

# RS31210 RS31310 Simple 5V/12V eFuse Protection Switches

## Features

- 5V eFuse – RS31210
- 12V eFuse – RS31310
- Integrated 25mΩ Pass MOSFET
- Adjustable 2A to 5A current limit
- Adjustable input UVLO threshold
- Fixed over-voltage camp: 6.1V for RS31210 and 15V for RS31310
- Built-on over temperature protection
- Small 3x3mm VSON package
- RoHS compliant and Green

## Applications

- Server and AUX supplies
- PCI and PCIe cards
- Adapter powered devices
- HDD and SSD drivers

## Description

The RS31210 and RS31310 are active circuit protection devices with an integrated MOSFET used to limit current and voltage to safe levels during fault conditions.

The current limit level can be set with a resistor between ILIM and ground, and the typical current limit accuracy is  $\pm 15\%$ .

The device has over voltage protection feature which limits the output voltage to a fixed level when over voltage fault occurs.

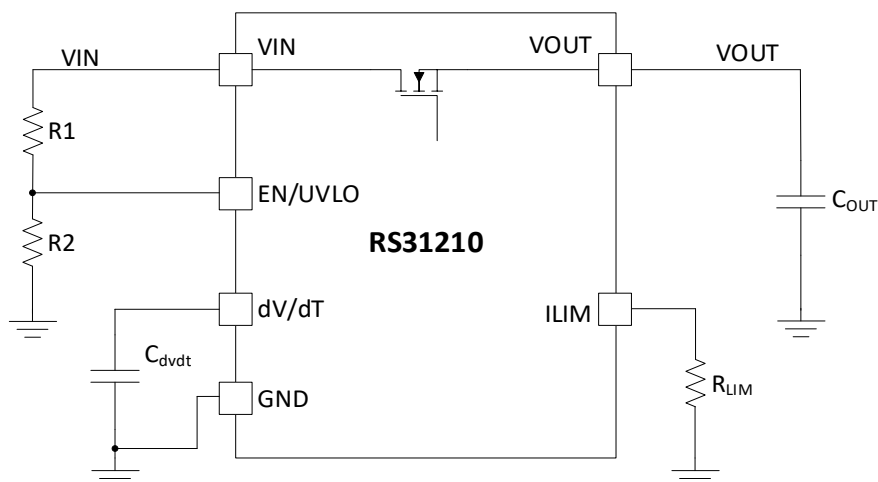
To limit the inrush current during device turn-on, the rising slew rate of output voltage can be set by a capacitor between dV/dT and ground.

The device also offers EN on/off control and input UVLO features.

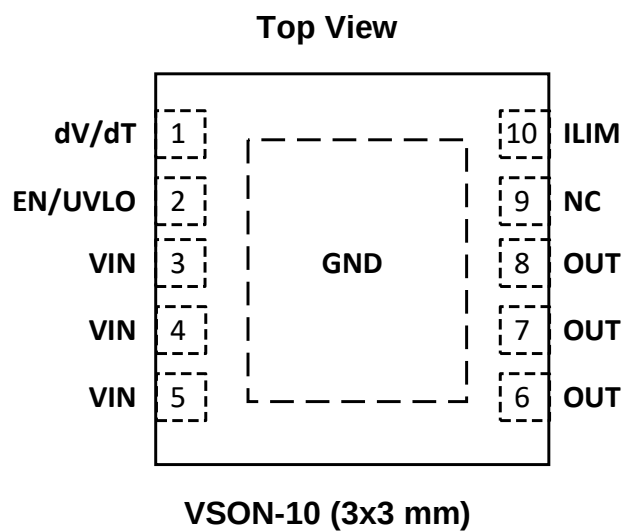
The device is available in VSON 10 pins, 3x3 mm package.

| PART NUMBER | PACKAGE | BODY SIZE |
|-------------|---------|-----------|
| RS31210     | VSON-10 | 3x3 mm    |
| RS31310     |         |           |

## Typical Application Circuit



## Package Reference



## Device Comparison Table

| Part Number | Input UV | Output OV | Fault Response |
|-------------|----------|-----------|----------------|
| RS31210A    | 4.3V     | 6.1V      | Latch          |
| RS31210B    | 4.3V     | 6.1V      | Auto Retry     |
| RS31310A    | 4.3V     | 15V       | Latch          |
| RS31310B    | 4.3V     | 15V       | Auto Retry     |

