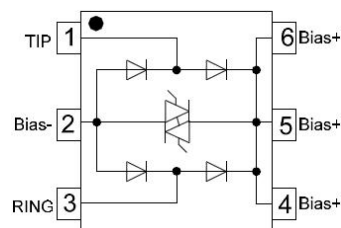


## Features

- Compatible with VDSL2、ADSL2
- Low capacitance and leakage current
- Balanced overvoltage protection
- Low clamping voltage
- Response time under 500ns
- Low insertion loss
- Low distortion



## Electrical symbol



## Mechanical Characteristics

- SOT23-6 package
- Molding compound flammability rating: UL 94V-0
- Quantity per reel: 3, 000pcs
- Lead finish: lead free
- MSL-3

## Description

The integrated thyristor series provide overvoltage protection for applications such as VDSL2, ADSL2, and ADSL2+ with minimal effect on data signals. This silicon design innovation results in a capacitive loading characteristic that is compatible with these high bandwidth applications. The devices is also bi-directional between pin1 to pin3. All electrical parameters and surge ratings apply to forward and reverse polarities. This surface mount SOT23-6 package provides a surge capability that exceeds most worldwide standards and recommendations for lightning surge withstand capability of tertiary protectors.

## Absolute Maximum Rating

| Rating  | Symbol    | Value         | Units |
|---|-----------|---------------|-------|
| Non-repetitive impulse current on 8/20μs waveform | $I_{PP}$  | 35            | A     |
| ESD Voltage (Contact)                             | $V_{ESD}$ | ±8            | kV    |
| ESD Voltage (Air)                                 | $V_{ESD}$ | ±15           | kV    |
| Lead Soldering Temperature                        | $T_L$     | 260 (10 sec.) | °C    |
| Operating Temperature                             | $T_J$     | -40 to 150    | °C    |
| Storage Temperature                               | $T_{STG}$ | -65 to 150    | °C    |

## Electrical Characteristics

| Type Number | Min. Stand-off voltage | Max. Off-state current | Switching voltage | Min. Switching current | Holding current | On-state voltage |                   | Max. Clamping voltage @8/20μs | Typical Off-state capacitance |
|-------------|------------------------|------------------------|-------------------|------------------------|-----------------|------------------|-------------------|-------------------------------|-------------------------------|
|             | $V_{DRM}$              | $I_{DRM}$              | $V_S$ @100KV/s    | $I_S$                  | $I_H$           | $V_T$ @ $I_T=1A$ |                   | $V_C$ @ $I_{PP}=35A$          | $C_O$ @f=10MHz,2V             |
|             | V                      | μA                     | V                 | mA                     | mA              | V                | (V) pin 5 to pin2 | V                             | pF                            |
| RLST236P24L | 24                     | 1                      | 30                | 10                     | 40              | 3.5              | 1                 | 35                            | 1.1                           |

Notes: All measurements made between pin 1 and pin 3 unless otherwise stated.

