

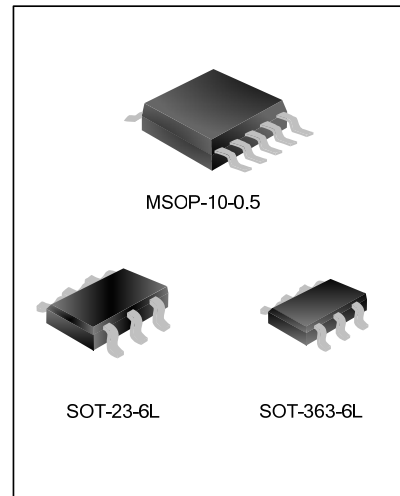
4-CHANNEL LOW CAPACITANCE ESD PROTECTION DIODES ARRAY

DESCRIPTIONS

The SU0524 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 SU0524 is idea to protect high speed data lines. Three package type is provided for easy PCB layout.



FEATURES

- * 4 channels of ESD protection;
- * Provides ESD protection to IEC61000-4-2 level 4
 - ± 17 kV air discharge
 - ± 12 kV contact discharge;
- * Channel I/O to GND capacitance: 0.9pF(Max)
- * Channel I/O to I/O capacitance: 0.45pF(Max)
- * Low clamping voltage;
- * 5V low operating voltage;
- * Improved zener structure;
- * Optimized package for easy high speed data lines PCB layout;
- * RoHS compliant.

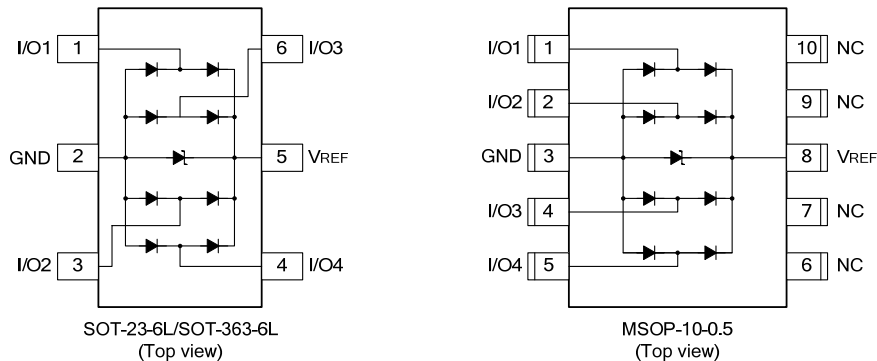
APPLICATIONS

- * 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. | Package | Marking | Material | Packing |
|-------------|-------------|---------|--------------|-----------|
| SU0524A6GTR | SOT-23-6L | C96 | Halogen free | Tape&Reel |
| SU0524B6GTR | SOT-363-6L | C07 | Halogen free | Tape&Reel |
| SU0524LTR | MSOP-10-0.5 | SU0524L | Pb free | Tape&Reel |

