

## GENERAL DESCRIPTION

OB3398Ex is a primary side regulation off-line LED lighting power switch which can achieve accurate LED current. It significantly simplifies LED lighting system design by eliminating the secondary side feedback circuitry. Proprietary Constant Voltage (CV) and Constant Current (CC) control is integrated as shown in the figure below.

The LED current (CC control) can be adjusted externally by the resistor  $R_s$  at CS pin.

OB3398Ex offers comprehensive protection coverage with auto-recovery features including Cycle-by-Cycle current limiting, VDD clamp and UVLO.

OB3398Ex is offered in DIP8/SOP7 package.

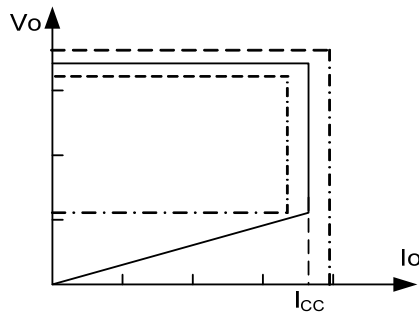


Fig.1. Typical CC/CV Curve

## FEATURES

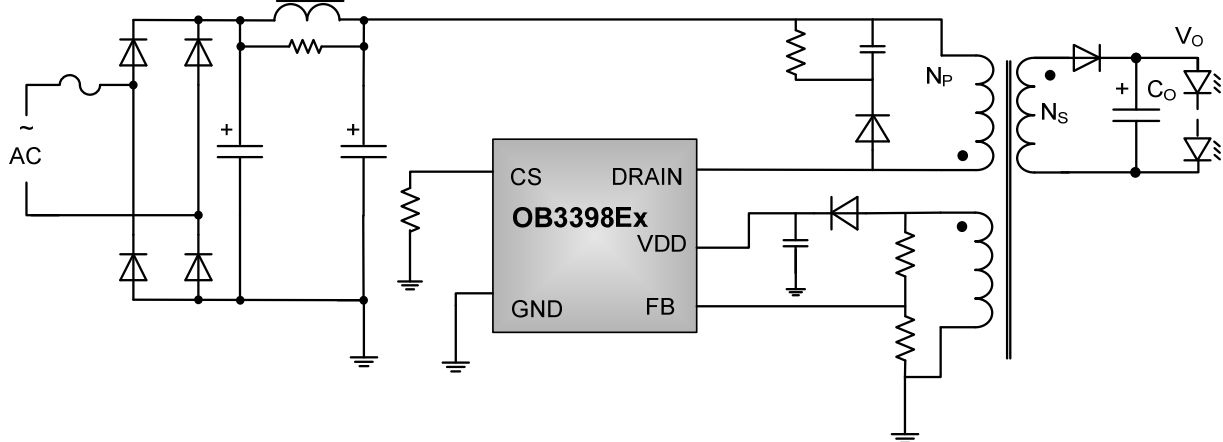
- High Precise Constant Current Regulation at Universal AC input
- Primary-side Sensing and Regulation Without TL431 and Opto-coupler
- HV MOSFET integrated
- Floating PSR control scheme with two transformer windings
- Adjustable Constant Current and Output Power Setting
- Built-in Primary winding inductance compensation
- Built-in Leading Edge Blanking (LEB)
- Cycle-by-Cycle Current Limiting
- VDD Under Voltage Lockout with Hysteresis (UVLO)
- Latched over temperature protection (OTP)
- VDD Clamp

## APPLICATIONS

Low Power AC/DC offline SMPS for

- LED applications

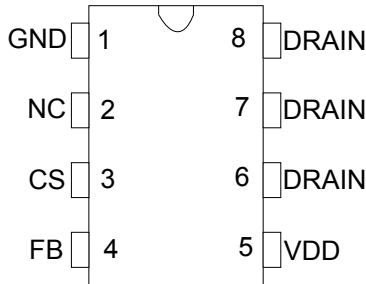
## TYPICAL APPLICATION



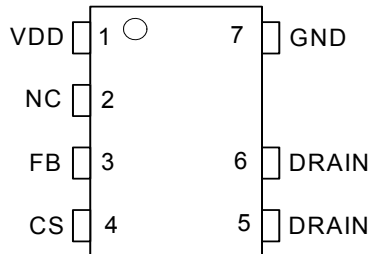
### GENERAL INFORMATION

#### Pin Configuration

The pin map is shown as below for DIP8.



The pin map is shown as below for SOP7.



