GENERAL DESCRIPTION

OB2226 is a high performance, high precision and low cost PWM Power switch for non-isolated buck application. It combines a dedicated current mode PWM controller (with a high voltage power MOSFET with DIP7 package) and built-in error amplifier for low cost and component count. With precise inner resistor divider, precise reference of EA and load compensation, accurate constant voltage regulation at universal AC input can be guaranteed. For high efficiency, oscillator with frequency-reduction control is implemented. And EMI performance is achieved with On-Bright proprietary frequency shuffling technique.
OB2226 offers power on soft start control and protection coverage with auto-recovery features including Cycle-by-Cycle current limiting, over loading protection, output short-circuit protection, over temperature protection, VDD OVP, and UVLO.
OB2226 is offered in SOP8 or DIP7 package.

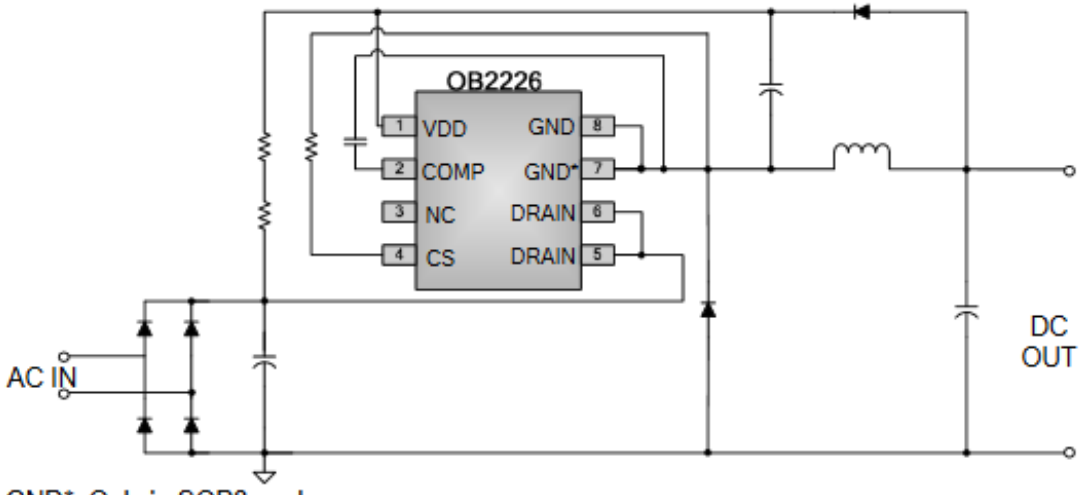
FEATURES

- Low cost and component count buck application
- Built-in error amplifier
- Load compensation
- Oscillator of fixed frequency with frequency-reduction control for high efficiency
- Frequency shuffling for EMI improvement
- Power on Soft-start
- Built-in Leading Edge Blanking (LEB)
- Cycle-by-Cycle Current Limiting
- Over Loading Protection
- Output Short-Circuit Protection
- Over Temperature Protection
- VDD Under Voltage Lockout with Hysteresis (UVLO)
- VDD OVP

APPLICATIONS

Low Power AC/DC offline SMPS for
- Electrical Appliance
- Linear Regulator/RCC Replacement