PIN CONFIGURATION



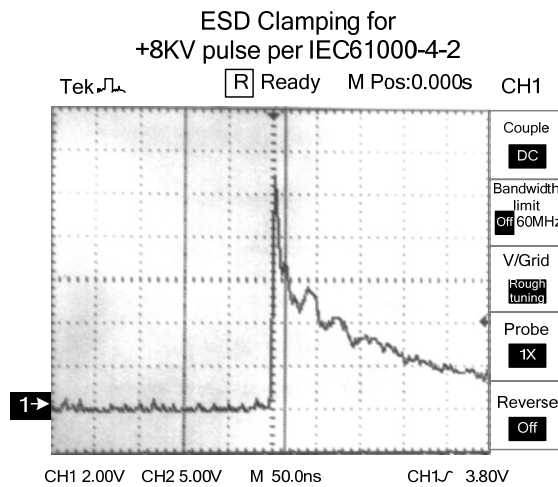
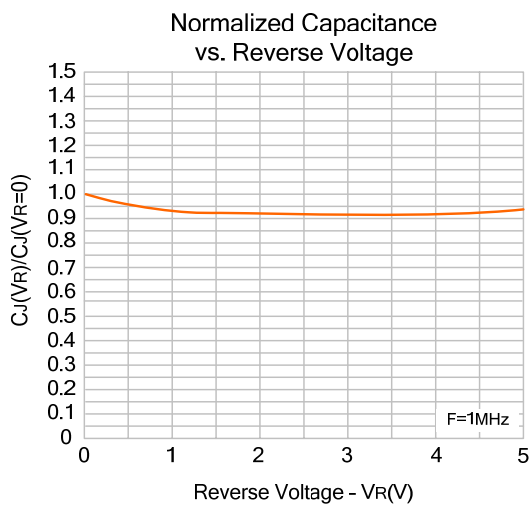
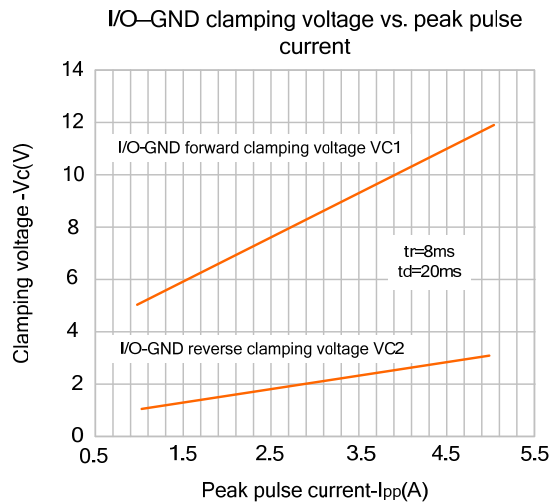
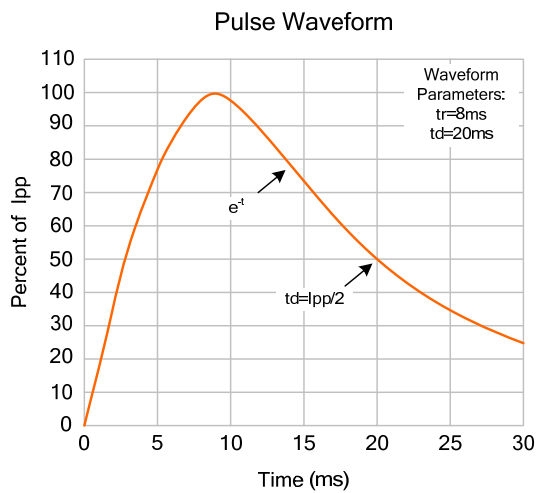
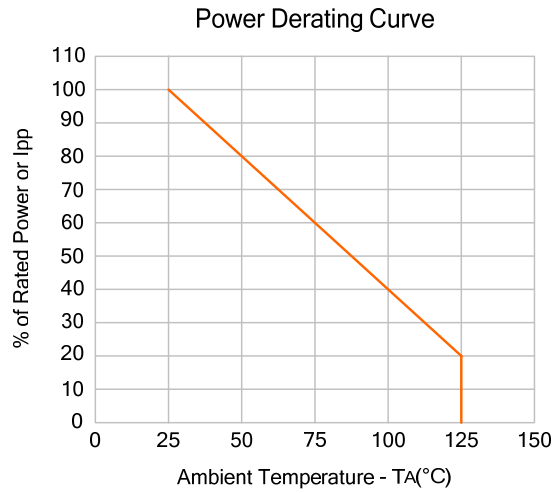
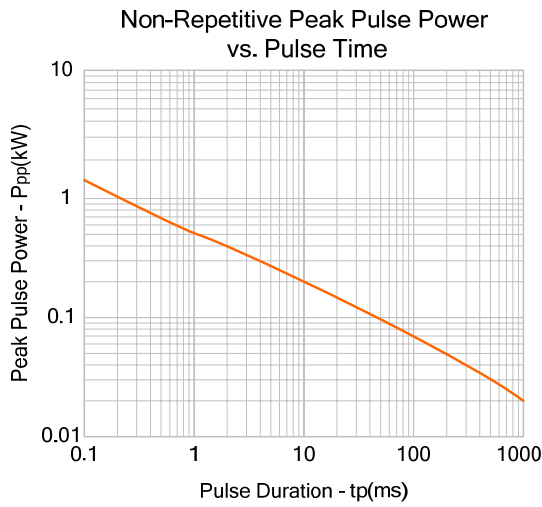
ABSOLUTE MAXIMUM RATINGS

