GENERAL DESCRIPTION

OB3615x is a high power factor, highly integrated buck regulator with advanced features to provide high efficiency control and high precision constant current output for LED lighting applications.

The proprietary CC control scheme is used to provide features of insensitivity to inductance and line voltage. Without external large compensation capacitor, the system can achieve high power factor with proprietary PFC control scheme.

OB3615x offers comprehensive protection coverage with auto-recovery features including LED open loop protection, LED short circuit protection, cycle-by-cycle current limiting, built-in leading edge blanking, VDD under voltage lockout (UVLO), over temperature protection (OTP), thermal foldback etc.

OB3615x is offered in SOP-7/DIP8 package.

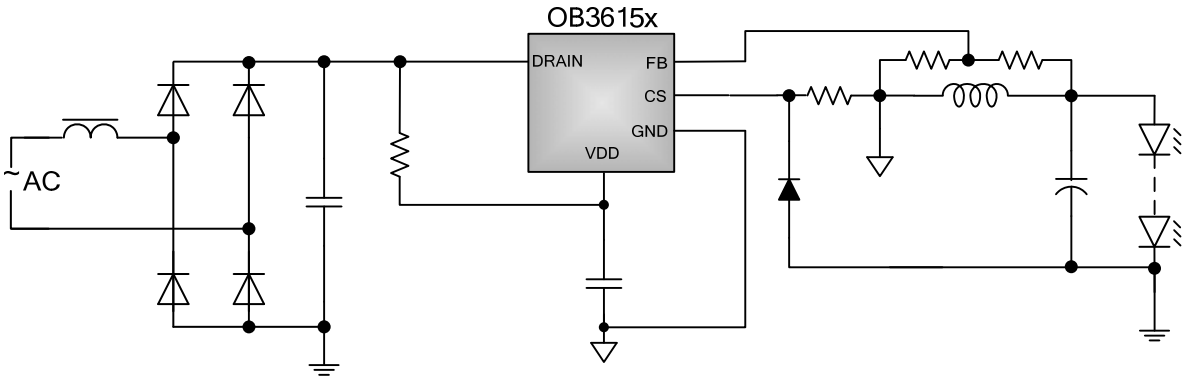
FEATURES

- High PF（PF>0.9）Buck topology with low system cost
- High precision constant current regulation at universal AC input
- Low system cost and high efficiency
- Quasi-Resonant operation
- Programmable CC regulation
- Thermal foldback function to control LED output current
- Insensitivity to inductance and line voltage variation
- LED short circuit protection
- LED open loop protection
- Cycle-by-cycle current limiting
- Built-in leading edge blanking (LEB)
- VDD under voltage lockout with hysteresis
- Over temperature protection (OTP)

APPLICATIONS

- LED lighting

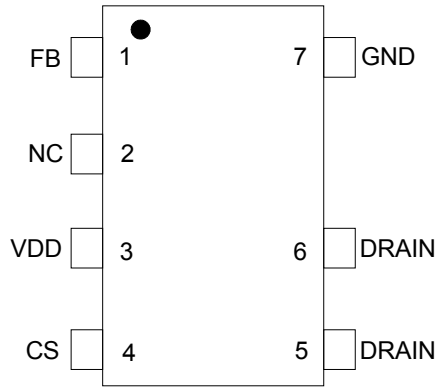
TYPICAL APPLICATION

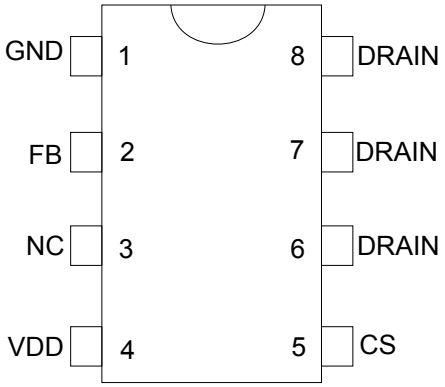


GENERAL INFORMATION

Pin Configuration

The pin map is shown as below.





