## GENERAL DESCRIPTION

OB2225N is a high performance, high precision and low cost PWM Power switch for non-isolated buck and buck-boost application. It combines a dedicated current mode PWM controller with a high voltage power Mosfet in SOP8 package. Its built-in error amplifier is optimized for good overshoot and dynamic response for low cost and component count. With precise inner resistor divider, precise reference of EA, constant voltage regulation of 12 V at universal AC input can be guaranteed. Frequency reduction and burst mode control is implemented for high efficiency at light load. Good EMI performance is achieved with On-Bright proprietary frequency shuffling technique and soft gate driver design. Low startup current and low operating current contribute to a reliable power on startup and low standby power consumption with OB2225N.
OB2225N offers power on soft start control and protection coverage with auto-recovery features including cycle-by-cycle current limiting, output short circuit protection, on-chip Over Temperature Protection (OTP), VDD Over Voltage Protection (OVP), Over Loading Protection(OLP) and VDD Under Voltage Lockout Protection (UVLO).
The tone energy at below 20 KHz is minimized in the design so that audio noise is eliminated during operation.
OB2225N is offered in SOP8 package.

## FEATURES

- Universal AC input range and 12 V output voltage
- Low cost and less BOM for buck and buckboost applications
- Current mode control
- 40 kHz (typical) maximum switching frequency
- Frequency-reduction and burst mode control for high efficiency
- Frequency shuffling for EMI improvement
- Power on soft-start
- Built-in Leading Edge Blanking (LEB)
- Cycle-by-cycle current limiting
- Output short-circuit protection
- VDD Under Voltage Lockout with Hysteresis
- VDD OVP
- Over Loading Protection
- On-Chip OTP


## APPLICATIONS

Low power AC/DC offline SMPS for

- Small home appliance
- Linear regulator/RCC replacement


## TYPICAL APPLICATION



## GENERAL INFORMATION

## Pin Configuration

The pin map is shown as below for SOP8


Ordering Information

| Part Number | Description |
| :--- | :--- |
| OB2225NCP | SOP8, Halogen-free, Tube |
| OB2225NCPA | SOP8, Halogen-free, T\&R |

Package Dissipation Rating

| Package | R日JA ( $\left.{ }^{\circ} \mathrm{C} / \mathrm{W}\right)$ |
| :--- | :--- |
| SOP8 | 90 |

Note: Drain Pin Connected $100 \mathrm{~mm}^{2}$ PCB copper clad.

Output Power Table

| Topology | 90~264Vac <br> (open frame) | $\mathbf{1 7 6 \sim 2 6 4 V a c}$ <br> (open frame) |
| :---: | :---: | :---: |
| Buck/ <br> Buck-Boost | 350 mA | 400 mA |

Note: Maximum continuous power with drain pattern connected $100 \mathrm{~mm}^{2}$ PCB copper clad, at $50^{\circ} \mathrm{C}$ ambient.

| Topology | 90~264Vac <br> (open frame) | $\mathbf{1 7 6 \sim 2 6 4 V a c}$ <br> (open frame) |
| :---: | :---: | :---: |
| Buck / <br> Buck-Boost | 300 mA | 350 mA |

Note: Maximum continuous power with drain pattern connected $100 \mathrm{~mm}^{2}$ PCB copper clad, at $85^{\circ} \mathrm{C}$ ambient.

Absolute Maximum Ratings

| Parameter | Value |
| :--- | :--- |
| Drain Voltage(off state) | -0.3 V to Bvdss |
| VDD Voltage | -0.3 to 20 V |
| CS Input Voltage | -0.3 to 7 V |
| Min/Max Operating Junction <br> Temperature $\mathrm{T}_{\mathrm{J}}$ | -40 to $150{ }^{\circ} \mathrm{C}$ |
| Operating Ambient <br> Temperature $\mathrm{T}_{\mathrm{A}}$ | -40 to $85{ }^{\circ} \mathrm{C}$ |
| Min/Max Storage <br> Temperature $\mathrm{T}_{\text {stg }}$ | -55 to $150{ }^{\circ} \mathrm{C}$ |
| Lead Temperature <br> (Soldering, 10secs) | $260{ }^{\circ} \mathrm{C}$ |

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.

Recommended Operating Condition

| Symbol | Parameter | Range |
| :--- | :--- | :--- |
| VDD | VDD Supply Voltage | 8 to 12V |



## Marking Information



Y:Year Code
WW:Week Code(01-52)
ZZZ:Lot Code
C:SOP8 Package
P:Halogen-free Package
S:Internal Code(Optional)

## TERMINAL ASSIGNMENTS

| Pin Num | Pin Name | I/O | Description |
| :--- | :--- | :---: | :--- |
| 1 | VDD | I | Power Supply and Output Voltage Feedback |
| 2 | GND | P | Ground |
| 3 | NC | NC | It should be floating or connect ground during normal operation state |
| 4 | CS | I | Current sense input |
| $5 / 6 / 7 / 8$ | Drain | O | Power Mosfet Drain pins. |

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NCP81005MNTWG NCP81101BMNTXG NCP81205MNTXG HV9123NG-G-M934 IR35207MTRPBF ISL6367HIRZ CAT874-80ULGT3
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