| Characteristics | Symbol | Ratings | Unit |
|----------------------------------|-------------------|------------|--------------|
| Peak Pulse Power(8/20 μ s) | P _{PP} | 150 | W |
| Peak Pulse Current(8/20 μ s) | I _{PP} | 5 | A |
| ESD per IEC 61000-4-2(Air) | V _{ESD1} | ± 17 | kV |
| ESD per IEC 61000-4-2(Contact) | V _{ESD2} | ± 12 | kV |
| Operating Temperature Range | T _{opr} | -55 ~ +125 | $^{\circ}$ C |
| Storage Temperature Range | T _{stg} | -55 ~ +150 | $^{\circ}$ C |

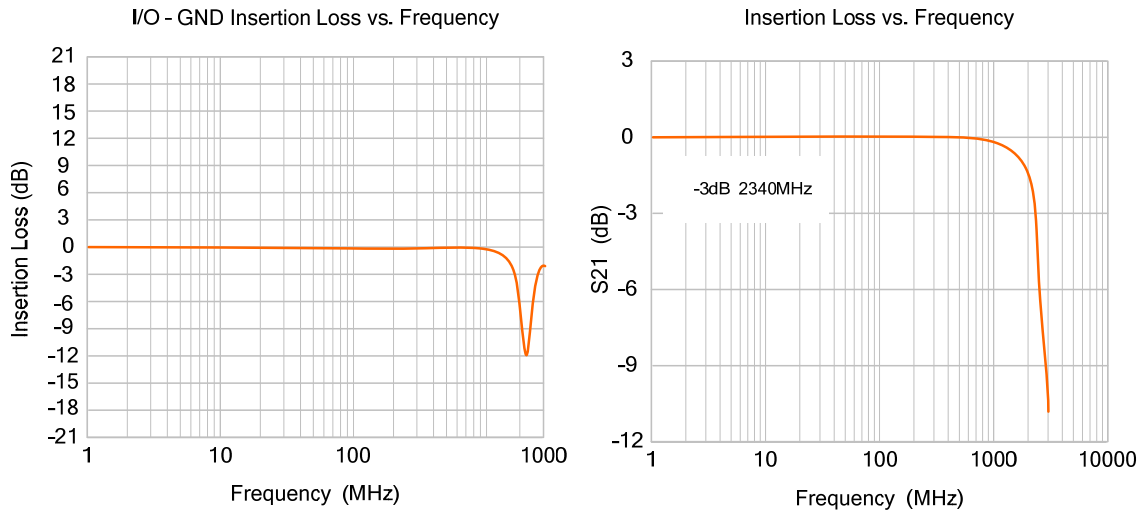
ELECTRICAL CHARACTERISTICS(T_{amb}=25 $^{\circ}$ C)

| Characteristics | Symbol | Test Conditions | Min. | Typ. | Max. | Unit |
|--|------------------|---|------|------|------|---------|
| Reverse Working Voltage | V _{RWM} | Any I/O pin to GND | -- | -- | 5 | V |
| Reverse Breakdown Voltage | V _{BR} | I _t =1mA; Any I/O pin to GND | 6 | -- | -- | V |
| Reverse Leakage Current | I _R | V _{RWM} =5V, T=25 $^{\circ}$ C; Any I/O pin to GND | -- | -- | 1 | μ A |
| Positive Clamping Voltage | V _{C1} | I _{PP} =1A, t _p =8/20Ms; Positive pulse; Any I/O pin to GND | -- | 8.5 | 12.0 | V |
| Negative Clamping Voltage | V _{C2} | I _{PP} =1A, t _p =8/20 μ S; Negative pulse; Any I/O pin to GND | -- | 1.8 | -- | V |
| Junction Capacitance Between Channel | C _{J1} | V _R =0V, f=1MHz; Between I/O pins | -- | 0.35 | 0.45 | pF |
| Junction Capacitance Between I/O And GND | C _{J2} | V _R =0V, f=1MHz; Any I/O pin to GND | -- | -- | 0.9 | pF |

