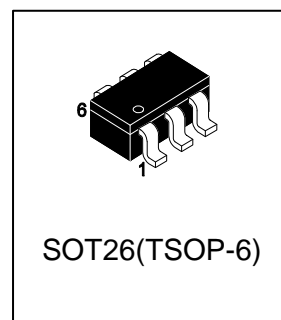


## 4-CHANNEL LOW CAPACITANCE ESD PROTECTION DIODES ARRAY

### DESCRIPTIONS

The LSRV04W-4AT1G is a 4-channel ultra low capacitance rail clamp ESD protection diodes array. Each channel consists of a pair of ESD diodes that steer positive or negative ESD current to either the positive or negative rail. A zener diode is integrated in to the array between the positive and negative supply rails. In the typical applications, the negative rail pin (assigned as GND) is connected with system ground. The Positive ESD current is steered to the ground through an ESD diode and Zener diode and the positive ESD voltage is clamped to the zener voltage. The LSRV04W-4AT1G is idea to protect high speed data lines. Three package type is provided for easy PCB layout.

### LSRV04W-4AT1G



### FEATURES

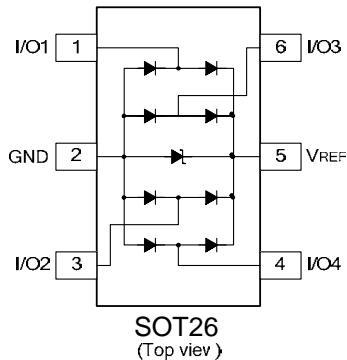
- \* 4 channels of ESD protection;
- \* Provides ESD protection to IEC61000-4-2 level 4
  - $\pm 30$ kV air discharge
  - $\pm 30$ kV contact discharge;
- \* Channel I/O to GND capacitance: 1.5pF(Max)
- \* Channel I/O to I/O capacitance: 0.8pF(Max)
- \* Low clamping voltage;
- \* Low operating voltage;
- \* Improved zener structure;
- \* Optimized package for easy high speed data lines PCB layout;
- \* RoHS compliant.

### APPLICATIONS

- \* HDMI / DVI ports;
- \* Display Port interface;
- \* 10M / 100M / 1G Ethernet;
- \* USB 2.0 interface;
- \* VGA interface
- \* Set-top box;
- \* Flat panel Monitors / TVs;
- \* PC / Note book

### ORDERING INFORMATION

| Part No.      | Marking | Material     | Shipping       |
|---------------|---------|--------------|----------------|
| LSRV04W-4AT1G | 24G     | Halogen Free | 3000/Tape&Reel |

