GENERAL DESCRIPTION

OB3605Ax is a high current precision, non-isolated power switch for LED lighting. It works under transition mode.

It significantly simplifies the LED lighting system design by eliminating the auxiliary winding inductance and works under low current. A 500V power switch is also integrated into the device. The LED current can be adjusted externally by the sense resistor Rcs at CS pin and high precision constant current regulation is realized. It integrates an external dimming pin which inputs PWM signal and can dim by changing the duty cycle of the PWM signal.

OB3605Ax offers comprehensive protection coverage with auto-recovery features including LED string open protection, LED string short circuit protection, cycle-by-cycle current limiting, built-in leading edge blanking, VDD under voltage lockout (UVLO), Thermal foldback, etc.

OB3605Ax is offered in DIP7 /SOP7package.

FEATURES

- External PWM dimming
- High precision Constant Current Regulation at Universal AC input
- Sense and supply without auxiliary winding inductance
- Low System Cost and High Efficiency
- Low operation current
- Programmable CC Regulation
- Transition Mode operation
- Built-in Primary winding inductance compensation
- Programmable LED string open circuit protection
- LED string short circuit protection
- Cycle-by-Cycle Current Limiting
- Built-in Leading Edge Blanking (LEB)
- VDD Under Voltage Lockout with Hysteresis
- Thermal foldback

APPLICATIONS

- LED lighting

TYPICAL APPLICATION

GENERAL INFORMATION

Pin Configuration

DIP7

```
GND  [ 1        7 ]  DRAIN

VDD  [ 2        6 ]  DRAIN

DIM  [ 3

OVP  [ 4        5 ]  CS
```

SOP7

```
VDD  [ 1        7 ]  GND

DIM  [ 2

OVP  [ 3        6 ]  DRAIN

CS   [ 4        5 ]  DRAIN
```
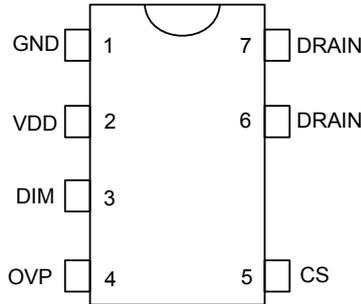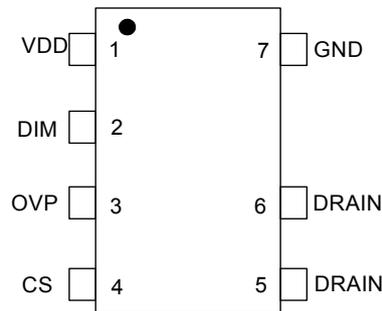
Ordering Information

Part Number	Description
OB3605ARASP-J	7 Pin DIP, Halogen-free in Tube
OB3605APJP-J	7 Pin SOP, Halogen-free in Tube
OB3605APJPA-J	7 Pin SOP, Halogen-free in T&R

Note: All Devices are offered in Halogen-free Package if not otherwise noted.

Package Dissipation Rating

Package	RθJA (℃/W)
DIP7	75
SOP7	95

Absolute Maximum Ratings

Parameter	Value
VDD Voltage	-0.3 to 15V
DRAIN Voltage	-0.3 to 500V
CS Input Voltage	-0.3 to 7V
DIM Input Voltage	-0.3 to 7V
OVP Input Voltage	-0.3 to 7V
Min/Max Operating Junction Temperature T_J	-40 to 155 ℃
Operating Ambient Temperature T_A	-40 to 85 ℃
Min/Max Storage Temperature T_{stg}	-55 to 155 ℃
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.

Recommended Operating Condition

Symbol	Parameter	Range
VDD	VDD Supply Voltage	8 to 13V
F_{PWM}	PWM frequency	1KHz to 50KHz

Output Power Table

Product	90Vac~264Vac Input	175Vac~264Vac ±20% Input
OB3605ARASP-J	28W (I_{LED}<350mA)	51.8W (I_{LED}<300mA)
OB3605APJP-J	14W(I_{LED}<300mA)	30W (I_{LED}<250mA)

Note: Maximum practical continuous power in an open frame design with sufficient drain pattern as a heat sink, at 50℃ ambient and 60℃ temperature rise. Higher output power is possible with extra added heat sink、air circulation and decrease output current to reduce thermal resistance.

Marking Information

```
OB3605Ax   X      X   -   X
```

High Precision Non-isolated dimmable LED Driver	Package	Package Halogen-free	Bvdss
	AS:DIP7 J: SOP7	P:Halogen-free	J:500V

Y: Year Code

WW: Week Code (01-52)

ZZZ:Lot Code

AS: DIP7

P:Halogen-free Package

A:Character code

s: Internal Code(Optional)

Y: Year Code

WW: Week Code (01-52)

ZZZ:Lot Code

J: SOP7

P:Halogen-free Package

A:Character code

s: Internal Code(Optional)
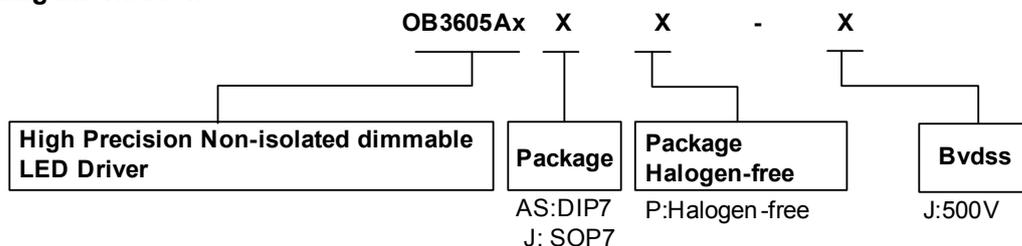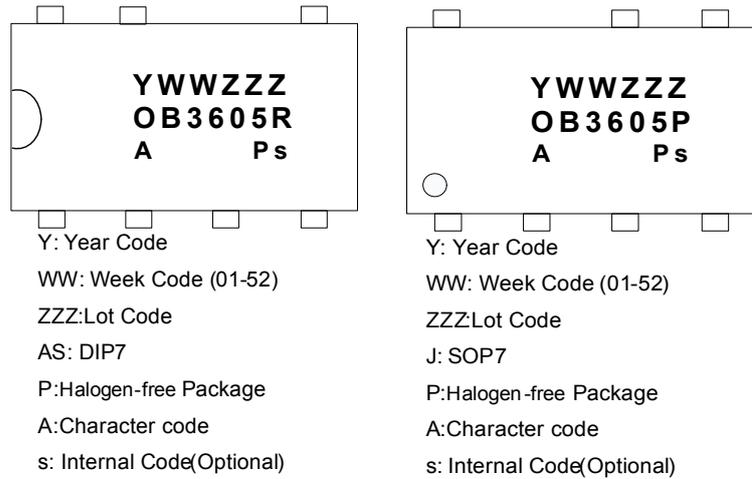
Terminal Assignments

Pin Num	Pin Name	I/O	Description
1	GND	P	Ground
2	VDD	P	Power supply Input
3	DIM	I	Dimming control Input
4	OVP	IO	Over voltage Protection configuration terminal
5	CS	I	Current Sensing terminal
6,7	DRAIN	IO	MOSFET Drain Terminal

Pin Num	Pin Name	I/O	Description
1	VDD	P	Power supply Input
2	DIM	I	Dimming control Input
3	OVP	IO	Over voltage Protection configuration terminal
4	CS	I	Current sensing terminal
5,6	DRAIN	IO	MOSFET Drain Terminal
7	GND	P	Ground