## Characteristics Curves

FIG.1: V-I curve characteristics

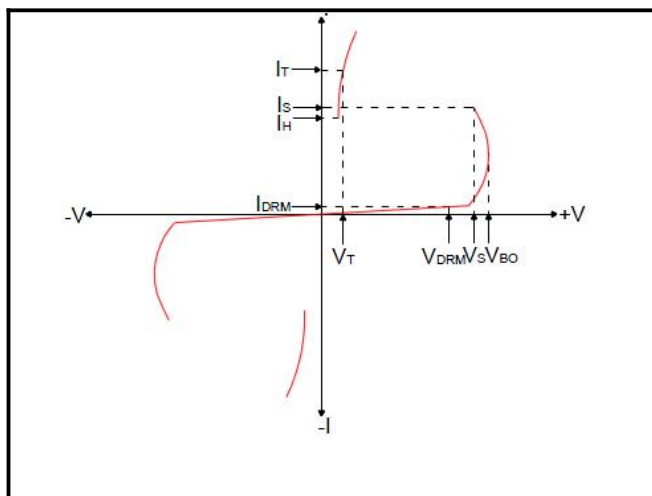


FIG.2: Typical capacitance against line voltage

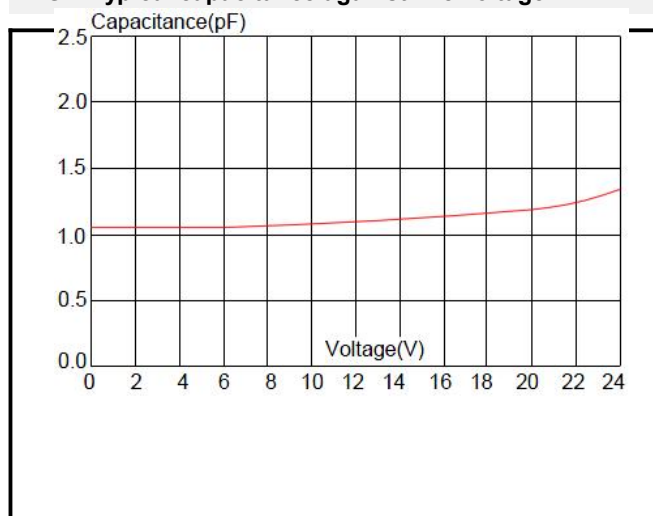


FIG.3: Normalized  $V_S$  change vs. junction temperature

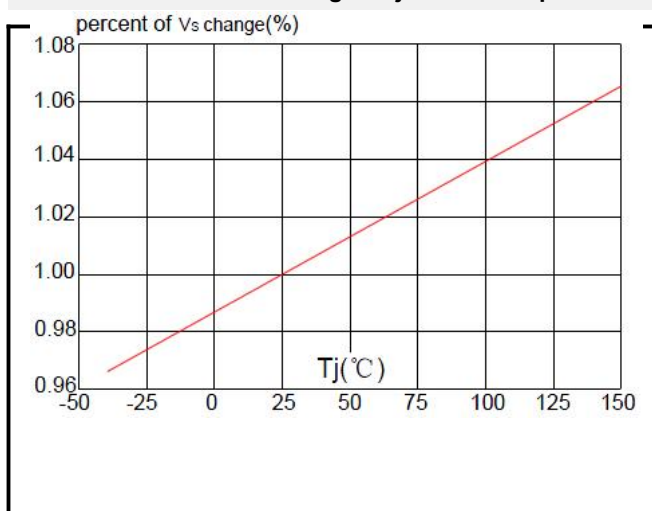
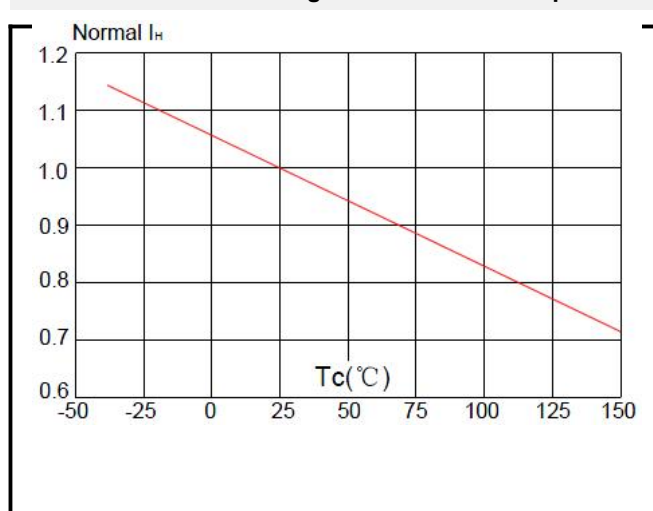
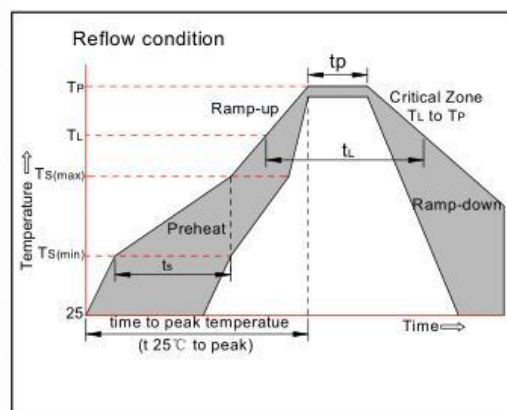


