OB2222E
High Precision Low Cost Power Switch

GENERAL DESCRIPTION

OB2222E 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 Bipolar 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 5.0V 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 base driver design. Low startup current and low operating current contribute to a reliable power on startup and low standby power consumption with OB2222E. Constant power operation is supported at over load application with OB2222E, which makes it suitable for small home appliance application where instant large power consumption is required such as start-up of a fan.

OB2222E offers power on soft start control and protection coverage with auto-recovery features including cycle-by-cycle current limiting, output short circuit protection, FB pin open loop protection, on-chip Over Temperature Protection (OTP), VDD Over Voltage Protection (OVP), and VDD Under Voltage Lockout Protection (UVLO).

The tone energy at below 20KHz is minimized in the design so that audio noise is eliminated during operation.

OB2222E is offered in SOP8 package.

FEATURES

- Universal AC input range and 5.0V output voltage
- Constant power mode operation at over load application
- Low cost and less BOM for buck and buck-boost applications
- Current mode control
- 40kHz (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
- FB pin open loop protection
- Output short-circuit protection
- VDD Under Voltage Lockout with Hysteresis
- VDD OVP
- On-Chip OTP

APPLICATIONS

Low power AC/DC offline SMPS for
- Small home appliance
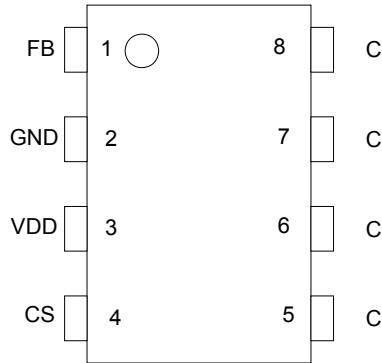- Linear regulator/RCC replacement
- Smart lighting

TYPICAL APPLICATION
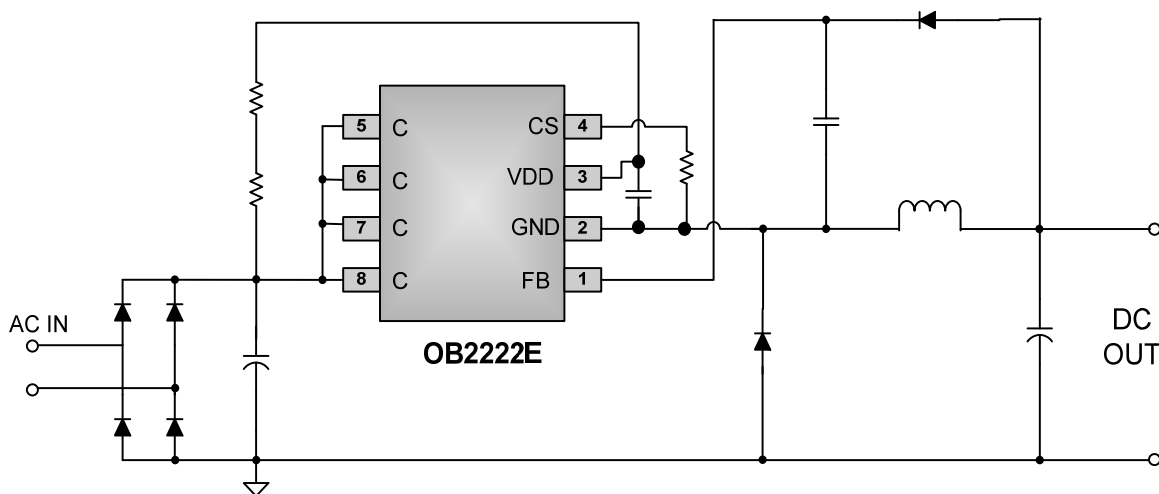
GENERAL INFORMATION

Pin Configuration
The pin map is shown as below for SOP8

FB	1 ○	8	C
GND	2	7	C
VDD	3	6	C
CS	4	5	C

Ordering Information

Part Number	Description
OB2222ECP	SOP8, Halogen-free, Tube
OB2222ECPA	SOP8, Halogen-free, T&R

Package Dissipation Rating

Package	RθJA (℃/W)
SOP8	90

Note: Drain Pin Connected 100mm^2 PCB copper clad.

Recommended Operating Condition

Symbol	Parameter	Range
VDD	VDD Supply Voltage	4.5 to 6V

Absolute Maximum Ratings

Parameter	Value
C-B Voltage	700V
VDD Voltage	-0.3 to 20V
FB Voltage	-0.3 to 20V
CS Input Voltage	-0.3 to 7V
Min/Max Operating Junction Temperature T_J	-40 to 150 ℃
Operating Ambient Temperature T_A	-40 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

Topology	90~264Vac Input (open frame)
Buck/Buck-Boost	100mA

Note: Maximum continuous power with drain pattern connected 100mm^2 PCB copper clad, at 80℃ ambient.

OB2222E X X X

High Precision Low Cost Power Switch	Package	Package Pb-free	Packing
	C:SOP8	P: Green (Halogen-free)	Blank: Tube A: Tape/Reel
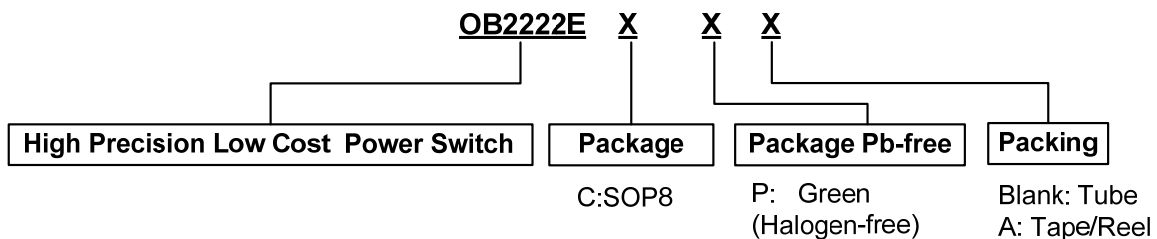
Marking Information

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

TERMINAL ASSIGNMENTS

Pin Num	Pin Name	I/O	Description
1	FB	I	Output Voltage Feedback. This pin should connect a capacitor to ground.
2	GND	P	Ground
3	VDD	P	Power Supply
4	CS	I	Current sense input
5/6/7/8	C	O	Power bipolar collector pins.