

## GENERAL DESCRIPTION

OB3677 is a low system cost driver to remove/suppress the 100/120 Hz current ripple for LED lighting applications.

OB3677 integrates a NMOSFET and the output current is suggested less than 150mA.

OB3677 can be used in traditional and dimming LED lighting application.

OB3677 is offered in SOT23-3, SOT-89-3, and CPC-4 package.

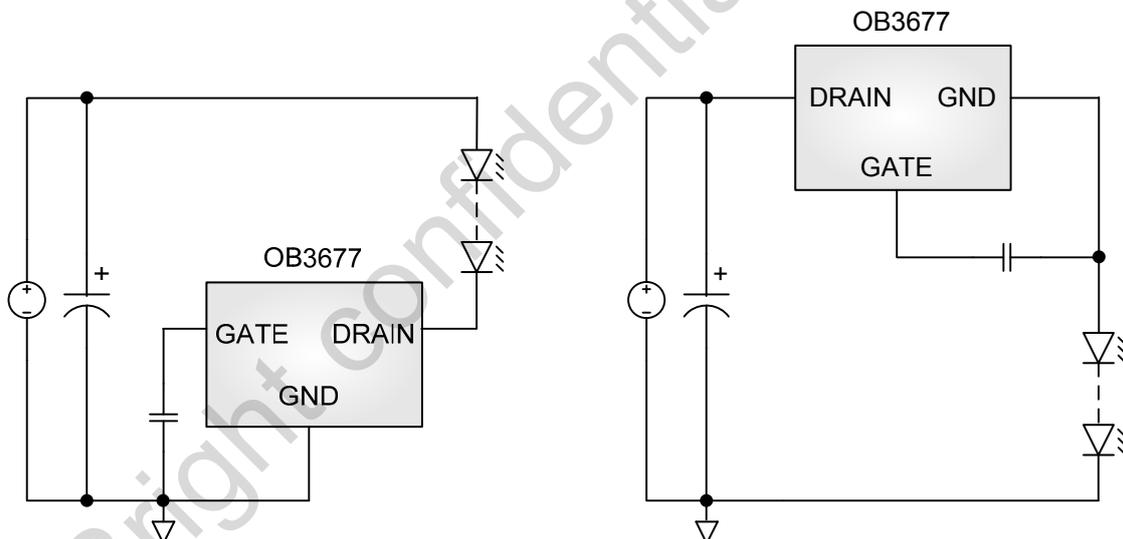
## FEATURES

- Driver for 100/120Hz current ripple removal/suppress
- Low system cost
- Little volume
- Supports wide dimming range: 0%-100%
- SOT23-3/SOT-89/CPC-4 Package

## APPLICATIONS

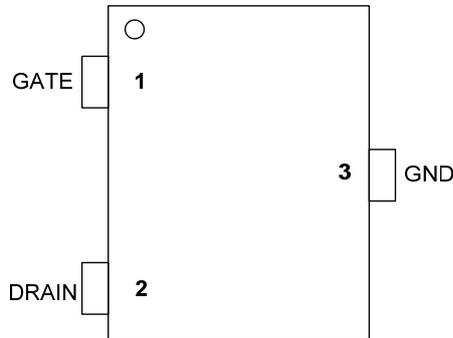
- LED lighting

## TYPICAL APPLICATION

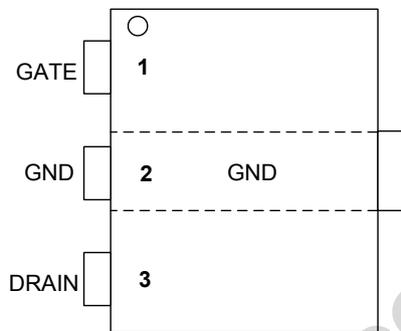


## GENERAL INFORMATION

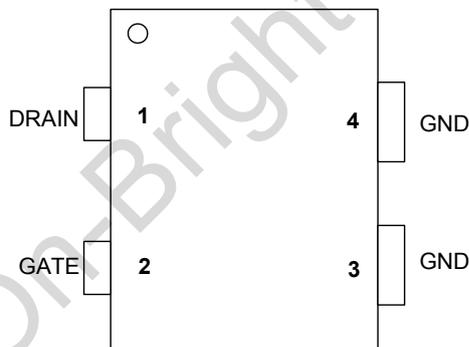
### Pin Configuration Pin Configuration



Pin map for SOT23-3 package



Pin map for SOT-89 package



Pin map for CPC-4 package

### Ordering Information

Part Number	Description
OB3677MDP	SOT23-3, Halogen-free in Tube
OB3677MDPA	SOT23-3, Halogen-free in T&R
OB3677MPP	SOT89-3, Halogen-free in Tube
OB3677MPPA	SOT89-3, Halogen-free in T&R
OB3677KDP	CPC-4, Halogen-free in Tube
OB3677KDPA	CPC-4, Halogen-free in T&R

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

### Package Dissipation Rating

Package	RθJA (°C/W)
SOT23-3	210
SOT89-3	130
CPC-4	160

### Recommended Operating Condition

Symbol	Parameter	Range
V <sub>Drain</sub>	V <sub>Drain</sub> Voltage Ripple	<12V

### Absolute Maximum Ratings

Parameter	Value
DRAIN Voltage	-0.3 V to 40V
GT Voltage	-0.3 V to 7V
Min/Max Operating Junction Temperature T <sub>J</sub>	-40 to 150 °C
Operating Ambient Temperature T <sub>A</sub>	-40 to 85 °C
Min/Max Storage Temperature T <sub>stg</sub>	-55 to 150 °C
Lead Temperature (Soldering, 10secs)	260 °C

