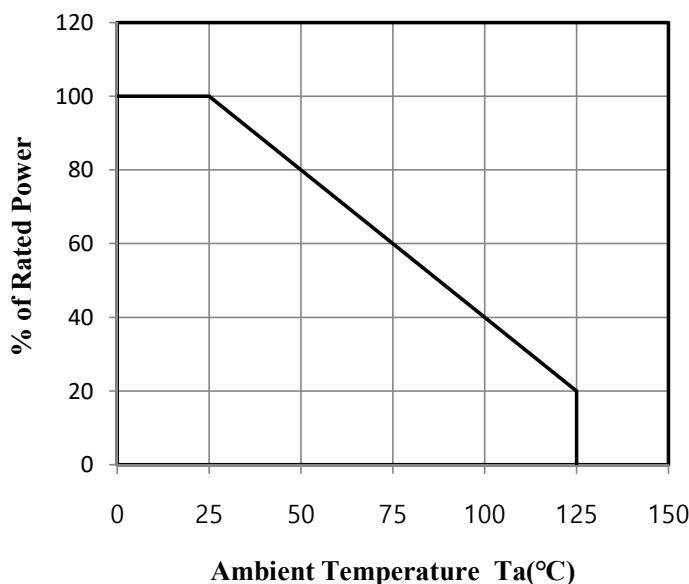
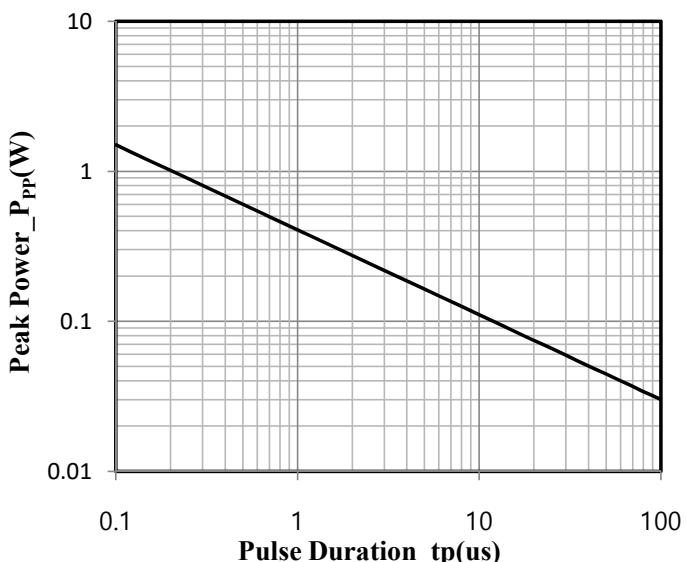
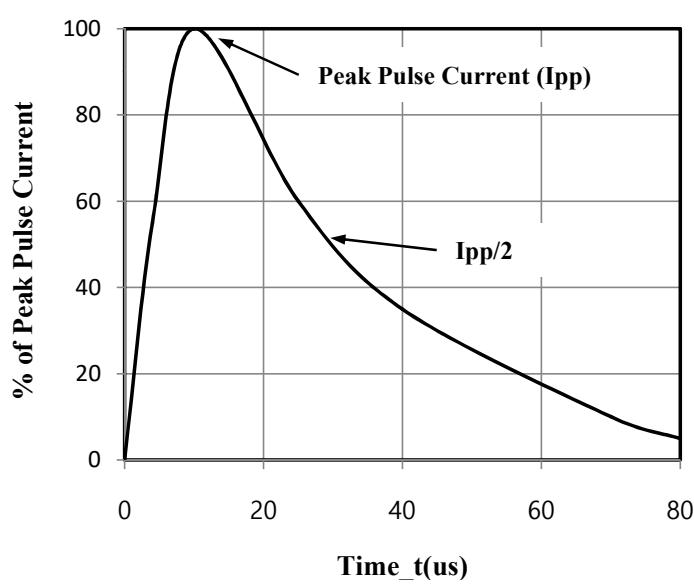
