

## Features

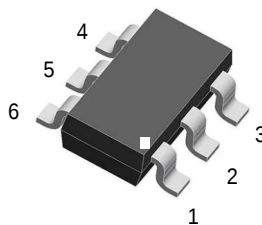
Ultra low capacitance: 0.6pF typical (I/O-GND)  
Ultra low leakage: nA level  
Low operating voltage: 5.0V  
Up to 4 data lines and one power line protects  
Low clamping voltage  
Complies with following standards:  
– IEC 61000-4-2 (ESD) immunity test  
Air :  $\pm 20\text{kV}$ ; discharge:  $\pm 15\text{kV}$   
– IEC61000-4-5 (Lightning) 4.5A (8/20 $\mu\text{s}$ )  
SOT23-6 Package  
RoHS Compliant

UL26

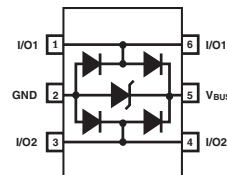
## Applications

Monitors and flat panel displays  
Set-top box and Digital TV  
Video graphics cards  
Digital Video Interface (DVI)  
Notebook Computers  
PCI Express and Serial SATA Ports

## SOT 23-6L Pin Configurations



## Equivalent Circuit



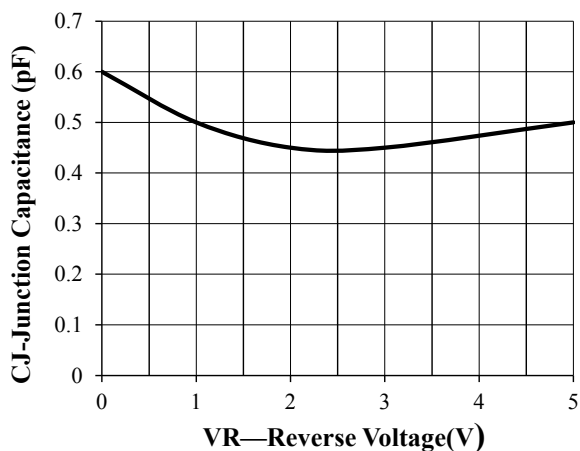
## Absolute Maximum Ratings ( $T_A=25^\circ\text{C}$ unless otherwise specified)

| Parameter                                         | Symbol                       | Value       | Unit             |
|---------------------------------------------------|------------------------------|-------------|------------------|
| Peak Pulse Power (8/20 $\mu\text{s}$ , I/O-GND)   | Ppk                          | 60          | W                |
| Peak Pulse Power (8/20 $\mu\text{s}$ , Vcc-GND)   | Ppk                          | 300         | W                |
| Peak Pulse Current (8/20 $\mu\text{s}$ , I/O-GND) | IPP                          | 4.5         | A                |
| Peak Pulse Current (8/20 $\mu\text{s}$ , Vcc-GND) | IPP                          | 17          | A                |
| ESD per IEC 61000-4-2 (Air)                       | $V_{\text{ESD}, \text{VDD}}$ | $\pm 20$    | kV               |
| ESD per IEC 61000-4-2 (Contact)                   | $V_{\text{ESD}, \text{I/O}}$ | $\pm 15$    | kV               |
| Operating Temperature Range                       | TJ                           | -55 to +125 | $^\circ\text{C}$ |
| Storage Temperature Range                         | Tstg                         | -55 to +150 | $^\circ\text{C}$ |