TYPICAL APPLICATION

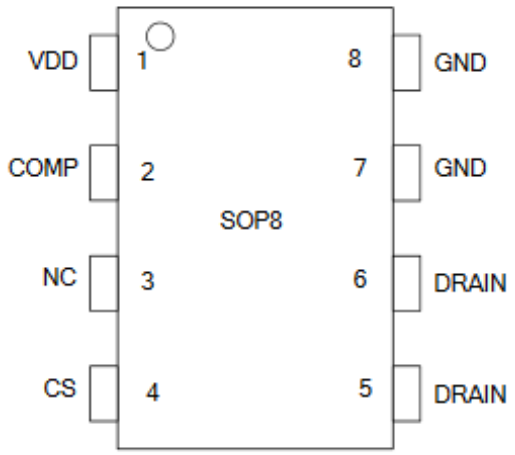


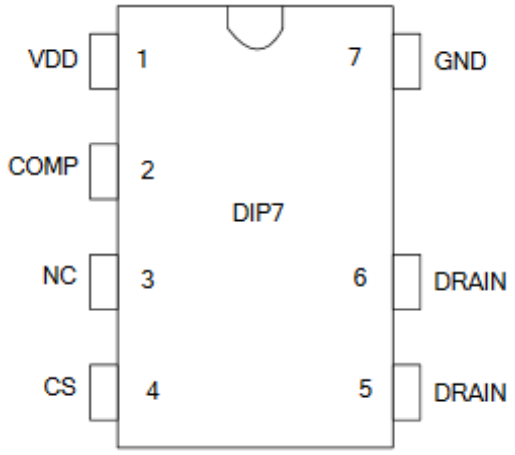
Note : GND* Only in SOP8 package

GENERAL INFORMATION

Pin Configuration

The pin map is shown as below for SOP8 and DIP7.





Ordering Information

Part Number	Description
OB2226SP	DIP7, Pb-free, Tube
OB2226CP	SOP8, Pb-free, Tube
OB2226CPA	SOP8, Pb-free, T&R

