

General Description

The ELPW5210 is an integrated power switch for self-powered and bus-powered Universal Series Bus (USB) applications. A built-in charge pump is used to drive the N-Channel MOSFET that is free of Parasitic body diode to eliminate any reversed current flow across the switch when it is powered off. Its low quiescent current (16 μ A) and small package (SOT23-5) is particularly suitable in battery-powered portable equipment.

Several protection functions include soft start to limit inrush current during plug-in, current limiting at 1500mA to meet USB power requirement, and thermal shutdown to protect damage under over current conditions.

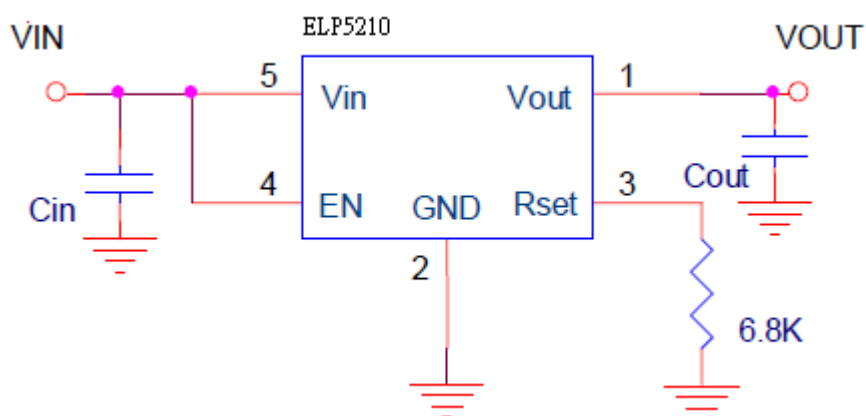
Features

- ◆ 110m Ω Low Rdson, High-side NMOSFET
- ◆ Guaranteed 1500mA Continuous Current
- ◆ 2.5V to 6V Input Voltage
- ◆ Low Quiescent Current: 16 μ A
- ◆ Soft Start Function
- ◆ Built-In Short-Circuit Protection
- ◆ Built-in Thermal Protection
- ◆ RoHS Compliant and 100% Lead (Pb)-Free

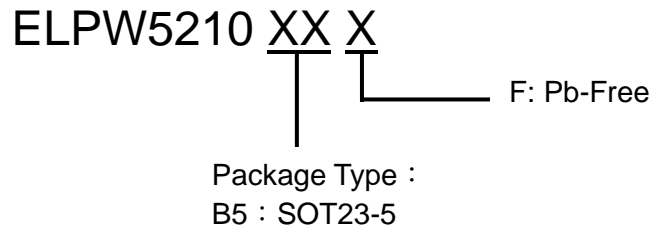
Applications

- ◆ Power Switch
- ◆ USB Device
- ◆ Battery Charger Circuits

Typical Application Circuit



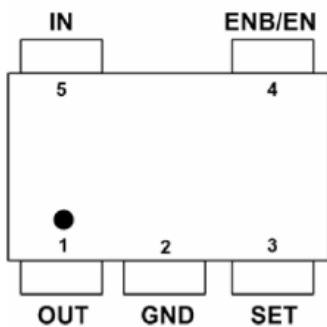
Ordering Information



Marking Information

| Device | Marking | Package | Shipping |
|---|--------------|---------|----------|
| ELPW5210 | LPS 7WYWX | SOT23-5 | 3K/REEL |
| Marking indication: Part No:7W or C0 Y:Production year W:Production week X:Production batch | | | |

Functional Pin Description

| Package Type | Pin Configurations | |
|--------------|--|--|
| SOT23-5 | (Top View) | |
| |  | |
| PIN No. | NAME | DESCRIPTION |
| 1 | VOUT | Output pin. |
| 2 | GND | Ground. |
| 3 | SET | Connect a resistor to GND for setting current limit. |
| 4 | EN | Chip enable (Active High). |
| 5 | VIN | Input pin. |