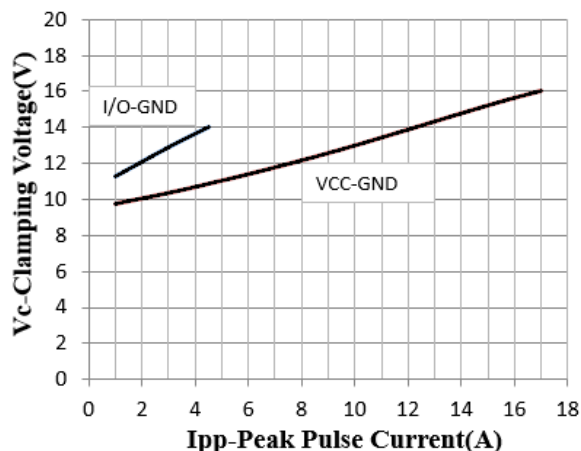
## Electrical Characteristics ( $T_a=25^{\circ}\text{C}$ unless otherwise noted)

| Parameter                 | Symbol    | Test Condition                                                       | Min | Typ  | Max  | Unit          |
|---------------------------|-----------|----------------------------------------------------------------------|-----|------|------|---------------|
| Reverse Working Voltage   | $V_{RWM}$ | Pin 5 to GND, I/O-GND                                                |     |      | 5.0  | V             |
| Breakdown Voltage         | $V_{BR}$  | $I_T = 1\text{mA}$ (Pin 5 to GND, I/O-GND)                           | 6.0 | 7.5  | 8.5  | V             |
| Reverse Leakage Current   | $I_R$     | $V_{RWM} = 5.0\text{V}$                                              |     |      | 0.5  | $\mu\text{A}$ |
| Forward Breakdown Voltage | $V_F$     | $I_F = 15\text{mA}$ , GND to Pin 5/IO                                |     | 0.8  | 1.0  | V             |
| Clamping Voltage          | $V_C$     | $I_{PP} = 4.5\text{A}$ (8 x 20 $\mu\text{s}$ pulse, I/O to GND)      |     | 14.0 | 15.0 | V             |
| Clamping Voltage          | $V_C$     | $I_{PP} = 17\text{A}$ (8 x 20 $\mu\text{s}$ pulse, Pin 5 to GND)     |     | 16.0 | 18.0 | V             |
| Junction Capacitance      | $C_J$     | $V_{pin5} = 5\text{V}$ , I/O=0V,<br>$f = 1\text{MHz}$ , I/O-GND      |     | 0.6  | 0.7  | pF            |
| Junction Capacitance      | $C_J$     | $V_{pin5} = 5\text{V}$ , I/O=0V,<br>$f = 1\text{MHz}$ , I/O-I/O pins |     | 0.3  | 0.4  | pF            |

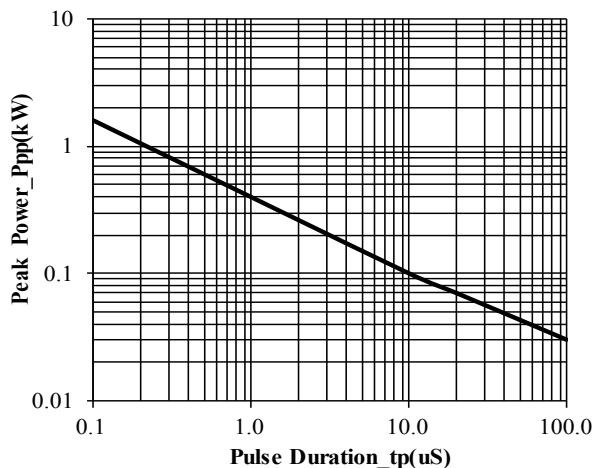
RATING AND CHARACTERISTIC CURVES



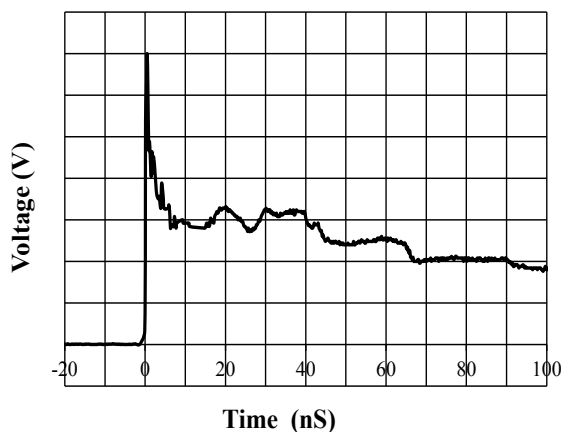
Junction Capacitance vs. Reverse Voltage