FIG.4: Normalized holding current vs. case temperature



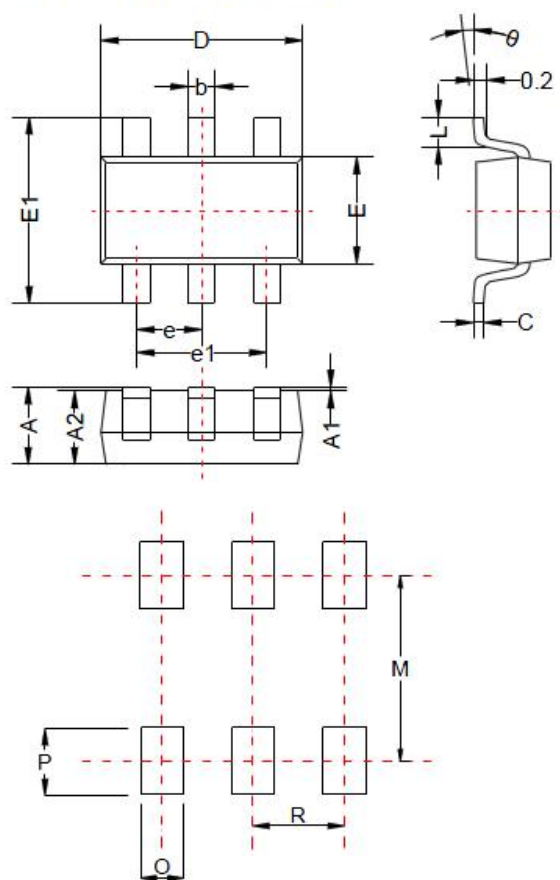
**SOLDERING PARAMETERS**

|  |                                   |   |
|--|-----------------------------------|---|
| Reflow Condition                                       |                                   | Pb-Free assembly<br>(see figure at right) |
| Pre Heat   | -Temperature Min ( $T_{s(min)}$ ) | +150°C                                    |
|  | -Temperature Max( $T_{s(max)}$ )  | +200°C                                    |
|  | -Time (Min to Max) ( $t_s$ )      | 60-180 secs.                              |
| Average ramp up rate (Liquidus Temp ( $T_L$ ) to peak) |                                   | 3°C/sec. Max                              |
| $T_{s(max)}$ to $T_L$ - Ramp-up Rate                   |                                   | 3°C/sec. Max                              |
| Reflow   | -Temperature( $T_L$ )(Liquidus)   | +217°C                                    |
|  | -Temperature( $t_L$ )             | 60-150 secs.                              |
| Peak Temp ( $T_P$ )                                    |                                   | +260(+0/-5)°C                             |
| Time within 5°C of actual Peak Temp ( $t_P$ )          |                                   | 20-40secs.                                |
| Ramp-down Rate   |                                   | 6°C/sec. Max                              |
| Time 25°C to Peak Temp ( $T_P$ )                       |                                   | 8 min. Max                                |
| Do not exceed  |                                   | +260°C                                    |