Package Dissipation Rating

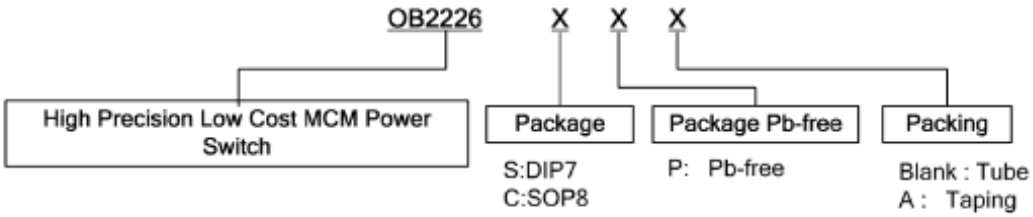
Package	RθJA (℃/W)
DIP7	75
SOP8	90

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

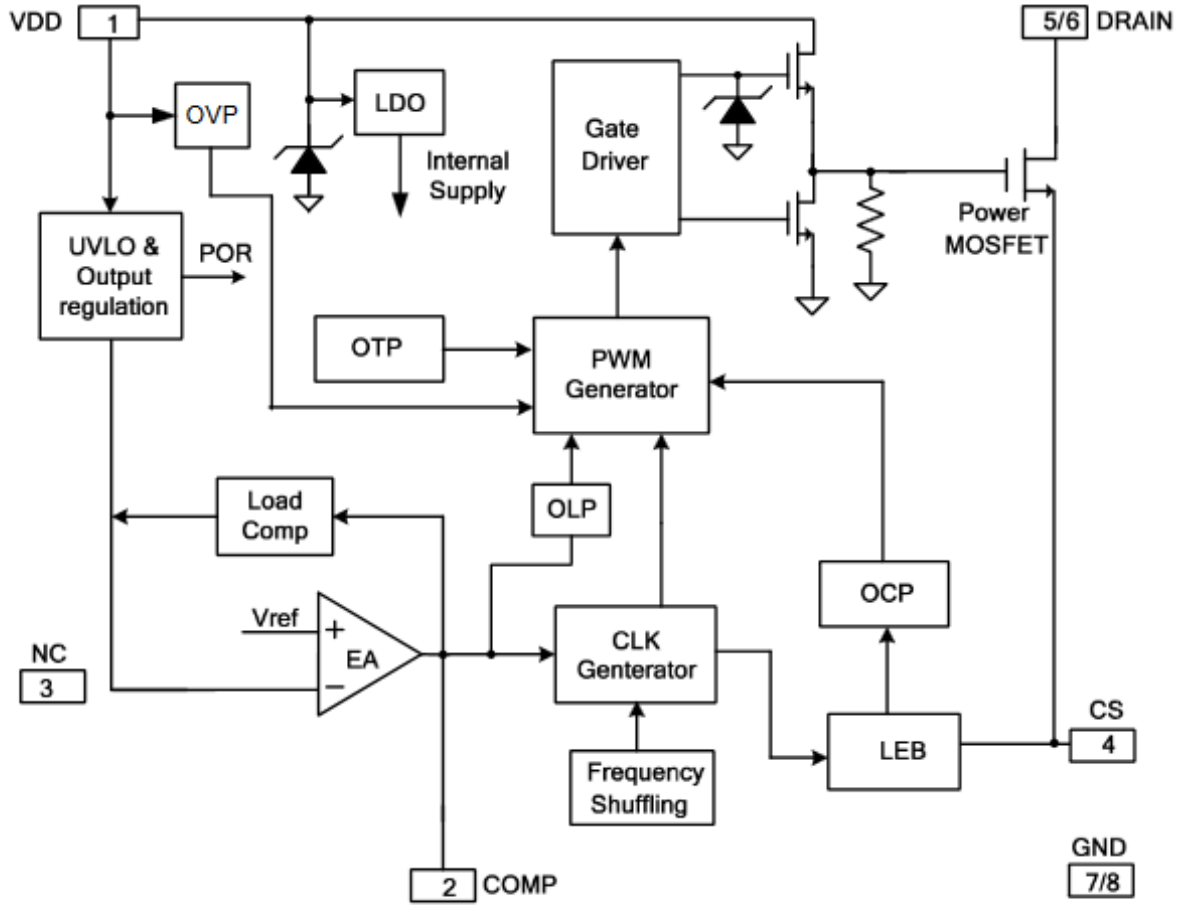
Absolute Maximum Ratings

Parameter	Value
Drain Voltage (off state)	-0.3V to BVdss
VDD Voltage	-0.3 to 40V
VDD Zener Clamp Continuous Current	10 mA
COMP Voltage	-0.3 to 7V
CS Input Voltage	-0.3 to 7V
Min/Max Operating Junction Temperature T_J	-40 to 150 ℃
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.



BLOCK DIAGRAM



Marking Information

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

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

TERMINAL ASSIGNMENTS

Pin Num	Pin Name	I/O	Description
1	VDD	P	Power Supply
2	COMP	I	Loop Compensation for CV Stability
3	NC	I	Not connected
4	CS	I	Current sense input
5/6	DRAIN	O	HV MOSFET Drain Pin. The Drain pin is connected to the primary lead of the transformer / inductance.
7/8	GND	P	Ground

OUTPUT POWER TABLE

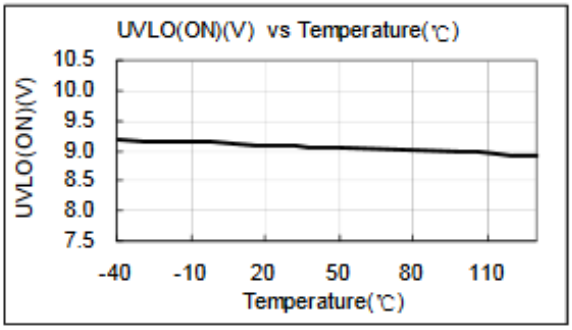
Product	90~300VAC	90~264VAC
	Buck topology, open frame	Flyback topology, open frame
OB2226SP	6.6W	10W
OB2226CP	4.0W	6.0W