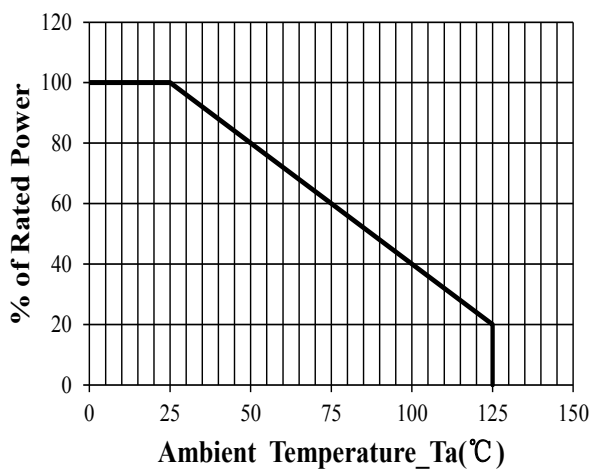
Clamping Voltage vs. Peak Pulse Current



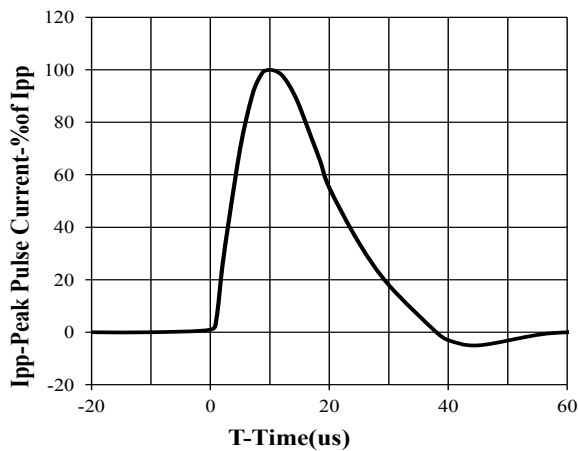
Peak Pulse Power vs. Pulse Time



IEC61000-4-2 Pulse Waveform



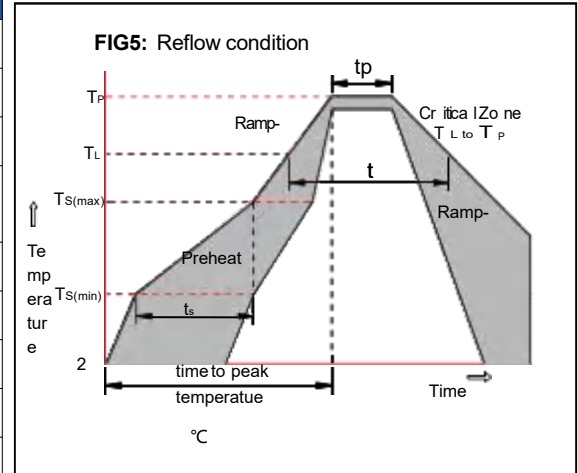
Power Derating Curve



8 X 20us Pulse Waveform

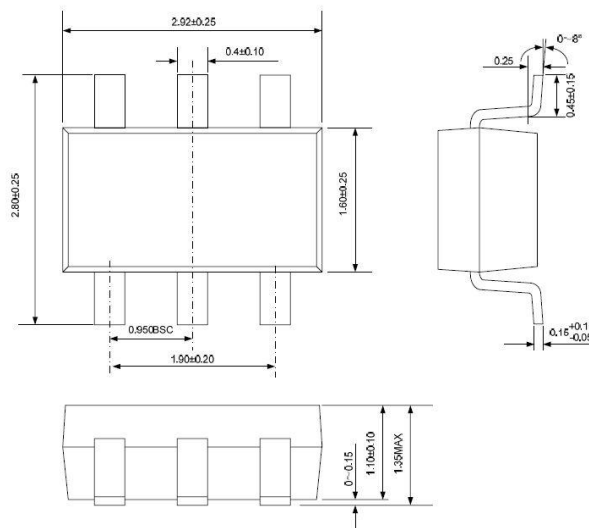
## Soldering parameters

| Reflow Condition                                        |                                   | Pb-Free assembly<br>(see as below) |
|---------------------------------------------------------|-----------------------------------|------------------------------------|
| Pre Heat                                                | -Temperature Min ( $T_{s(min)}$ ) | +150 °C                            |
|                                                         | -Temperature Max ( $T_{s(max)}$ ) | +200 °C                            |
|                                                         | -Time (Min to Max) (ts)           | 60-180 secs.                       |
| Average ramp up rate (Liquid us Temp ( $T_L$ ) to peak) |                                   | 3 °C/sec. Max                      |
| $T_{s(max)}$ to $T_L$ - Ramp-up Rate                    |                                   | 3 °C/sec. Max                      |
| Reflow                                                  | -Temperature( $T_L$ )(Liquid us)  | +217 °C                            |
|                                                         | -Temperature( $t_L$ )             | 60-150 secs.                       |