TYPICAL ELECTRICAL CHARACTERISTICS CURVE

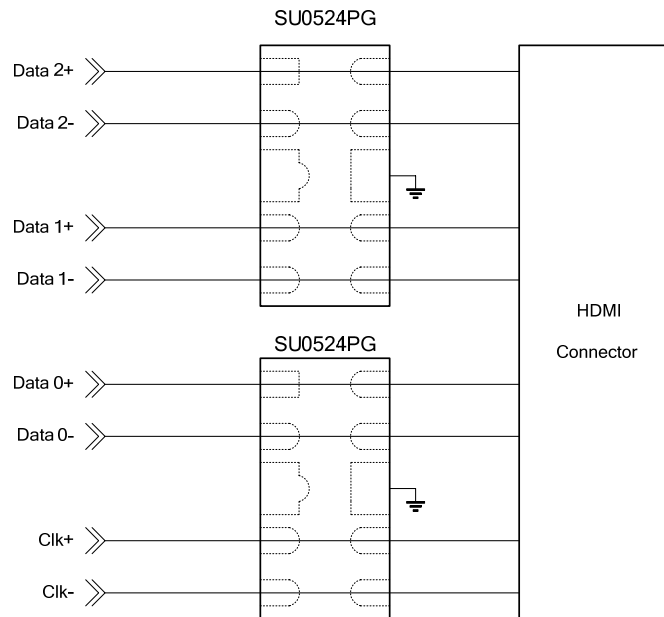


TYPICAL ELECTRICAL CHARACTERISTICS CURVE

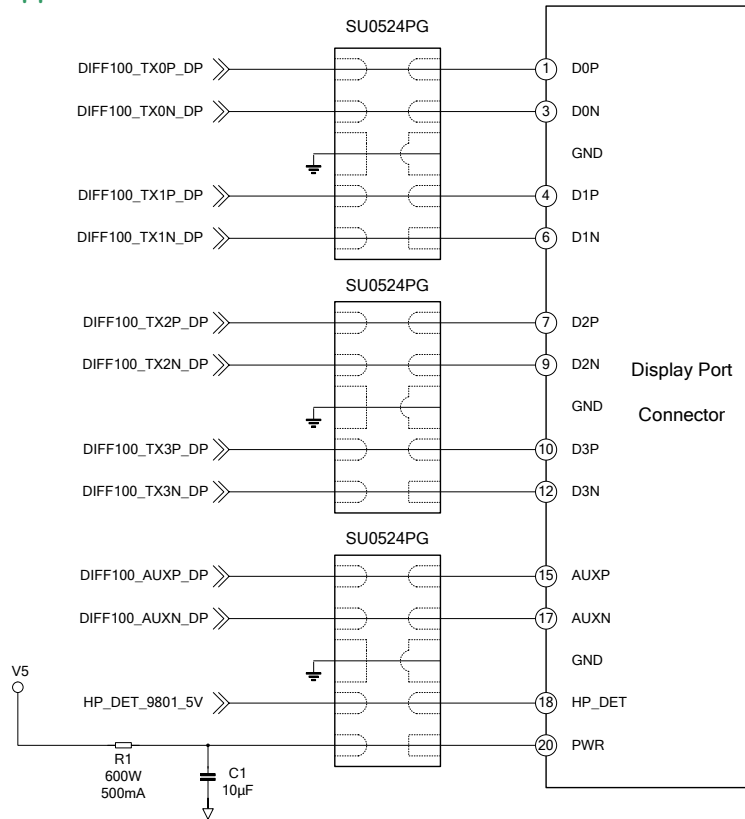


TYPICAL APPLICATIONS