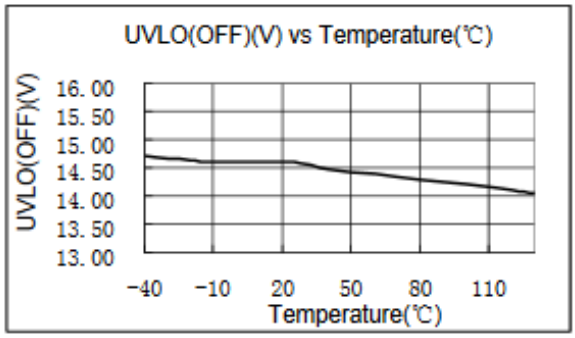
ELECTRICAL CHARACTERISTICS

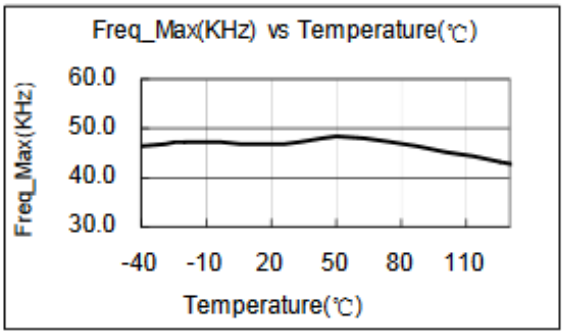
(T_A = 25℃, VDD=16V, if not otherwise noted)

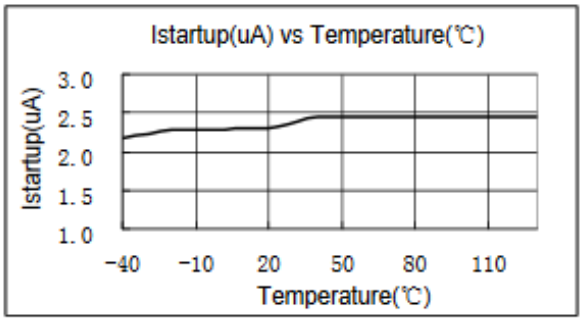
Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Supply Voltage (VDD) Section						
$I_{DD\ ST}$	Standby Current	VDD=13V		5	20	uA
$I_{DD\ op}$	Operation Current	Operation supply current CS=0V, VDD=18V	-	1.5	2.5	mA
UVLO(ON)	VDD Under Voltage Lockout Enter	VDD falling	8.2	9.0	10.5	V
UVLO(OFF)	VDD Under Voltage Lockout Exit	VDD rising	13.5	14.8	16.0	V
OVP	Over voltage protection Threshold	Ramp VDD until gate shut down	26	27.5	29	V
VDD Regulation Voltage	In normal regulation, VDD will be regulated to 19.3V	Ramp VDD until Comp voltage lower than 2.5V	18.6	19.3	20.0	V
Current Sense Input Section						
TLEB	LEB time			200		ns
Vth_oc	Over current threshold		910	940	970	mV
Td_oc	OCP propagation delay			110		ns
Z_{SENSE}_IN	Input Impedance		50			Kohm
Frequency Section						
Freq_Max	IC Maximum frequency		40	45	50	KHz
△f/Freq	Frequency shuffling range			+/-6		%
Error Amplifier Section						
Gain	DC gain of EA			60		dB
I_COMP_MAX	Max. Cable compensation current	VDD=18V, Comp=0V		3.3		uA
Protection						
V_{TH_OLP}	Over loading protection threshold voltage			4		V
T_{d_OLP}	Over load, debounce Time			100		ms
OTP enter				150		℃
OTP exit				130		℃
Power MOSFET Section						
BVdss	MOSFET Drain-Source Breakdown Voltage		600			V
Rdson	On Resistance(DIP7)	Static, Id=0.45A			15	Ω
	On Resistance(SOP8)	Static, Id=0.45A			15	Ω