**PIN CONFIGURATION**

**ABSOLUTE MAXIMUM RATINGS**

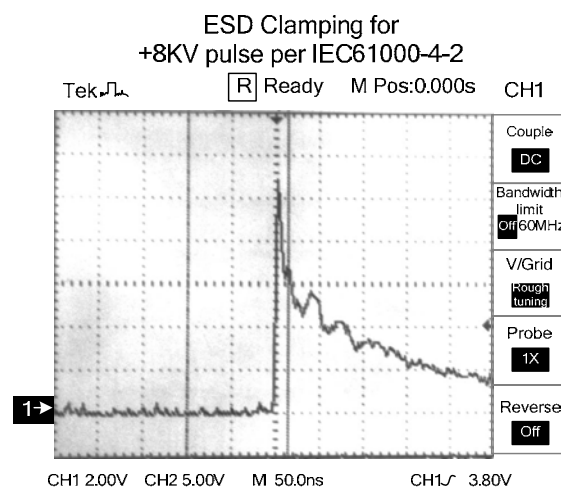
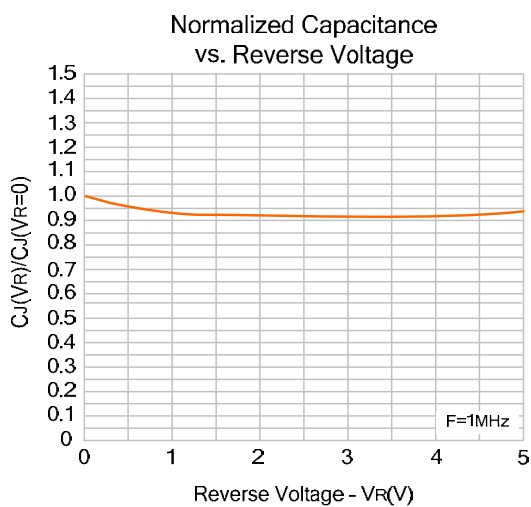
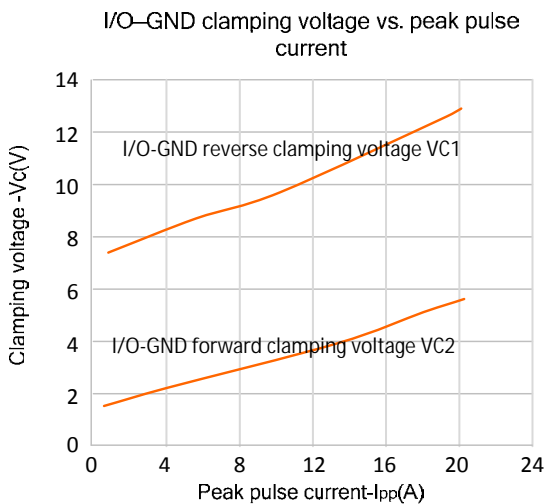
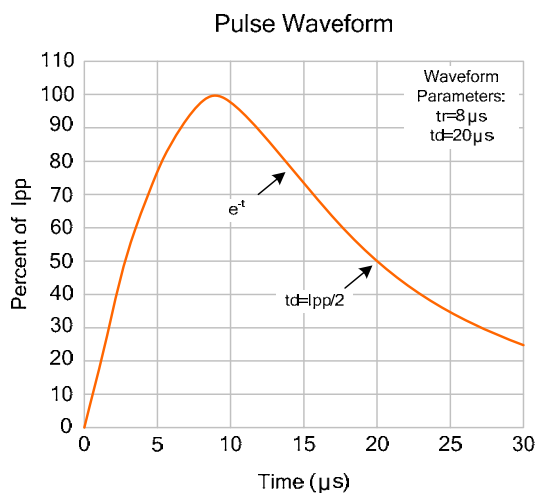
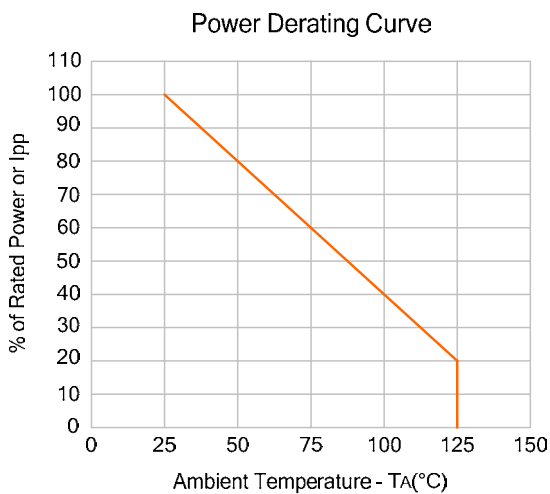
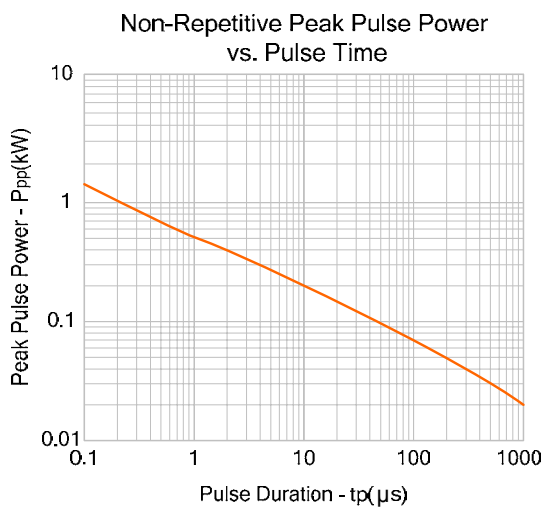
| Characteristics                                     | Symbol         | Ratings    | Unit        |
|---|----------------|------------|-------------|
| Peak Pulse Current(8/20 $\mu$ s for any I/O-to-GND) | $I_{PP}$       | 20         | A           |
| ESD per IEC 61000-4-2(Air)                          | $V_{ESD1}$     | $\pm 30$   | kV          |
| ESD per IEC 61000-4-2(Contact)                      | $V_{ESD2}$     | $\pm 30$   | kV          |
| Operating Temperature Range                         | $T_{opr}$      | -55 ~ +125 | $^{\circ}C$ |
| Junction and Storage Temperature Range              | $T_j, T_{stg}$ | -55 ~ +150 | $^{\circ}C$ |