| Peak Temp ( $T_P$ )                                     |                                   | +260(+0/-5) °C                     |
| Time within 5 °C of actual Peak Temp ( $t_P$ )          |                                   | 30 secs. Max                       |
| Ramp-down Rate                                          |                                   | 6 °C/sec. Max                      |
| Time 25 °C to Peak Temp ( $T_P$ )                       |                                   | 8 min. Max                         |
| Do not exceed                                           |                                   | +260 °C                            |



## Package Dimensions & Suggested Pad Layout

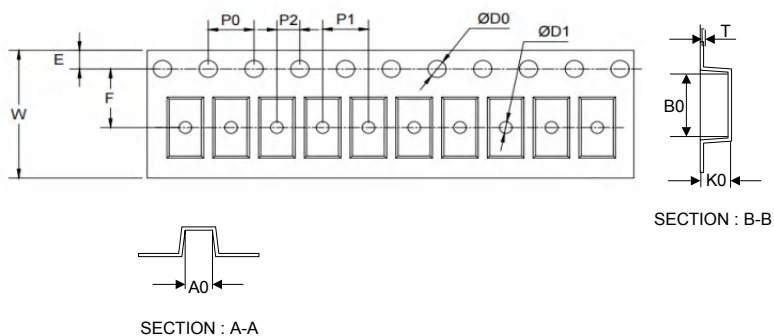
### SOT23-6L



Dimensions in millimeters

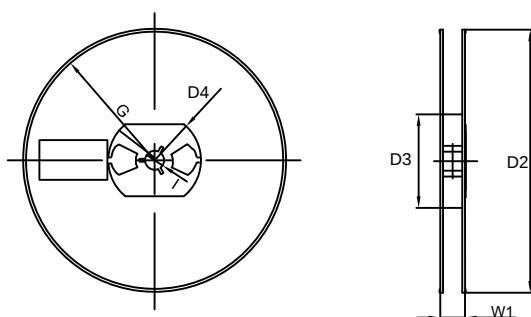
## Tape & reel specification

### Tape



| Symbol | Dimension (mm) |
|--------|----------------|
| P0     | 4.00±0.20      |
| P1     | 4.00±0.20      |
| P2     | 2.00±0.20      |
| D0     | 1.55±0.20      |
| D1     | 1.20±0.20      |
| E      | 1.55±0.20      |
| F      | 3.60±0.20      |
| W      | 8.00±0.20      |
| A0     | 3.80±0.20      |
| B0     | 3.50±0.20      |
| K0     | 1.55±0.20      |
| T      | 0.25±0.15      |
| D2     | 178.0±5.0      |
| D3     | 55Min.         |
| D4     | R24.0±3.0      |
| G      | R82.0±3.0      |
| I      | 13.0±2.0       |
| W1     | 11.0±3.0       |

### 7" Reel



Quantity: 3000PCS