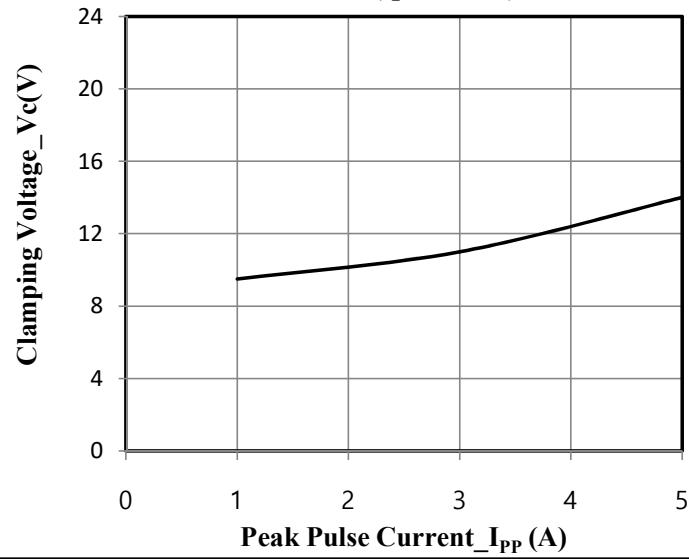
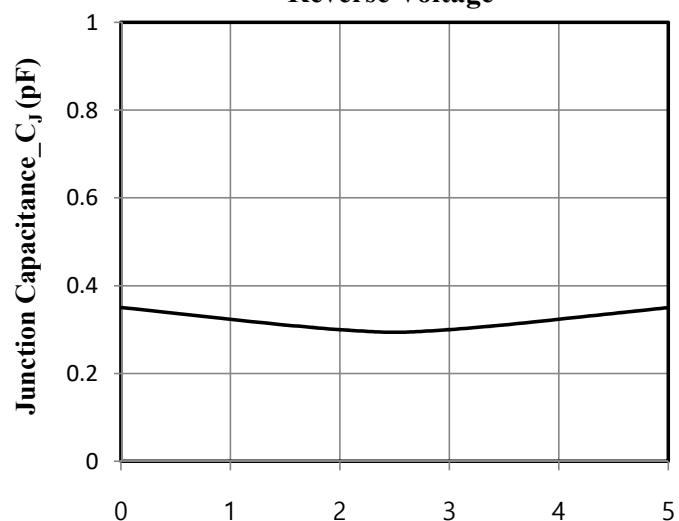
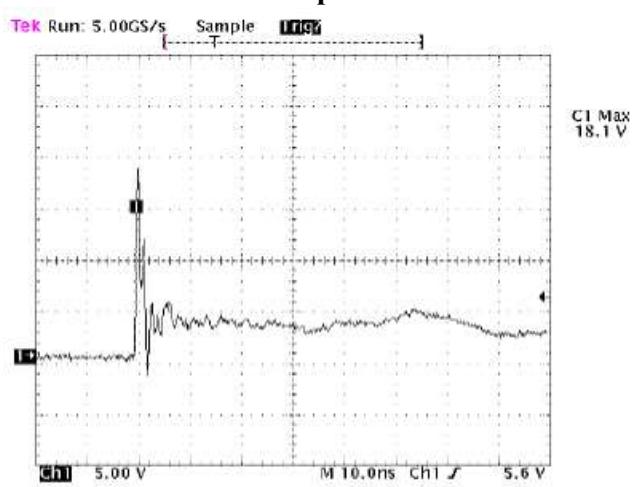
Circuit Diagram