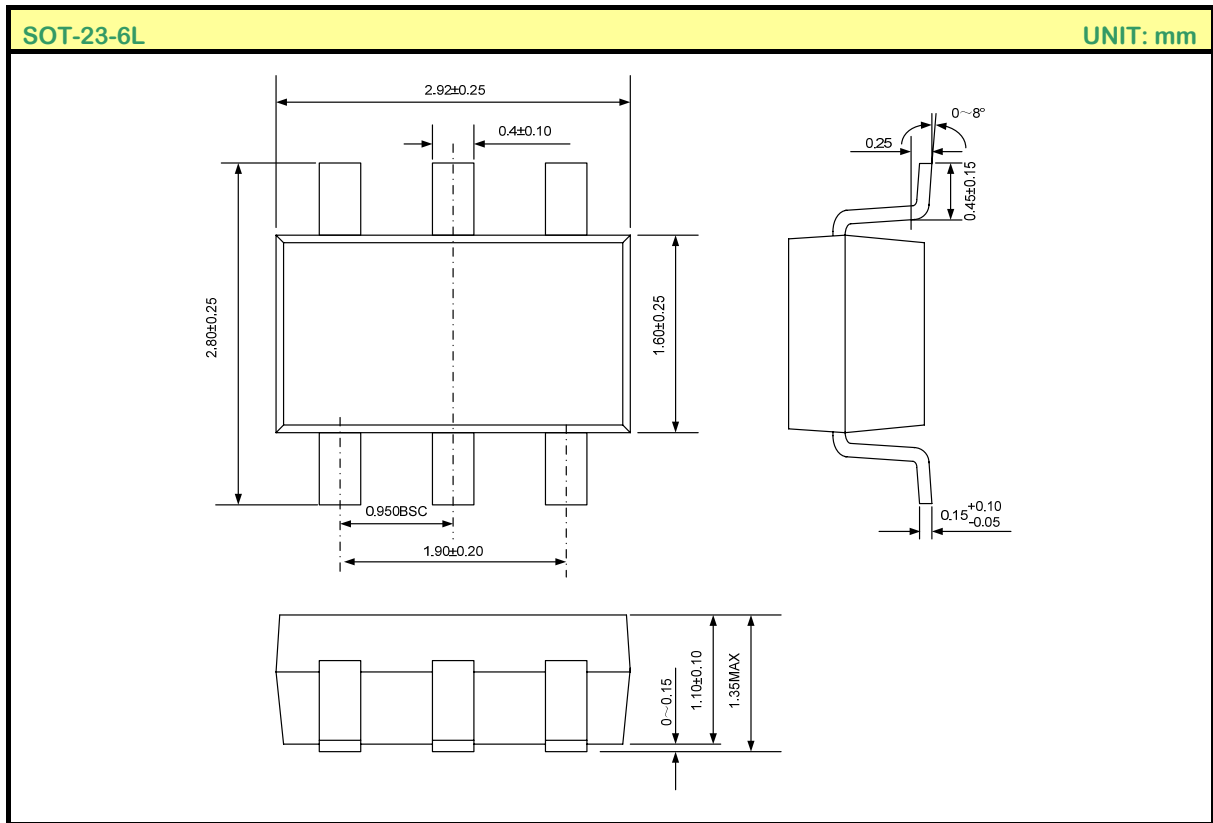
1. HDMI Port Application



2. Display Port Application



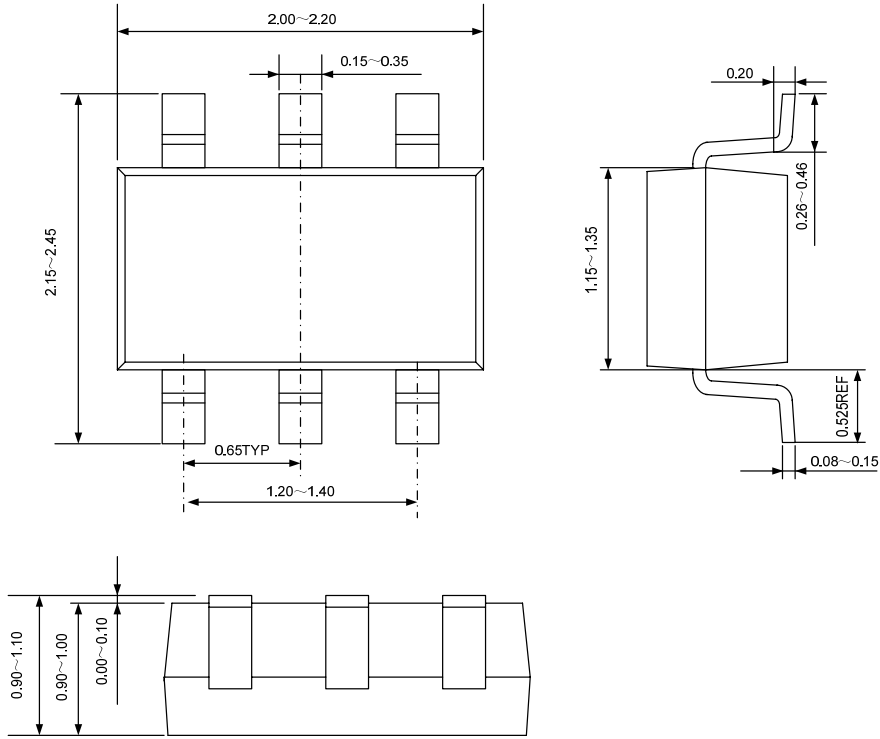
PACKAGE OUTLINE



PACKAGE OUTLINE (Continued)