## Order Information

| Part Number | Package | Size   | MSL     | Shipping Method   | Package Marking |
|-------------|---------|--------|---------|-------------------|-----------------|
| RS31210AT   | VSON-10 | 3x3 mm | Level-2 | 250u Tape & Reel  | R1210A          |
| RS31210AR   | VSON-10 | 3x3 mm | Level-2 | 5000u Tape & Reel | R1210A          |
| RS31210BT   | VSON-10 | 3x3 mm | Level-2 | 250u Tape & Reel  | R1210B          |
| RS31210BR   | VSON-10 | 3x3 mm | Level-2 | 5000u Tape & Reel | R1210B          |
| RS31310AT   | VSON-10 | 3x3 mm | Level-2 | 250u Tape & Reel  | R1310A          |
| RS31310AR   | VSON-10 | 3x3 mm | Level-2 | 5000u Tape & Reel | R1310A          |
| RS31310BT   | VSON-10 | 3x3 mm | Level-2 | 250u Tape & Reel  | R1310B          |
| RS31310BR   | VSON-10 | 3x3 mm | Level-2 | 5000u Tape & Reel | R1310B          |

## Top Marking

RSYYWW  
 PPPPPP  
 LLLLLL  
 ●

### Line 1

- RS: Prefix of Reed Semiconductor (RS is replaced by RE for engineering lot)
- YY: Year code
- WW: Week code

### Line 2

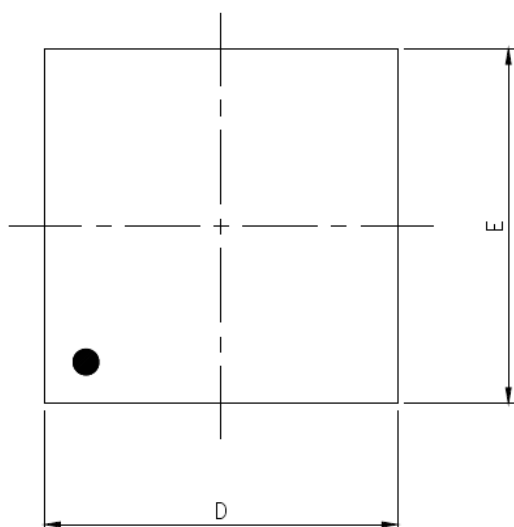
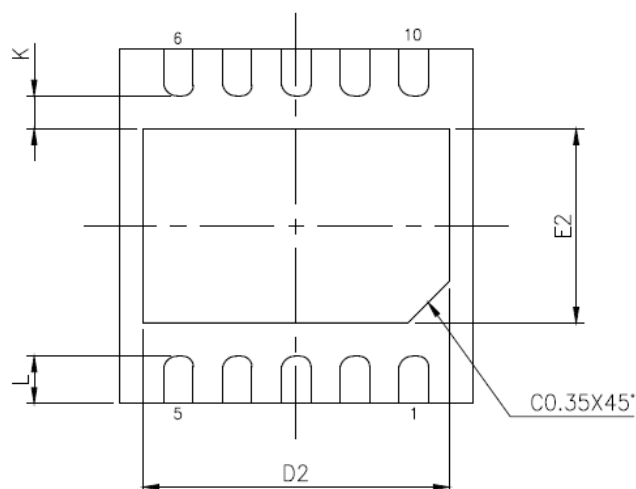
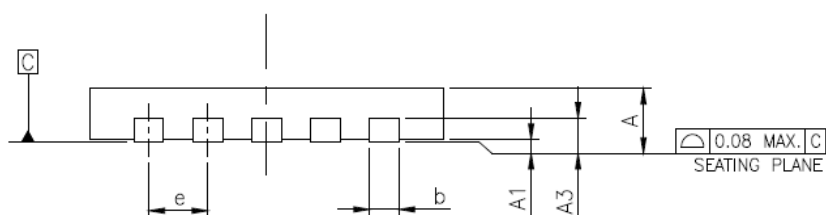
- PPPPPP: Truncated part number. Example: R1210A represents the full part number RS31210A