#### Ordering Information

Part Number	Description
OB3398ENJP	SOP7, Halogen-free, Tube
OB3398ENJPA	SOP7, Halogen-free, T&R
OB3398EPJP-H	SOP7, Halogen-free, Tube
OB3398EPJPA-H	SOP7, Halogen-free, T&R
OB3398EPAP-H	DIP8, Halogen-free, Tube
OB3398ETAP-H	DIP8, Halogen-free, Tube
OB3398EVAP-H	DIP8, Halogen-free, Tube

#### Package Dissipation Rating

Package	R $\theta$ JA (°C/W)
DIP8	75
SOP7	95

#### Absolute Maximum Ratings

Parameter	Value
Drain Voltage	-0.3 to BV <sub>dss</sub>
VDD Voltage	-0.3 to V <sub>DD_clamp</sub>
CS Input Voltage	-0.3 to 7V
FB Input Voltage	-0.3 to 7V
Min/Max Operating Junction Temperature T <sub>J</sub>	-40 to 150 °C
Operating Temperature T <sub>A</sub> Ambient	-40 to 85 °C
Min/Max Storage Temperature T <sub>stg</sub>	-55 to 150 °C
Lead Temperature (Soldering, 10secs)	260 °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.

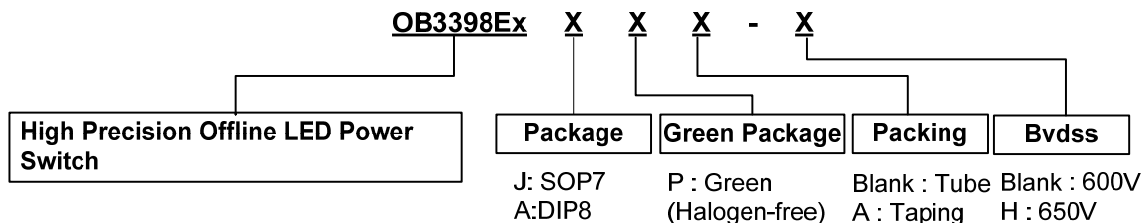
#### Output Power Table

Product	90Vac~264Vac Input	220Vac±20% Input
OB3398ENJP	7.7W	12.4W
OB3398EPJP-H	13.9W	21W
OB3398EPAP-H	15.8W	28W
OB3398ETAP-H	20.6W	30.2W
OB3398EVAP-H	23.7W	33.8W

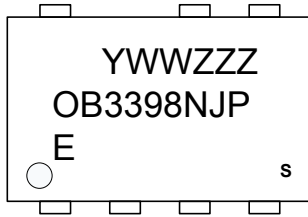
**Note:** Maximum practical continuous power in an open frame design with sufficient drain pattern as a heat sink, at 50°C ambient and 60°C temperature rise. Higher output power is possible with extra added heat sink, air circulation and decrease output current to reduce thermal resistance

#### Recommended Operating Condition

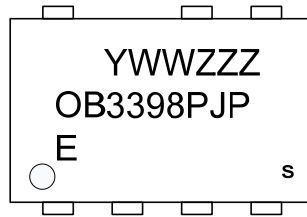
Symbol	Parameter	Range
VDD	VDD Supply Voltage	12 to 25 V



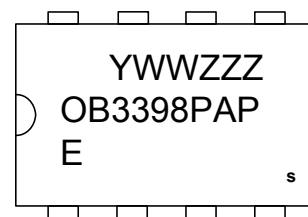
### Marking Information



Y:Year Code  
WW:Week Code(01-52)  
ZZZ:Lot Code  
J:SOP7 Package  
P:Green Package(Halogen-free)  
E:Character Code  
S:Internal Code(Optional)



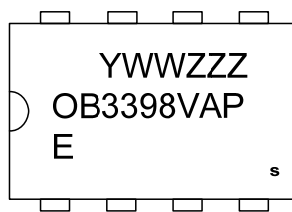
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Y:Year Code  
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A:DIP8 Package  
P:Green Package(Halogen-free)  
E:Character Code  
S:Internal Code(Optional)



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### TERMINAL ASSIGNMENTS for OB3398EPAP

Pin Num	Pin Name	I/O	Description
1	GND	P	Ground
2	NC		No connect
3	CS	I	Current sense input.
4	FB	I	Connected to resistor divider from primary winding or auxiliary winding to reflect output voltage.
5	VDD	P	Power Supply
6,7,8	Drain	O	Drain of internal power MOSFET

### TERMINAL ASSIGNMENTS for OB3398ENJP & OB3398EPJP

Pin Num	Pin Name	I/O	Description
1	VDD	P	Power Supply
2	NC		No connect
3	FB	I	Connected to resistor divider from primary winding or auxiliary winding to reflect output voltage.
4	CS	I	Current sense input.
5,6	Drain	O	Drain of internal power MOSFET
7	GND	P	Ground