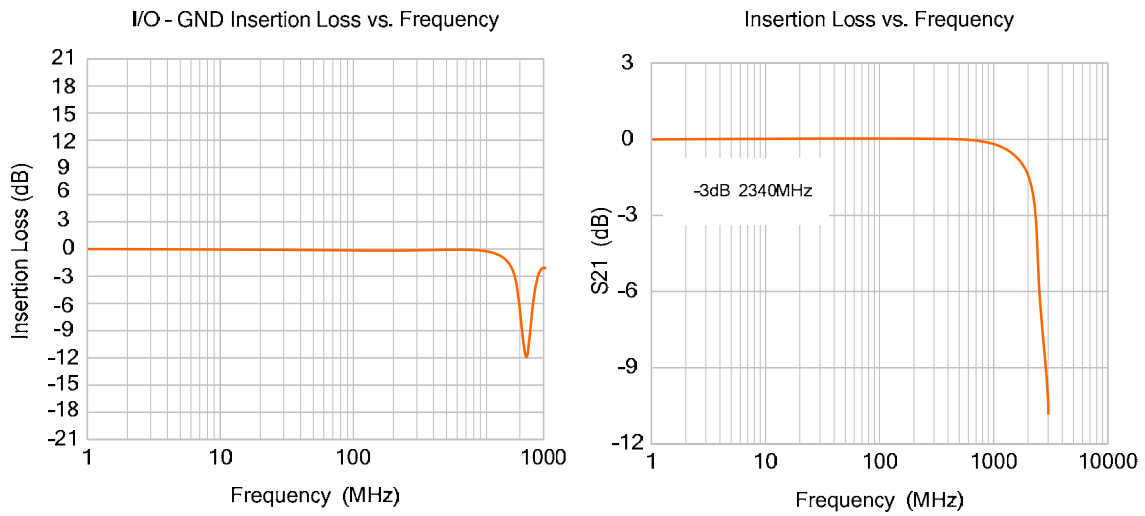
**ELECTRICAL CHARACTERISTICS**( $T_{amb}=25^{\circ}C$ )