Package Dissipation Rating

Package	RθJA (℃/W)
SOP7	90
DIP8	75

Recommended Operating Condition

Symbol	Parameter	Range
VDD	VDD Supply Voltage	8 to 12V

Ordering Information

Part Number	Description
OB3615NJP	7 Pin SOP , Pb free in Tube
OB3615NJPA	7 Pin SOP , Pb free in T&R
OB3615PJP	7 Pin SOP , Pb free in Tube
OB3615PJPA	7 Pin SOP , Pb free in T&R
OB3615RJP	7 Pin SOP , Pb free in Tube
OB3615RJPA	7 Pin SOP , Pb free in T&R
OB3615TJP	7 Pin SOP , Pb free in Tube
OB3615TJPA	7 Pin SOP , Pb free in T&R
OB3615TAP	8 Pin DIP , Pb free in Tube
OB3615PJP-N	7 Pin SOP , Pb free in Tube
OB3615PJPA-N	7 Pin SOP , Pb free in T&R
OB3615TJP-H	7 Pin SOP , Pb free in Tube
OB3615TJPA-H	7 Pin SOP , Pb free in T&R

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

Absolute Maximum Ratings

Parameter		Value
VDD Voltage		-0.3 to 20V
CS Input Voltage		-0.3 to 7V
FB Input Voltage		-0.3 to 7V
DRAIN Voltage	OB3615N/P/R/T	-0.3 to 500V
	OB3615P-N	-0.3 to 600V
	OB3615T-H	-0.3 to 650V
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 ℃

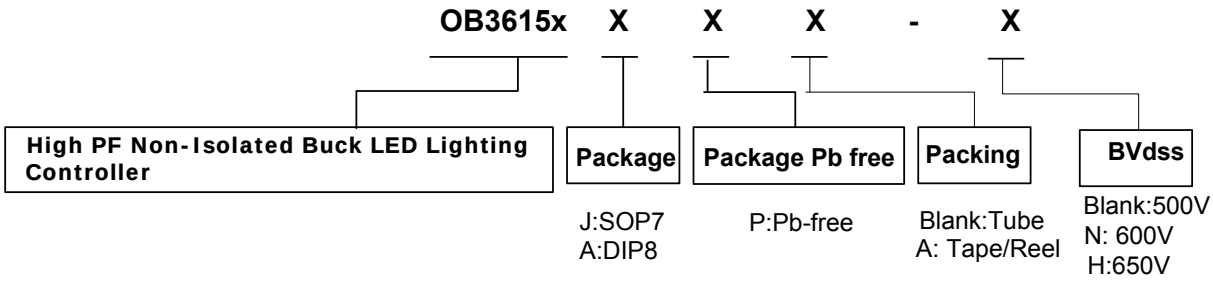
Note: Stresses beyond those listed under "absolute maximum ratings" may cause permanent damage to the device. These are stress ratings only, functional operation of the device at these or any other conditions beyond those indicated under "recommended operating conditions" is not implied. Exposure to absolute maximum-rated conditions for extended periods may affect device reliability.

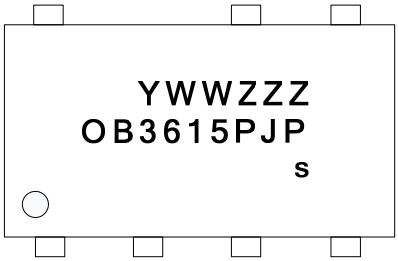
Output Power Table

Product	Condition	90Vac~264Vac Input	220Vac±20% Input
OB3615NJP	I_{LED}<150mA	8.6W	14.9W
OB3615PJP	I_{LED}<200mA	11.1W	20.2W
OB3615RJP	I_{LED}<250mA	13.2W	24.3W
OB3615TJP	I_{LED}<250mA	16.5W	31.6W
OB3615TAP	I_{LED}<300mA	16.4W	28.8W
OB3615PJP-N	I_{LED}<200mA	13.6W	24.3W
OB3615TJP-H	I_{LED}<250mA	15.9W	25.9W

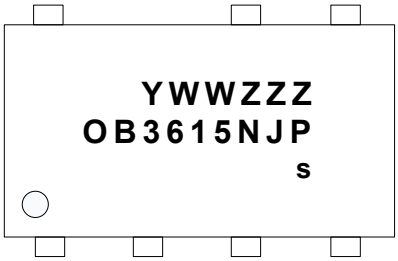
Note: Maximum practical continuous power in an open frame design with sufficient drain pattern as a heat sink, at 50℃ ambient and 60℃ temperature rise. Higher output power is possible with extra added heat sink、air circulation and decrease output current to reduce thermal resistance.