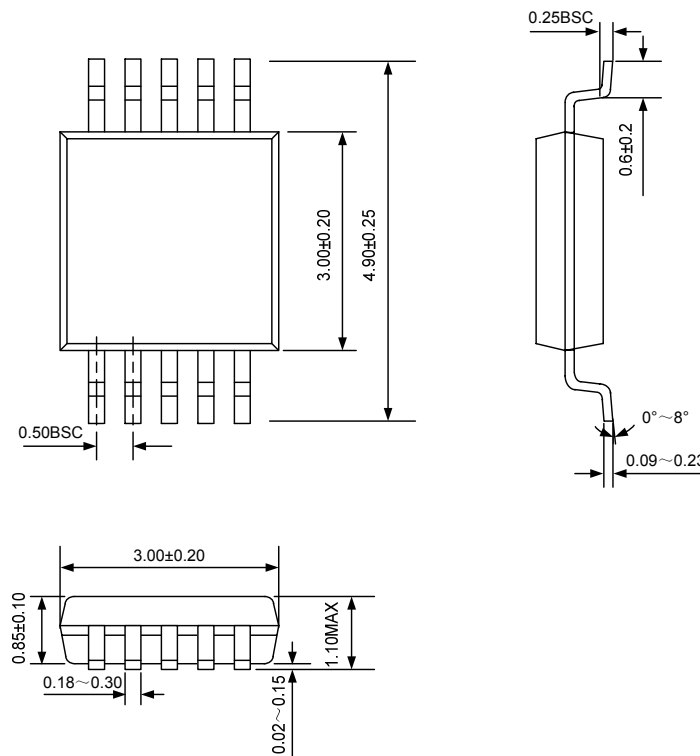
SOT-363-6L

UNIT: mm



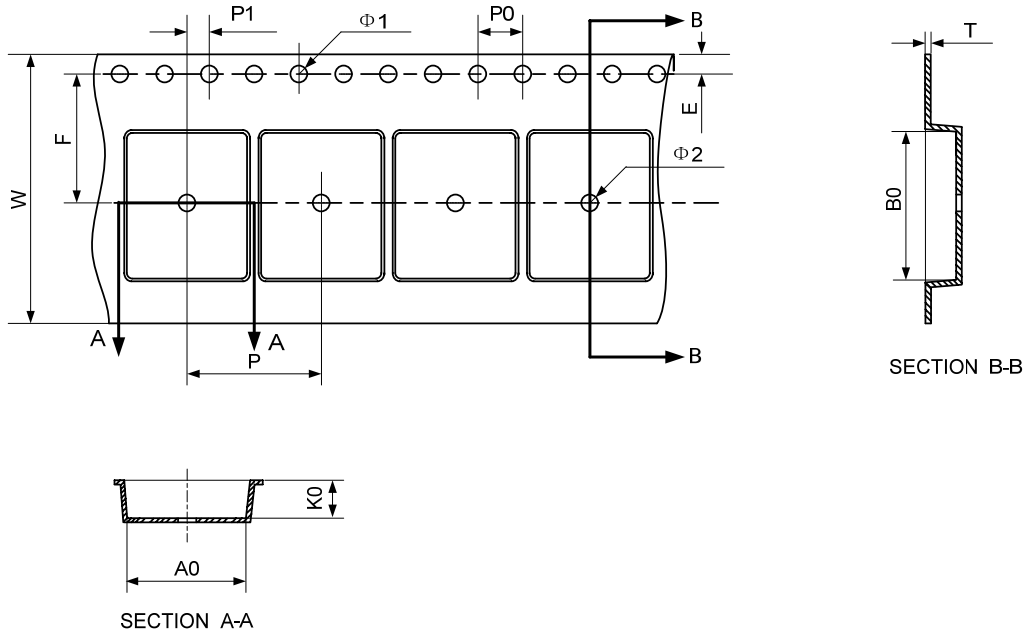
MSOP-10-0.5

UNIT: mm



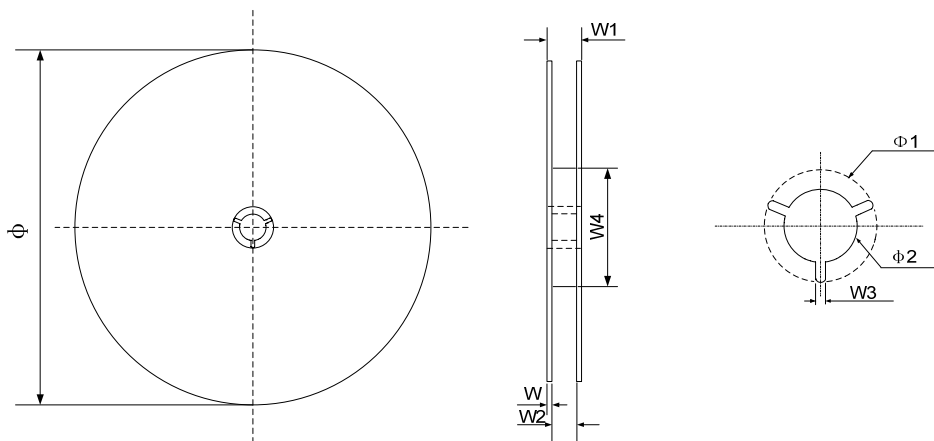
PACKING TYPE

Tape



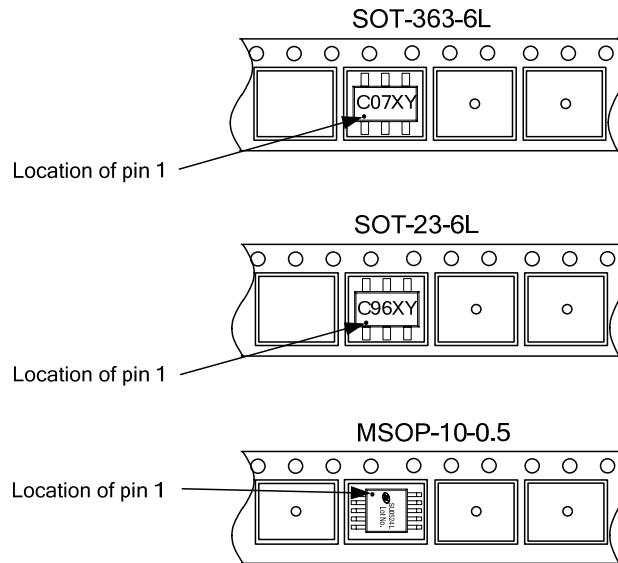
| Package | P0 | P1 | P | A0 | B0 | W | T | K0 | Φ1 | Φ2 | E | F |
|-------------|---------|----------|---------|-----------|----------|-------------------------------------|------------|----------|---------|------------------------------------|----------|-----------|
| SOT-23-6L | 4.0±0.1 | 2.0±0.1 | 4.0±0.1 | 3.17±0.1 | 3.23±0.1 | 8.0±0.3 | 0.25±0.02 | 1.37±0.1 | 1.50min | 1.00±0.25 | 1.75±0.1 | 3.50±0.10 |
| SOT-363-6L | 4.0±0.1 | 2.0±0.05 | 4.0±0.1 | 2.25±0.1 | 2.55±0.1 | 8.0 ^{+0.3} _{-0.1} | 0.254±0.02 | 1.20±0.1 | 1.50min | 1.0 ^{+0.25} ₋₀ | 1.75±0.1 | 3.50±0.05 |
| MSOP-10-0.5 | 4.0±0.1 | 2.0±0.1 | 8.0±0.1 | 5.15~5.40 | 3.40±0.1 | 12.0±0.3 | 0.30±0.05 | 1.40±0.1 | 1.50min | 1.40~1.75 | 1.75±0.1 | 5.50±0.10 |