### Line 3

- LLLLLL: Lot code
- S: Assembly site code

## Pin Description

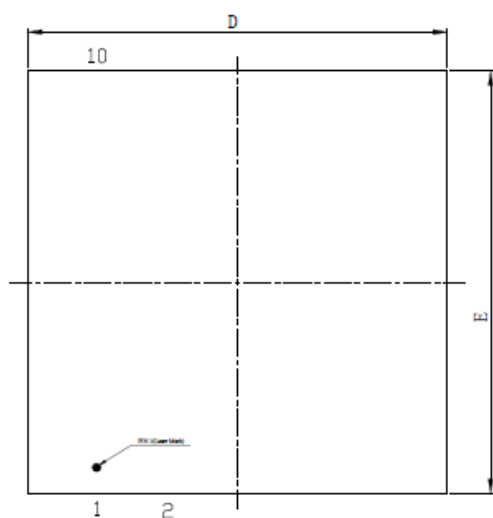
| No.     | NAME    | TYPE | Description                                                                                                                                           |
|---------|---------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | dV/dT   | O    | Connect a capacitor from this pin to GND to set output voltage rising slew rate during turn-on                                                        |
| 2       | EN/UVLO | I    | Pull high to enable the device, and pull low to disable the device. Connect the pin to a resistor divider from Vin to GND to set input UVLO threshold |
| 3, 4, 5 | VIN     | I    | Input supply voltage                                                                                                                                  |
| 6,7,8   | OUT     | O    | Output of the device                                                                                                                                  |
| 9       | NC      | NC   | No internal connection. This pin can be floating or grounded.                                                                                         |
| 10      | ILIM    | O    | A resistor from this pin to GND sets the over current limit                                                                                           |
| 11      | GND     | G    | The GND pad is used as the device ground as well as thermal pad to dissipate heat.                                                                    |

**PACKAGE DIMENSION (RS31210)**

**TOP VIEW**

**BOTTOM VIEW**

**SIDE VIEW**

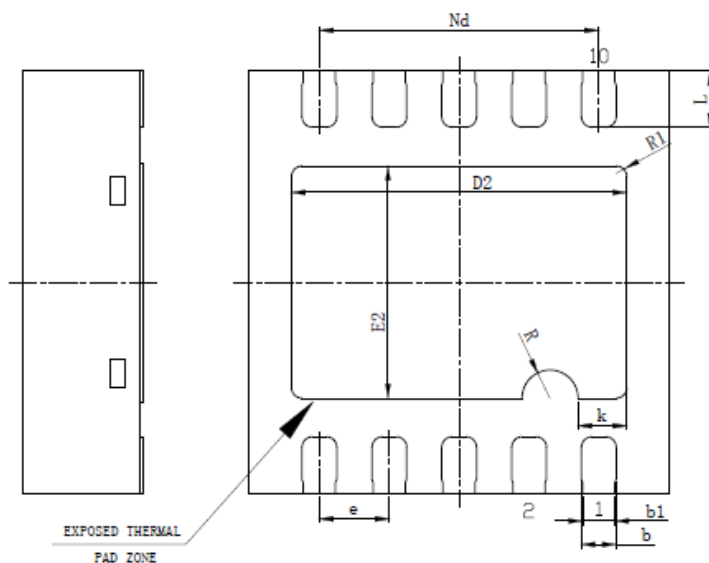
| SYMBOLS | MIN       | NOM  | MAX  |
|---------|-----------|------|------|
| A       | 0.80      | 0.85 | 0.90 |
| A1      | 0.00      | 0.02 | 0.05 |
| A3      | 0.203 REF |      |      |
| b       | 0.18      | 0.25 | 0.30 |
| D       | 3.00 BSC  |      |      |
| E       | 3.00 BSC  |      |      |
| e       | 0.50 BSC  |      |      |
| K       | 0.20      |      |      |
| D2      | 2.20      | 2.30 | 2.35 |
| E2      | 1.55      | 1.65 | 1.70 |
| L       | 0.30      | 0.40 | 0.50 |

**NOTE:**

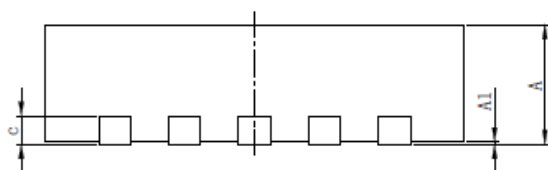
1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSION b APPLIES TO METALLIZED TERMINAL AND IS MEASURED BETWEEN 0.15mm AND 0.30mm FROM THE TERMINAL TIP. IF THE TERMINAL HAS THE OPTIONAL RADIUS ON THE OTHER END OF THE TERMINAL, THE DEMENSION b SHOULD NOT BE MEASURED IN THAT RADIUS AREA.
3. BILATERAL COPLANARITY ZONE APPLIES TO THE EXPOSED HEAT SINK SLUG AS WELL AS THE TERMINALS.