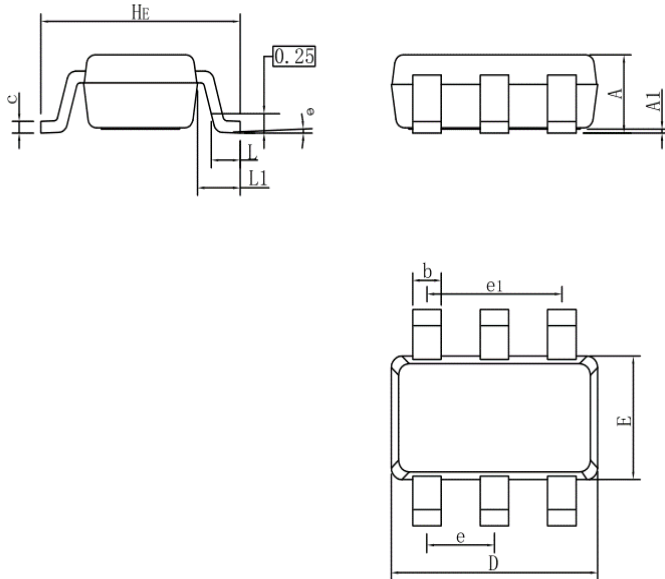
| Characteristics                          | Symbol    | Test Conditions  | Min. | Typ. | Max. | Unit    |
|--|-----------|--|------|------|------|---------|
| Reverse Working Voltage                  | $V_{RWM}$ | Any I/O pin to GND   |      |      | 3.3  | V       |
| Reverse Breakdown Voltage                | $V_{BR}$  | $I_t=1mA$ ;<br>Any I/O pin to GND                                      | 5.6  |      |      | V       |
| Reverse Leakage Current                  | $I_R$     | $V_{RWM}=3.3V, T=25^{\circ}C$ ;<br>Any I/O pin to GND                  |      |      | 1    | $\mu A$ |
| Positive Clamping Voltage                | $V_{C1}$  | $I_{PP}=1A, t_p=8/20\mu s$ ;<br>Positive pulse;<br>Any I/O pin to GND  |      | 8.5  | 12.0 | V       |
| Positive Clamping Voltage                | $V_{C1}$  | $I_{PP}=20A, t_p=8/20\mu s$ ;<br>Positive pulse;<br>Any I/O pin to GND |      | 13   | 16   | V       |
| Negative Clamping Voltage                | $V_{C2}$  | $I_{PP}=1A, t_p=8/20\mu s$ ;<br>Negative pulse;<br>Any I/O pin to GND  |      | 1.8  |      | V       |
| Negative Clamping Voltage                | $V_{C2}$  | $I_{PP}=20A, t_p=8/20\mu s$ ;<br>Negative pulse;<br>Any I/O pin to GND |      | 6    | 8    | V       |
| Junction Capacitance Between Channel     | $C_{J1}$  | $V_R=0V, f=1MHz$ ;<br>Between I/O pins                                 |      | 0.8  | 1.0  | pF      |
| Junction Capacitance Between I/O And GND | $C_{J2}$  | $V_R=0V, f=1MHz$ ;<br>Any I/O pin to GND                               |      | 1.5  | 2.0  | pF      |

LSRV04W-4AT1G

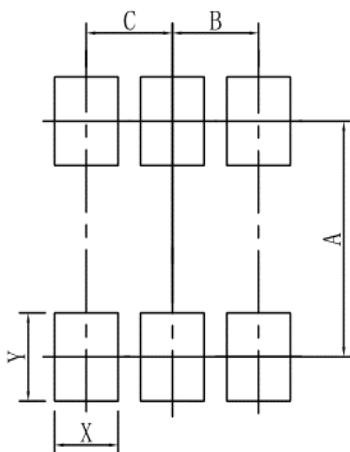
TYPICAL ELECTRICAL CHARACTERISTICS CURVE



**LSRV04W-4AT1G****TYPICAL ELECTRICAL CHARACTERISTICS CURVE**

**LSRV04W-4AT1G**
**OUTLINE AND DIMENSIONS**


| SOT26    |         |      |      |
|----------|---------|------|------|
| DIM      | MIN     | NOR  | MAX  |
| A        | 0.90    | 1.00 | 1.10 |
| A1       | 0.01    | 0.06 | 0.10 |
| b        | 0.30    | 0.40 | 0.50 |
| c        | 0.10    | 0.17 | 0.20 |
| D        | 2.80    | 2.90 | 3.00 |
| E        | 1.50    | 1.60 | 1.70 |
| e        | 0.85    | 0.95 | 1.05 |
| e1       | 1.80    | 1.90 | 2.00 |
| L        | 0.20    | 0.40 | 0.60 |
| L1       | 0.60REF |      |      |
| HE       | 2.60    | 2.80 | 3.00 |
| $\theta$ | 0°      | -    | 10°  |

**SOLDERING FOOTPRINT**


| SOT26 |      |
|-------|------|
| DIM   | (mm) |
| X     | 0.70 |
| Y     | 0.90 |
| A     | 2.40 |
| B     | 0.95 |
| C     | 0.95 |

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