Reel

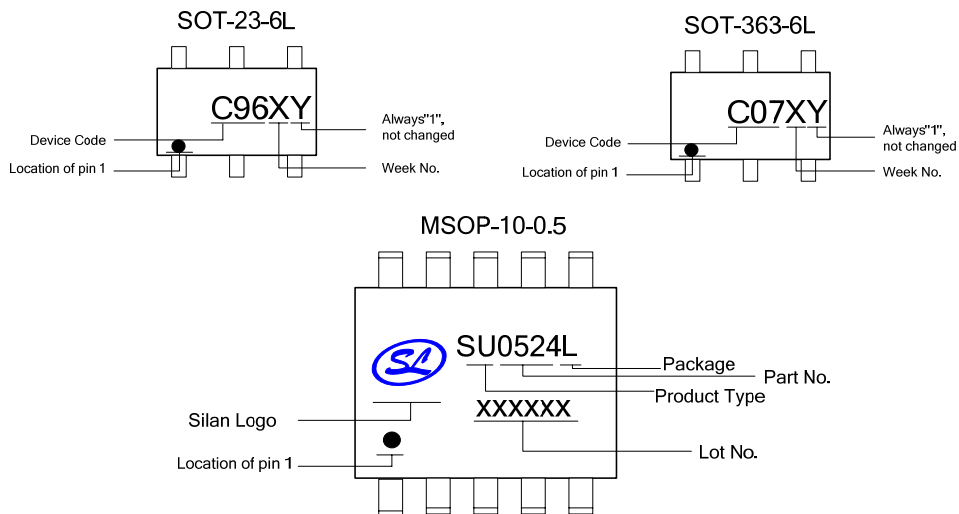


| Package | Φ | Φ1 | Φ2 | W | W1 | W2 | W3 | W4 |
|-------------|---------|----------|--------|---------|----------|----------|---------|----------|
| SOT-23-6L | 180±3.0 | 18.3min | 13±0.5 | 1.5±0.3 | 12.3±1.0 | 9.5±1.0 | 2.3±0.3 | 60±1.0 |
| SOT-363-6L | 178±1.0 | 18.7±0.4 | 13±0.2 | 1.4±0.2 | 12.3±1.0 | 9.5±1.0 | 2.3±0.1 | 54.4±0.4 |
| MSOP-10-0.5 | 330±3.0 | / | 13±0.5 | 2.6±0.3 | 17.6±1.0 | 12.4±1.0 | 1.9±0.5 | 100±1.0 |

IC position in the tape



SEAL GRAPHICS



MOS DEVICES OPERATE NOTES:

Electrostatic charges may exist in many things. Please take following preventive measures to prevent effectively the MOS electric circuit as a result of the damage which is caused by discharge:

- The operator must put on wrist strap which should be earthed to against electrostatic.
- Equipment cases should be earthed.
- All tools used during assembly, including soldering tools and solder baths, must be earthed.
- MOS devices should be packed in antistatic/conductive containers for transportation.



Disclaimer:

- Silan reserves the right to make changes to the information herein for the improvement of the design and performance without further notice! Customers should obtain the latest relevant information before placing orders and should verify that such information is complete and current..
- All semiconductor products malfunction or fail with some probability under special conditions. When using Silan products in system design or complete machine manufacturing, it is the responsibility of the buyer to comply with the safety standards strictly and take essential measures to avoid situations in which a malfunction or failure of such Silan products could cause loss of body injury or damage to property.
- Silan will supply the best possible product for customers!

ATTACHMENT

Revision History

| Date | REV | Description | Page |
|------------|-----|--|------|
| 2010.09.09 | 1.0 | Original | |
| 2010.10.15 | 1.1 | Modify "ORDERING INFORMATION" | |
| 2010.10.22 | 1.2 | Modify the template of datasheet | |
| 2011.08.10 | 1.3 | Modify "ORDERING INFORMATION", "SEAL GRAPHICS" | |
| 2011.10.19 | 1.4 | Delete the package of DFN-10-2.5x1.0x0.6-0.5 | |

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