Absolute Maximum Ratings

- ◆ Input Voltage to GND (VIN) -----7V
- ◆ EN Voltage -----0.3V to 7V
- ◆ Operating Junction Temperature Range (TJ) ----- -40°C to 150°C
- ◆ Maximum Soldering Temperature (at leads, 10sec) ----- 260°C
- ◆ HBM(Human Body Mode)----- 2KV

Thermal Information

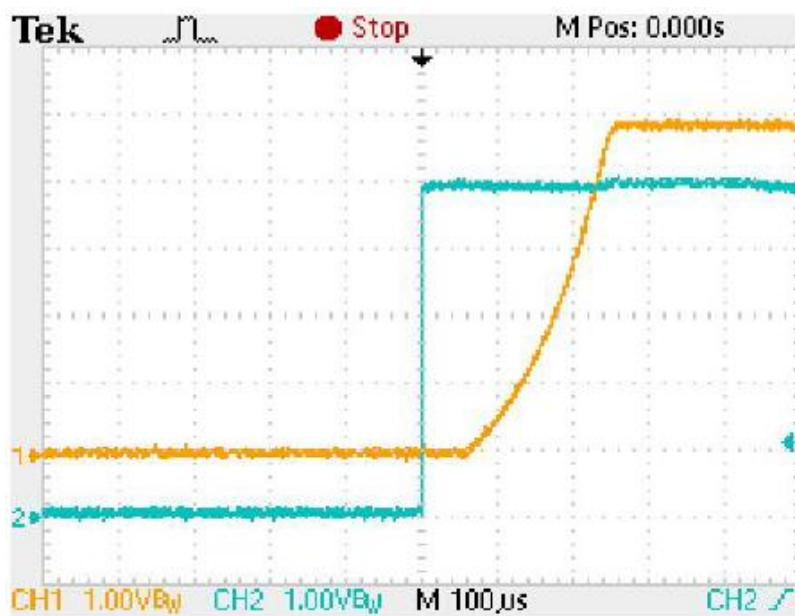
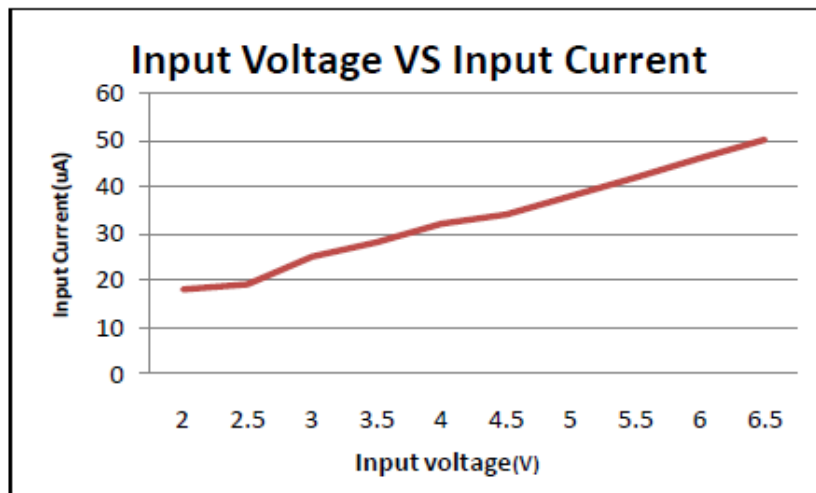
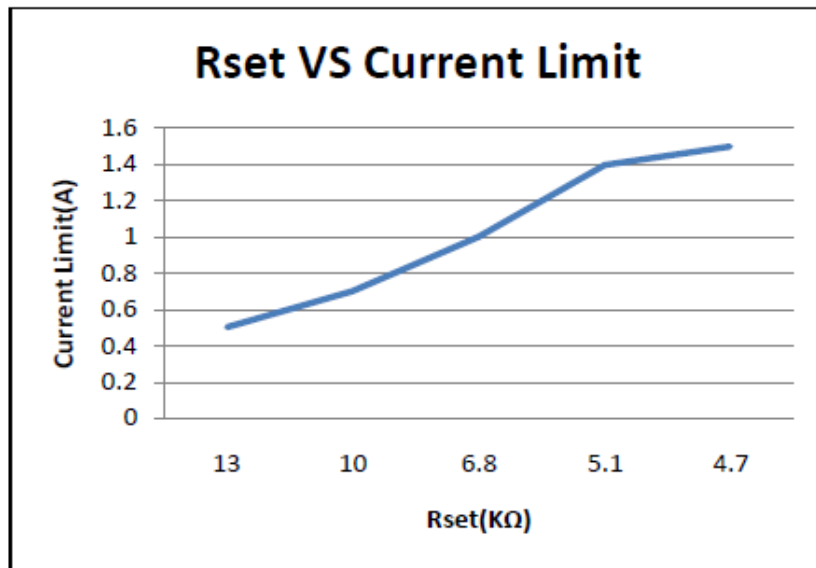
- ◆ Maximum Power Dissipation (PD) ----- 0.45W
- ◆ Thermal Resistance (JA) ----- 260°C/W

