## GENERAL DESCRIPTION

OB2530P is a high performance offline PSR power switch for low power AC/DC charger and adapter applications. It operates in primary-side sensing and regulation. Consequently, opto-coupler and TL431 could be eliminated. Proprietary Constant Voltage (CV) and Constant Current (CC) control is integrated as shown in the figure below.

In CC control, the current and output power setting can be adjusted externally by the sense resistor Rs at CS pin. In CV control, multi-mode operations are utilized to achieve high performance and high efficiency. In addition, good load regulation is achieved by the built-in cable drop compensation. Device operates in PFM in CC mode at large load condition and it operates in PWM with frequency reduction at light/medium load. The chip consumes very low operation current. It achieves less than 75mW standby power to meet strict standby power standard.

OB2530P offers comprehensive protection coverage with auto-recovery feature including Cycle-by-Cycle current limiting, VDD over voltage protection, feedback loop open protection, short circuit protection, built-in leading edge blanking, VDD under voltage lockout (UVLO), OTP etc.

OB2530P is offered in DIP7 packages.

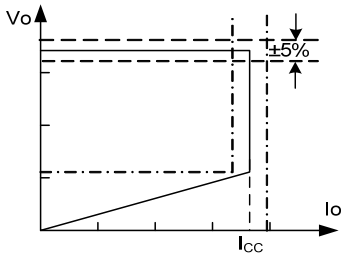



Figure.1. Typical CC/CV Curve

## FEATURES

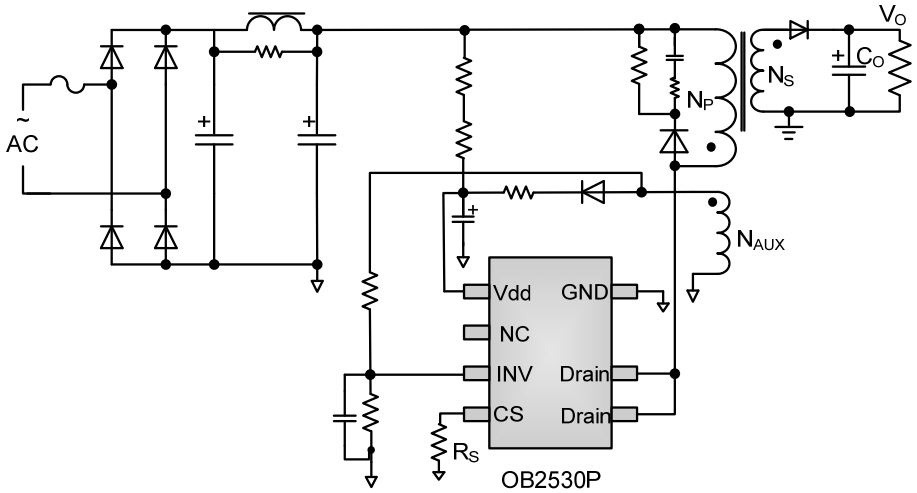
- Primary-side sensing and regulation without TL431 and opto-coupler
- High precision constant voltage and current regulation at universal AC input
- Multi-mode PWM/PFM operation for efficiency improving
- Integrated 2A 650V MOSFET
- Good dynamic response
- Programmable CV and CC regulation
- Built-in primary winding inductance compensation
- Programmable cable drop compensation
- No need for control loop compensation
- Audio noise free operation
- Built-in leading edge blanking (LEB)
- Ultra low start-up current and low operating current
- Comprehensive protection coverage with auto-recovery
  - VDD over voltage protection
  - VDD under voltage lockout with hysteresis (UVLO)
  - Cycle-by-Cycle current limiting
  - Feedback loop open protection
  - Output short circuit protection
  - On-chip OTP

## APPLICATIONS

Low Power AC/DC offline SMPS for

- Cell Phone Charger
- Digital Cameras Charger
- Small Power Adapter
- Auxiliary Power for PC, TV etc.
- Linear Regulator/RCC Replacement

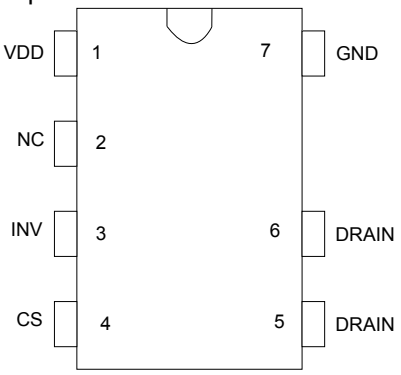
## TYPICAL APPLICATION



## GENERAL INFORMATION

### Pin Configuration

The pin map is shown as below for DIP7.




### Ordering Information

| Part Number | Description |
|---|---|
| OB2530PSP-H | DIP7, Halogen-free, Tube |

### Package Dissipation Rating

| Package | RθJA (℃/W) |
|---|---|
| DIP7 | 75 |

### Recommended Operating Condition

| Symbol | Parameter | Range |
|---|---|---|
| VDD | VDD Supply Voltage | 8 to 25V |

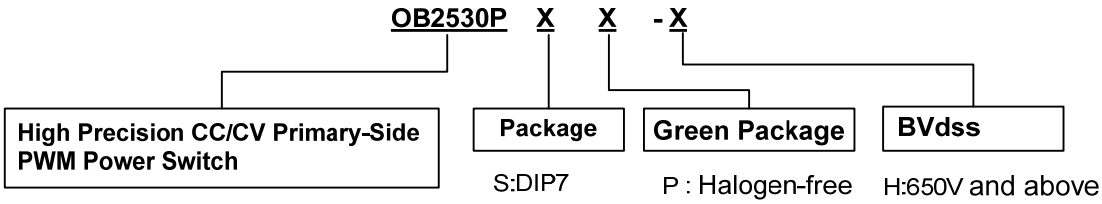
| Parameter | Value |
|---|---|
| Drain Voltage (off state) | -0.3V to Bvdss |
| VDD Voltage | -0.3 to 28V |
| INV Input Voltage | -0.3 to 7V |
| CS Input Voltage | -0.3 to 7V |
| Min/Max Operating Junction Temperature $T_J$ | -40 to 150 ℃ |
| Operating Ambient Temperature $T_A$ | -20 to 85 ℃ |
| Min/Max Storage Temperature $T_{stg}$ | -55 to 150 ℃ |
| Lead Temperature (Soldering, 10secs) | 260 ℃ |

**Note:** Stresses beyond those listed under "absolute maximum ratings" may cause permanent damage to the device. These are stress ratings only, functional operation of the device at these or any other conditions beyond those indicated under "recommended operating conditions" is not implied. Exposure to absolute maximum-rated conditions for extended periods may affect device reliability.

### Output Power Table

| Part Number | 90Vac~264Vac |
|---|---|
| OB2530PSP-H | 12W |

### Absolute Maximum Ratings



## Marking Information


Y:Year Code
WW:Week Code(01-52)
ZZZ:Internal Code
S:DIP7 Package
P:Halogen-free Package
x: Internal Code(Optional)

## TERMINAL ASSIGNMENTS

| Pin Num. | Pin Name | I/O | Description |
|---|---|---|---|
| 1 | VDD | P | Power Supply |
| 2 | NC | | |
| 3 | INV | I | The voltage feedback from auxiliary winding. Connected to resistor divider from auxiliary winding reflecting output voltage. |
| 4 | CS | I | Power MOSFET source |
| 5/6 | Drain | O | Drain of internal power MOSFET |
| 7 | GND | P | Ground |