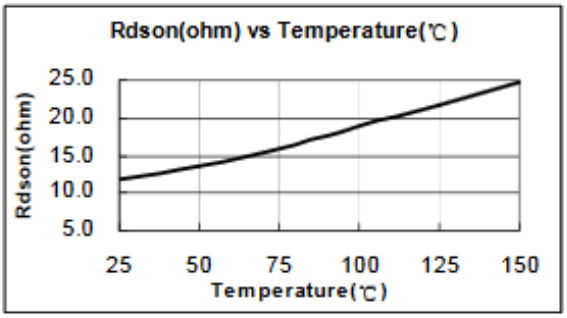
CHARACTERIZATION PLOTS





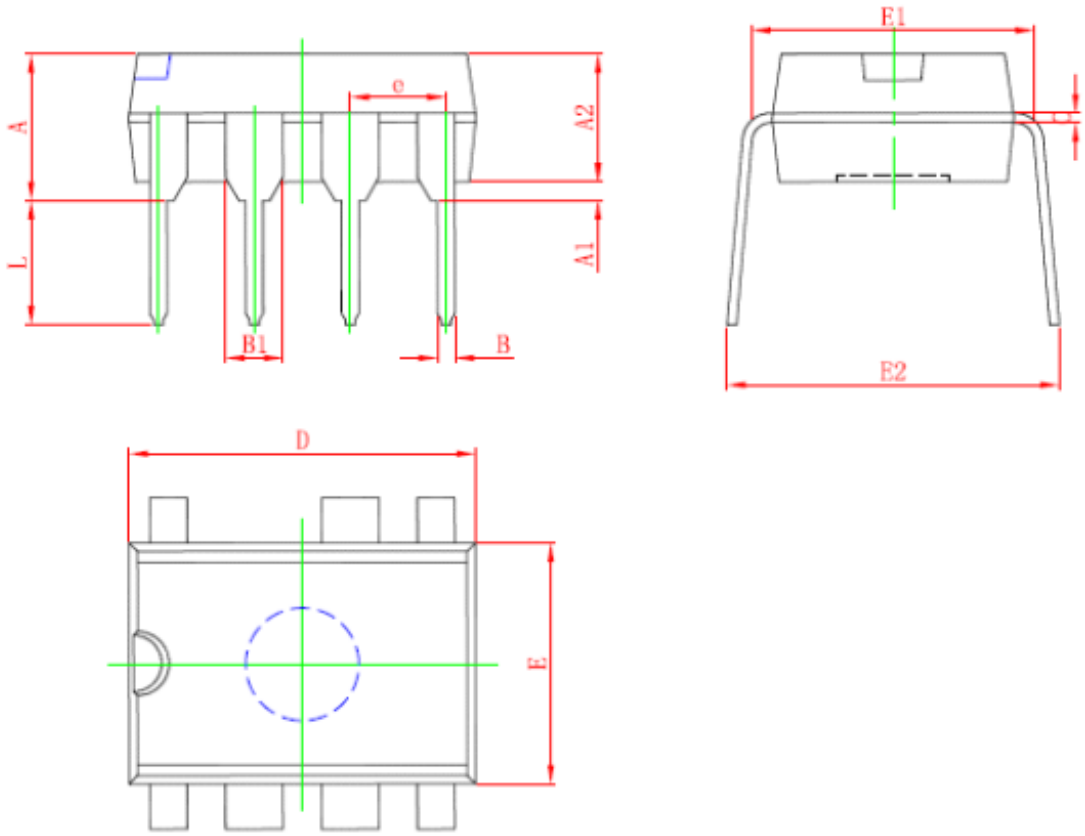






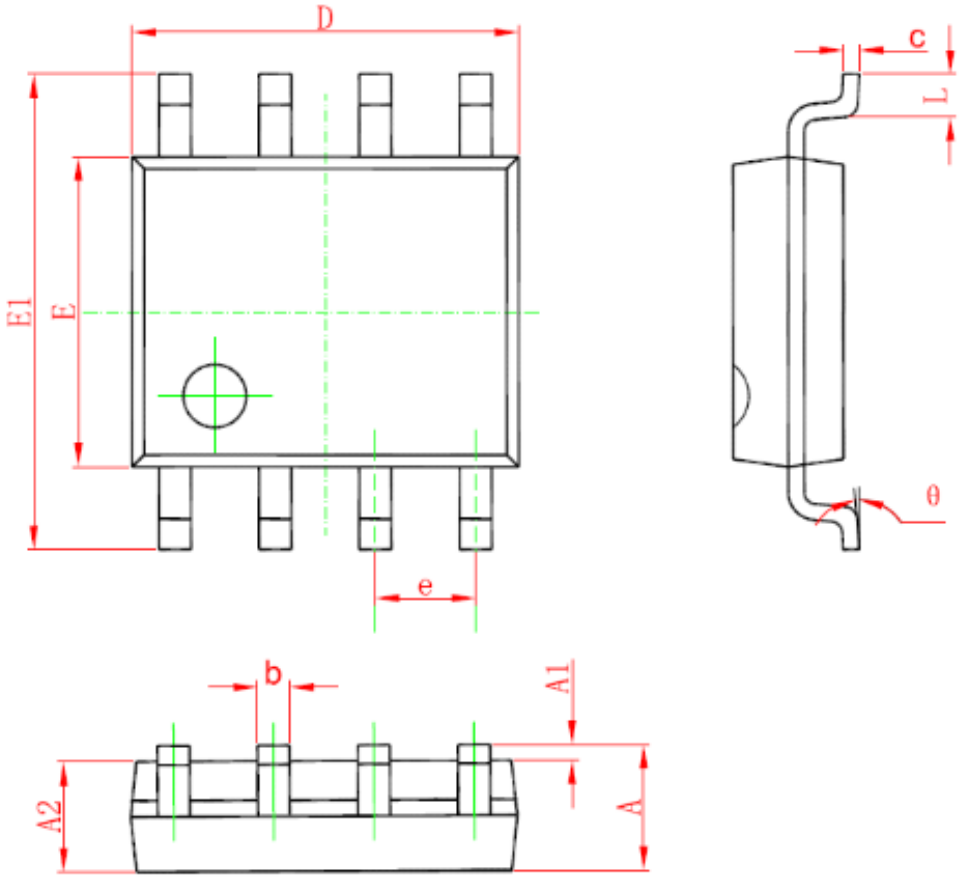
PACKAGE MECHANICAL DATA

DIP7 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.710	5.334	0.146	0.210
A1	0.381		0.015	
A2	2.921	4.953	0.115	0.195
B	0.350	0.650	0.014	0.026
B1	1.524 (BSC)		0.06 (BSC)	
C	0.200	0.360	0.008	0.014
D	9.000	10.160	0.354	0.400
E	6.096	7.112	0.240	0.280
E1	7.320	8.255	0.288	0.325
e	2.540 (BSC)		0.1 (BSC)	
L	2.921	3.810	0.115	0.150
E2	7.620	10.920	0.300	0.430

SOP8 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.050	0.250	0.002	0.010
A2	1.250	1.650	0.049	0.065
b	0.310	0.510	0.012	0.020
c	0.100	0.250	0.004	0.010
D	4.700	5.150	0.185	0.203
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270 (BSC)		0.050 (BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

IMPORTANT NOTICE

RIGHT TO MAKE CHANGES
On-Bright Electronics Corp. reserves the right to make corrections, modifications, enhancements, improvements and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete.

WARRANTY INFORMATION
On-Bright Electronics Corp. warrants performance of its hardware products to the specifications applicable at the time of sale in accordance with its standard warranty. Testing and other quality control techniques are used to the extent it deems necessary to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.
On-Bright Electronics Corp. assumes no liability for application assistance or customer product design. Customers are responsible for their products and applications using On-Bright's components, data sheet and application notes. To minimize the risks associated with customer products and applications, customers should provide adequate design and operating safeguards.

LIFE SUPPORT
On-Bright Electronics Corp.'s products are not designed to be used as components in devices intended to support or sustain human life. On-bright Electronics Corp. will not be held liable for any damages or claims resulting from the use of its products in medical applications.

MILITARY
On-Bright Electronics Corp.'s products are not designed for use in military applications. On-Bright Electronics Corp. will not be held liable for any damages or claims resulting from the use of its products in military applications.