Electrical Characteristics

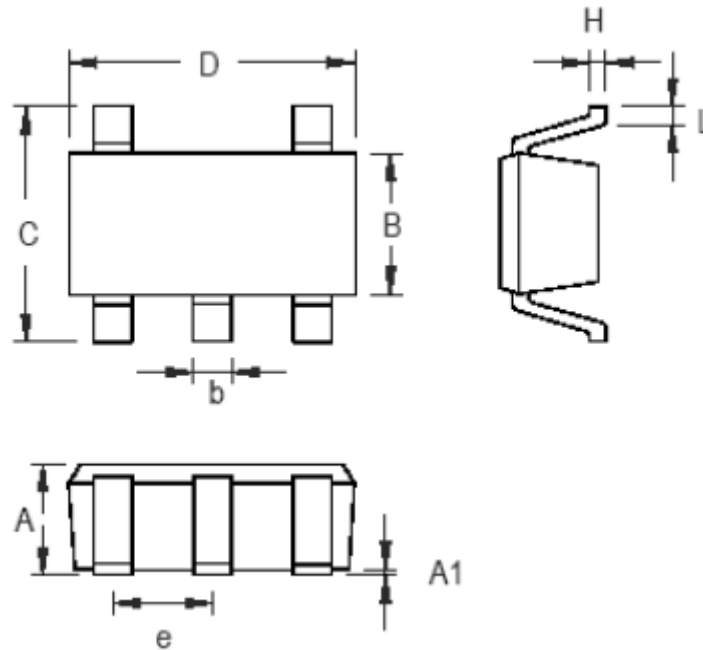
(Over recommended operating conditions unless specified otherwise) VIN=5.0V, EN=High, TA=25°C)

| Symbol | Parameter | Conditions | ELPW5210 | | | Unit |
|---------------------|------------------------------------|--|----------|------|------|------|
| | | | Min. | Typ. | Max. | |
| V _{IN} | Input Voltage | | 2.5 | | 6 | V |
| I _{out} | Output Current Limited | | | | 1500 | mA |
| R _{DS(ON)} | Output NMOSFET R _{DS(ON)} | | | 110 | | mΩ |
| I _Q | Quiescent Current | V _{in} =3V | | 16 | 28 | uA |
| I _{SHDN} | Shutdown Current | EN = GND | | | 1 | μA |
| V _{EN(L)} | Enable Threshold Low | | | | 0.4 | V |
| V _{EN(H)} | Enable Threshold High | | 1.2 | | | V |
| I _{EN} | Input High Current | V _{IN} = V _{EN} = 5.0V | | 5 | | μA |

Typical Operation Characteristics



Packaging Information



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 0.889 | 1.295 | 0.035 | 0.051 |
| A1 | 0.000 | 0.152 | 0.000 | 0.006 |
| B | 1.397 | 1.803 | 0.055 | 0.071 |
| b | 0.356 | 0.559 | 0.014 | 0.022 |
| C | 2.591 | 2.997 | 0.102 | 0.118 |
| D | 2.692 | 3.099 | 0.106 | 0.122 |
| e | 0.838 | 1.041 | 0.033 | 0.041 |
| H | 0.080 | 0.254 | 0.003 | 0.010 |
| L | 0.300 | 0.610 | 0.012 | 0.024 |

SOT-23-5 Surface Mount Package