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

| Parameter  | Symbol           | Value                | Unit |
|--|------------------|----------------------|------|
| Peak Pulse Power (8/20us)                                      | Ppk              | 75                   | W    |
| Peak Pulse Current (8/20us)                                    | I <sub>PP</sub>  | 5.0                  | A    |
| ESD per IEC 61000-4-2 (Air)<br>ESD per IEC 61000-4-2 (Contact) | V <sub>ESD</sub> | $\pm 25$<br>$\pm 20$ | kV   |
| Operating Junction Temperature Range                           | T <sub>J</sub>   | -55 to +125          | °C   |
| Storage Temperature Range                                      | T <sub>STG</sub> | -55 to +150          | °C   |

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

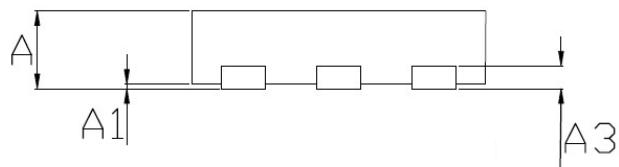
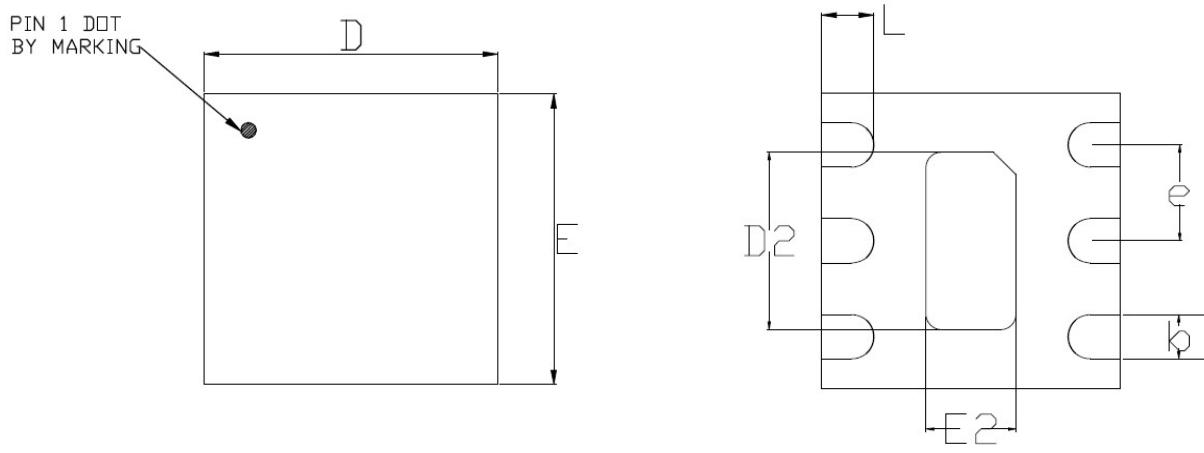
| Characteristic                  | Symbol           | Min. | Typ. | Max. | Unit | Test Condition                                    |
|---------------------------------|------------------|------|------|------|------|---|
| Reverse Working Voltage         | V <sub>RWM</sub> | -    | -    | 5.0  | V    | Pin 6 to ground                                   |
| Breakdown Voltage               | V <sub>BR</sub>  | 6.0  | -    | -    | V    | I <sub>T</sub> = 1mA, pin 6 to ground             |
| Reverse Leakage Current         | I <sub>R</sub>   | -    | -    | 0.5  | uA   | V <sub>RWM</sub> = 5V, pin 6 to ground            |
| Clamping Voltage (8/20us pulse) | V <sub>C</sub>   | -    | -    | 10   | V    | I <sub>PP</sub> =1A, any I/O pin to ground        |
|                                 | V <sub>C</sub>   | -    | -    | 15   | V    | I <sub>PP</sub> =5A,any I/O pin to ground         |
| Junction Capacitance            | C <sub>J</sub>   | -    | -    | 0.5  | pF   | f=1MHz, V <sub>R</sub> =0V, between I/O pins      |
|                                 | C <sub>J</sub>   | -    | -    | 0.8  | pF   | f=1MHz, V <sub>R</sub> =0V, any I/O pin to ground |

**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 8 × 20us Pulse Waveform**

**Fig.5 Clamping Voltage vs. Peak Pulse Current (tp=8/20us)**

**Fig.4 Junction Capacitance vs. Reverse Voltage**

**Fig. 6 ESD Clamping Voltage 8kV Contact per IEC61000-**


Note: Data is taken with a 10x attenuator

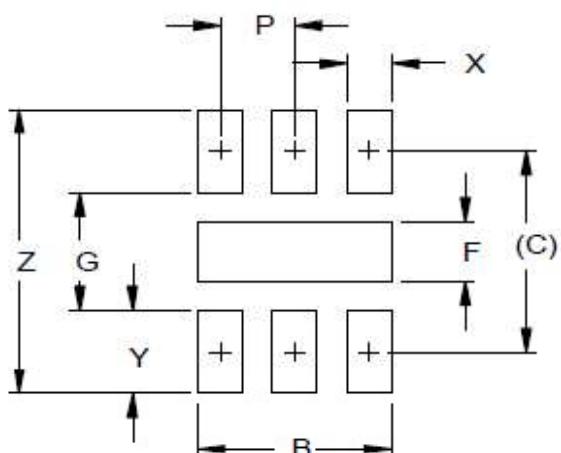


### DFN2020-6 Package Outline Drawing



| COMMON DIMENSIONS(MM) |                    |      |      |
|-----------------------|--------------------|------|------|
| PKG                   | W : VERY VERY THIN |      |      |
| REF                   | MIN.               | NOM. | MAX. |
| A                     | 0.70               | 0.75 | 0.80 |
| A1                    | 0.00               | -    | 0.05 |
| A3                    | 0.20 REF.          |      |      |
| D                     | 1.95               | 2.00 | 2.05 |
| E                     | 1.95               | 2.00 | 2.05 |
| D2                    | 1.05               | 1.20 | 1.30 |
| E2                    | 0.45               | 0.60 | 0.70 |
| b                     | 0.25               | 0.30 | 0.35 |
| L                     | 0.25               | 0.35 | 0.45 |
| e                     | 0.65 BSC           |      |      |

### Suggested Land Pattern



| DIMENSIONS |        |             |
|------------|--------|-------------|
| DIM        | INCHES | MILLIMETERS |
| B          | 0.065  | 1.65        |
| C          | 0.070  | 1.95        |
| P          | 0.026  | 0.65        |
| F          | 0.034  | 0.86        |
| G          | 0.049  | 1.25        |
| X          | 0.014  | 0.35        |
| Y          | 0.026  | 0.65        |
| Z          | 0.100  | 2.55        |