Marking Information





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



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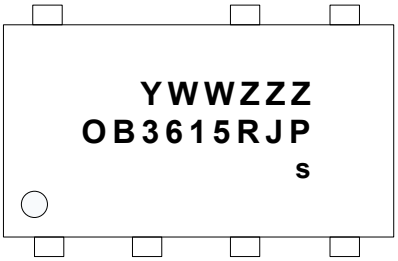

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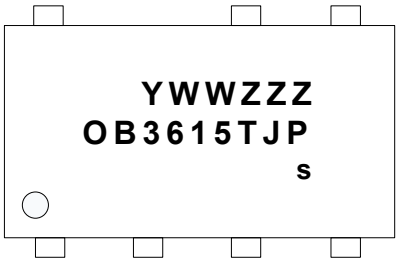

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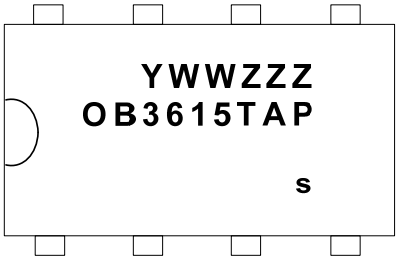


Y: Year Code
WW: Week Code (01-52)
ZZZ:Lot Code
A: DIP8
P:Pb-free Package
s: Internal Code(Optional)

Terminal Assignments for SOP7 Package Parts

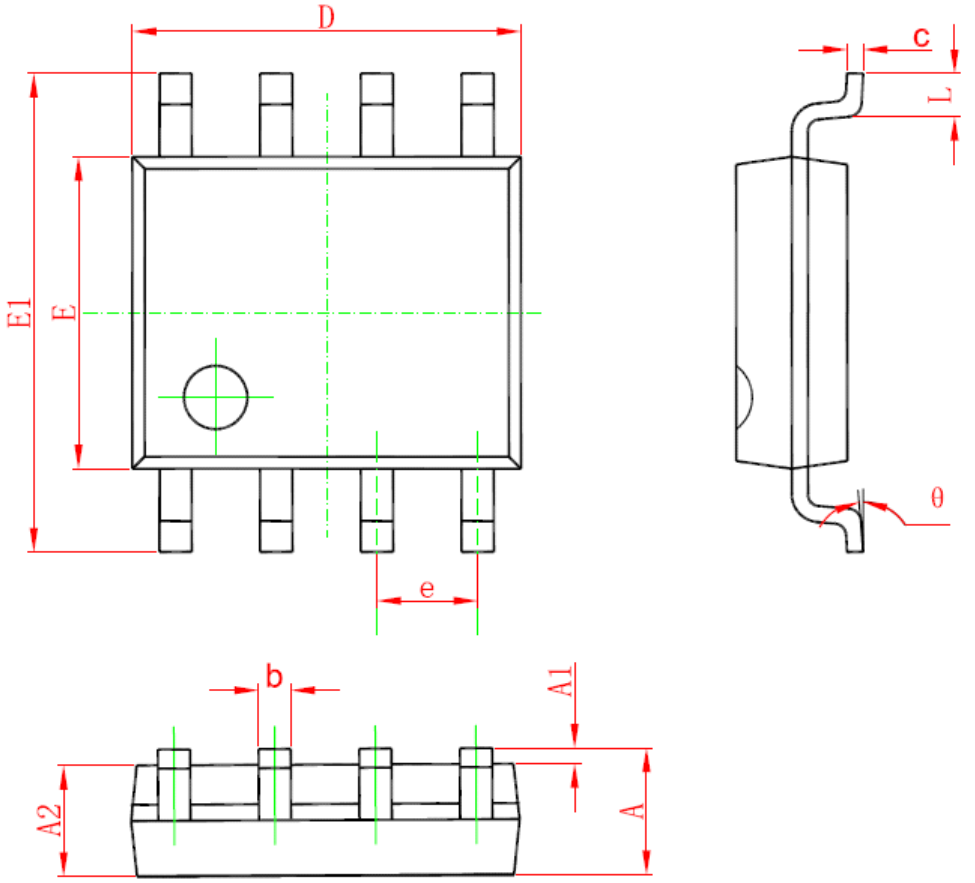
Pin Num	Pin Name	I/O	Description
1	FB	I/O	The voltage feedback from output. Connected to resistor divider from output voltage.
2	NC		No connect
3	VDD	P	Power supply input.
4	CS	I/O	Current sensing terminal.
5,6	DRAIN	I/O	Drain of power MOSFET.
7	GND	P	Power Ground.