**PACKAGE DIMENSION (RS31310)**


TOP VIEW



BOTTOM VIEW



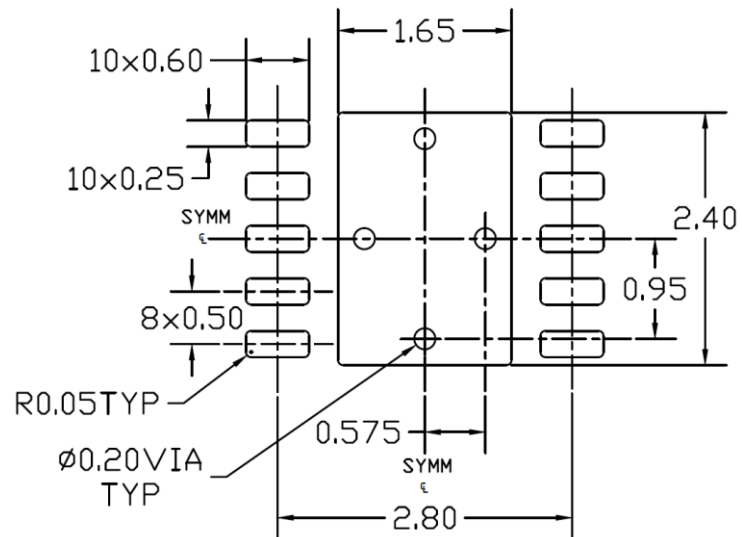
SIDE VIEW

| SYMBOLS | MIN       | NOM  | MAX  |
|---------|-----------|------|------|
| A       | 0.80      | 0.85 | 0.90 |
| A1      | 0.00      | 0.02 | 0.05 |
| b       | 0.20      | 0.25 | 0.30 |
| b1      | 0.23 REF  |      |      |
| c       | 0.203 REF |      |      |
| D       | 2.90      | 3.00 | 3.10 |
| D2      | 2.35      | 2.40 | 2.45 |
| e       | 0.50 BSC  |      |      |
| Nd      | 2.00 BSC  |      |      |
| E       | 2.90      | 3.00 | 3.10 |
| E2      | 1.60      | 1.65 | 1.70 |
| L       | 0.35      | 0.40 | 0.45 |
| R       | 0.20 REF  |      |      |
| R1      | 0.075 REF |      |      |
| k       | 0.35 REF  |      |      |