## Dimensions

### PACKAGE MECHANICAL DATA



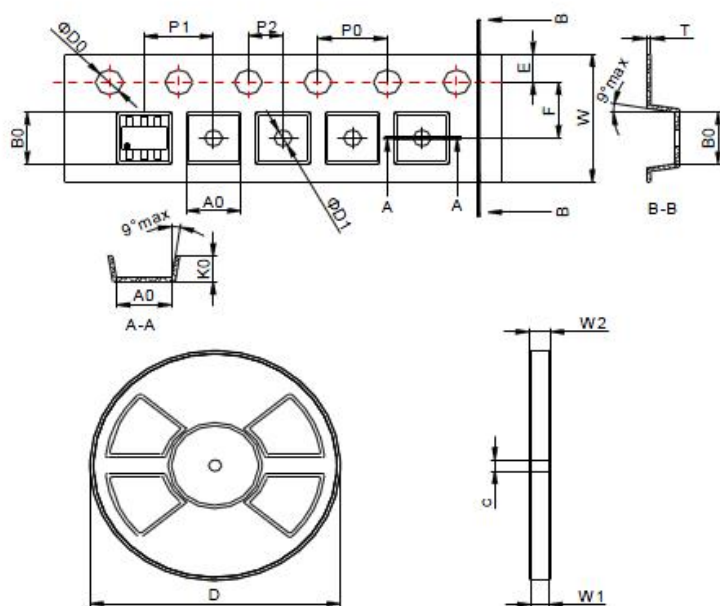
Recommended solder pad layout

| Symbol | Millimeters |      | Inches     |       |
|--------|-------------|------|------------|-------|
|        | Min         | Max  | Min        | Max   |
| A      | 1.05        | 1.25 | 0.041      | 0.049 |
| A1     | 0.00        | 0.10 | 0.000      | 0.004 |
| A2     | 1.05        | 1.15 | 0.041      | 0.045 |
| b      | 0.30        | 0.50 | 0.012      | 0.020 |
| c      | 0.10        | 0.20 | 0.004      | 0.008 |
| D      | 2.85        | 3.05 | 0.112      | 0.120 |
| E      | 1.50        | 1.70 | 0.059      | 0.067 |
| E1     | 2.65        | 2.95 | 0.104      | 0.116 |
| e      | 0.95(BSC)   |      | 0.037(BSC) |       |
| e1     | 1.80        | 2.00 | 0.071      | 0.079 |
| L      | 0.30        | 0.60 | 0.012      | 0.024 |
| Θ      | 0°          | 8°   | 0°         | 8°    |
| M      | -           | 2.59 | -          | 0.102 |
| O      | -           | 0.69 | -          | 0.027 |
| P      | -           | 0.99 | -          | 0.039 |
| R      | -           | 0.95 | -          | 0.038 |

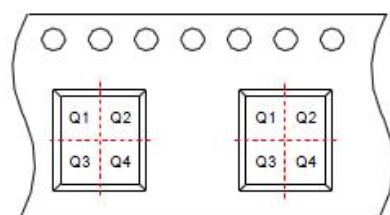


## Taping and Reel Specifications

### TAPE AND REEL SPECIFICATION-SOT23-6



| Symbol | Millimeters                | Inches                         |
|--------|----------------------------|--------------------------------|
| W      | $8.0^{+0.30}_{-0.10}$      | $0.315^{+0.012}_{-0.004}$      |
| P1     | $4.0 \pm 0.10$             | $0.157 \pm 0.004$              |
| E      | $1.75 \pm 0.1$             | $0.069 \pm 0.004$              |
| F      | $3.5 \pm 0.05$             | $0.138 \pm 0.002$              |
| D0     | $\Phi 1.55 \pm 0.05$       | $\Phi 0.061 \pm 0.002$         |
| D1     | $\Phi 1.0^{+0.25}_{-0.00}$ | $\Phi 0.039^{+0.010}_{-0.000}$ |
| P0     | $4.0 \pm 0.10$             | $0.157 \pm 0.004$              |
| P2     | $2.0 \pm 0.05$             | $0.079 \pm 0.002$              |
| A0     | $3.17 \pm 0.10$            | $0.125 \pm 0.004$              |
| B0     | $3.23 \pm 0.10$            | $0.127 \pm 0.004$              |
| K0     | $1.37 \pm 0.10$            | $0.054 \pm 0.004$              |
| T      | $0.25 \pm 0.02$            | $0.010 \pm 0.001$              |
| D      | 177.8                      | 7.00                           |
| W1     | $10.4 \pm 2.0$             | $0.409 \pm 0.079$              |
| W2     | $16.2 \pm 1.8$             | $0.638 \pm 0.071$              |
| c      | $13.25 \pm 0.25$           | $0.522 \pm 0.010$              |



Pin 1 quadrant: Q3

## ORDERING INFORMATION

| PART No.    | PACKAGE TYPE | QUANTITY REEL | BOX    |
|-------------|--------------|---------------|--------|
| RLST236P24L | SOT23-6      | 3,000         | 15,000 |

## MARKING CODE

| Part Number | Marking Code                                       |
|-------------|--|
| RLST236P24L | <p>J24G — Device Code</p> <p>XXXX — Lot Number</p> |