Terminal Assignments for DIP8 Package Parts

Pin Num	Pin Name	I/O	Description
1	GND	P	Power Ground.
2	FB	I/O	The voltage feedback from output. Connected to resistor divider from output voltage.
3	NC		No connect
4	VDD	P	Power supply input.
5	CS	I/O	Current sensing terminal.
6,7,8	DRAIN	I/O	Drain of power MOSFET.

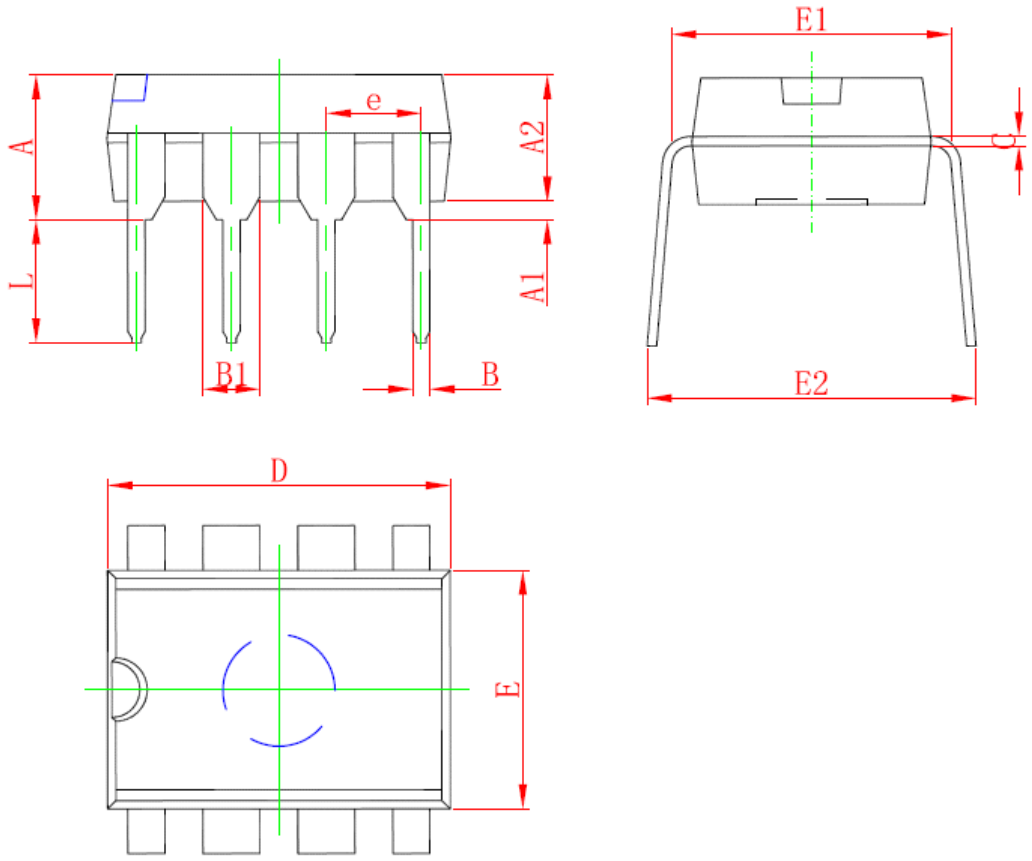
PACKAGE MECHANICAL DATA

7/8-Pin Plastic SOP (SOP7/8)



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°

DIP8 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

IMPORTANT NOTICE

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