**NOTE:**

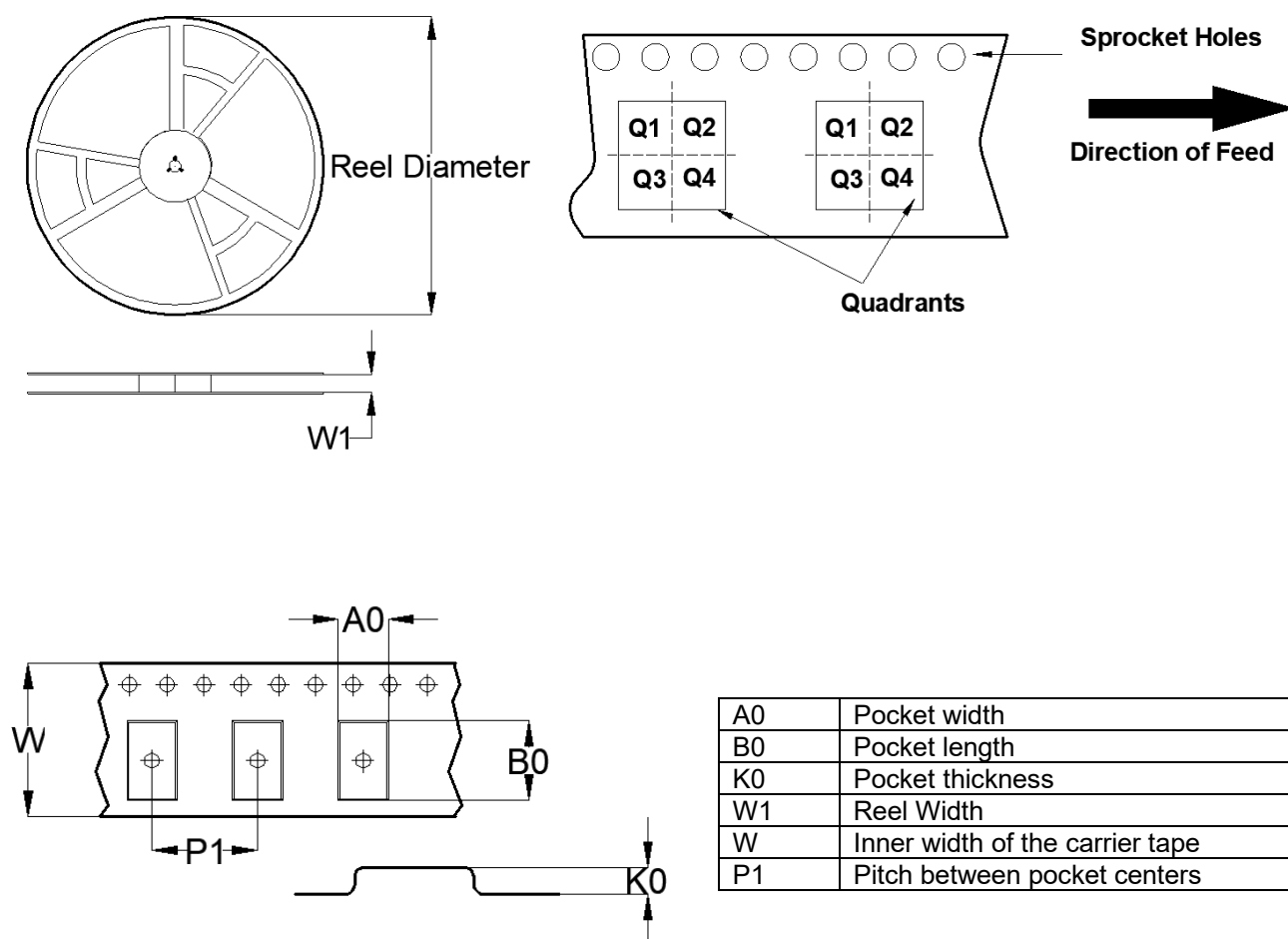
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## RECOMMENDED LAND PATTERN



Note: All dimensions are in millimeters.

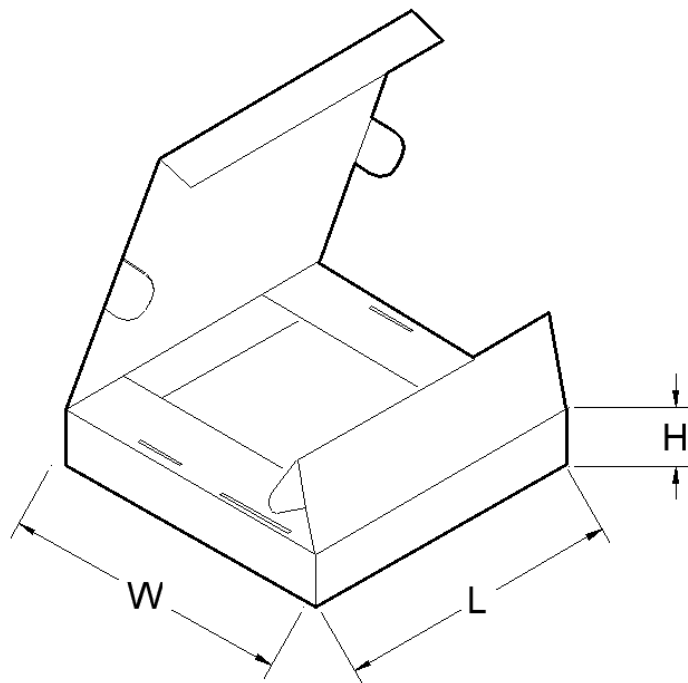
## TAPE AND REEL INFORMATION



| PKG type<br>(mm) | Reel Diameter<br>(mm) | Reel Width<br>W1(mm) | A0(mm) | B0(mm) | K0(mm) | P1(mm) | W(mm) | Quad |
|------------------|-----------------------|----------------------|--------|--------|--------|--------|-------|------|
| 3x3              | 330                   | 12.8                 | 3.3    | 3.3    | 1.10   | 8.00   | 12.0  | Q2   |

Note: All the data is nominal



**PIZZA BOX DIMENSION**


| PKG type (mm) | Units/box | Length(mm) | Width(mm) | Height(mm) |
|---------------|-----------|------------|-----------|------------|
| 3x3           | 5000      | 355        | 340       | 50         |

Note: All the data is nominal