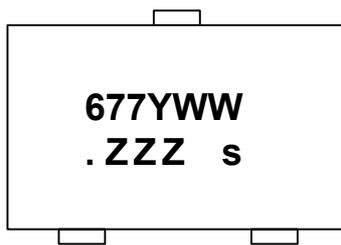
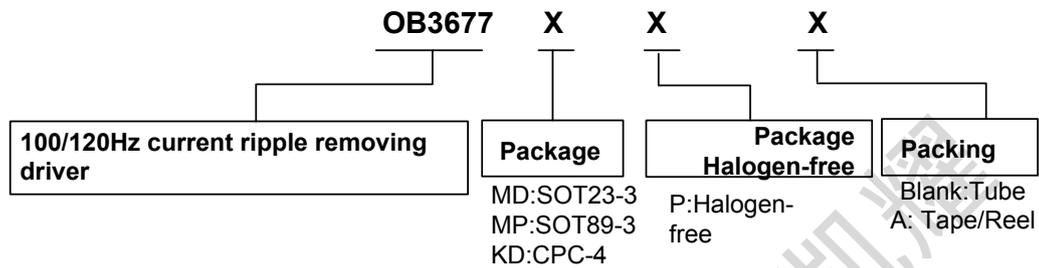
**Note:** Stresses beyond those listed under "absolute maximum ratings" may cause permanent damage to the device. These are stress ratings only, functional operation of the device at these or any other conditions beyond those indicated under "recommended operating conditions" is not implied. Exposure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

### Output Power Table

Product	Package	Condition	Max Power Dissipation
OB3677MDP	SOT-23-3	I <sub>o</sub> <150mA, V <sub>drain</sub> <12V	400mW
OB3677KDP	CPC-4	I <sub>o</sub> <150mA, V <sub>drain</sub> <12V	460mW
OB3677MPP	SOT-89	I <sub>o</sub> <150mA, V <sub>drain</sub> <12V	600mW

**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.

**Marking Information**



Y:Year Code  
 WW:Week Code(01-52)  
 ZZZ: Lot code  
 s: Internal code



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**TERMINAL ASSIGNMENTS for SOT23-3 Package Parts**

Pin Num	Pin Name	I/O	Description
1	GATE	I/O	Gate of internal NMOSFET
2	DRAIN	P	Drain of internal NMOSFET
3	GND	P	Ground

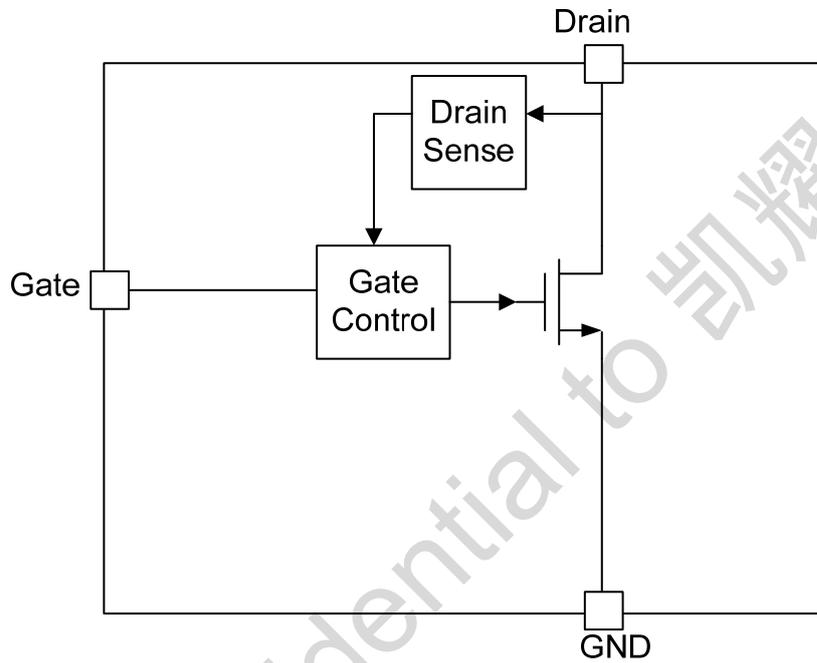
**TERMINAL ASSIGNMENTS for SOT-89 Package Parts**

Pin Num	Pin Name	I/O	Description
1	GATE	I/O	Gate of internal NMOSFET
2	GND	P	Ground
3	DRAIN	P	Drain of internal NMOSFET

**TERMINAL ASSIGNMENTS for CPC-4 Package Parts**

Pin Num	Pin Name	I/O	Description
1	DRAIN	P	Drain of internal NMOSFET
2	GATE	I/O	Gate of internal NMOSFET
3,4	GND	P	Ground

**BLOCK DIAGRAM**



**ELECTRICAL CHARACTERISTICS**

(TA = 25°C, , if not otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ.	Max	Unit
<b>Gate</b>						
V <sub>gs max</sub>	Maximum Gate-source Voltage			5		V
<b>Drain</b>						
I <sub>D max</sub>	Maximum Current of MOSFET	V <sub>gs</sub> =1.5V, V <sub>ds</sub> =0.8V		150		mA

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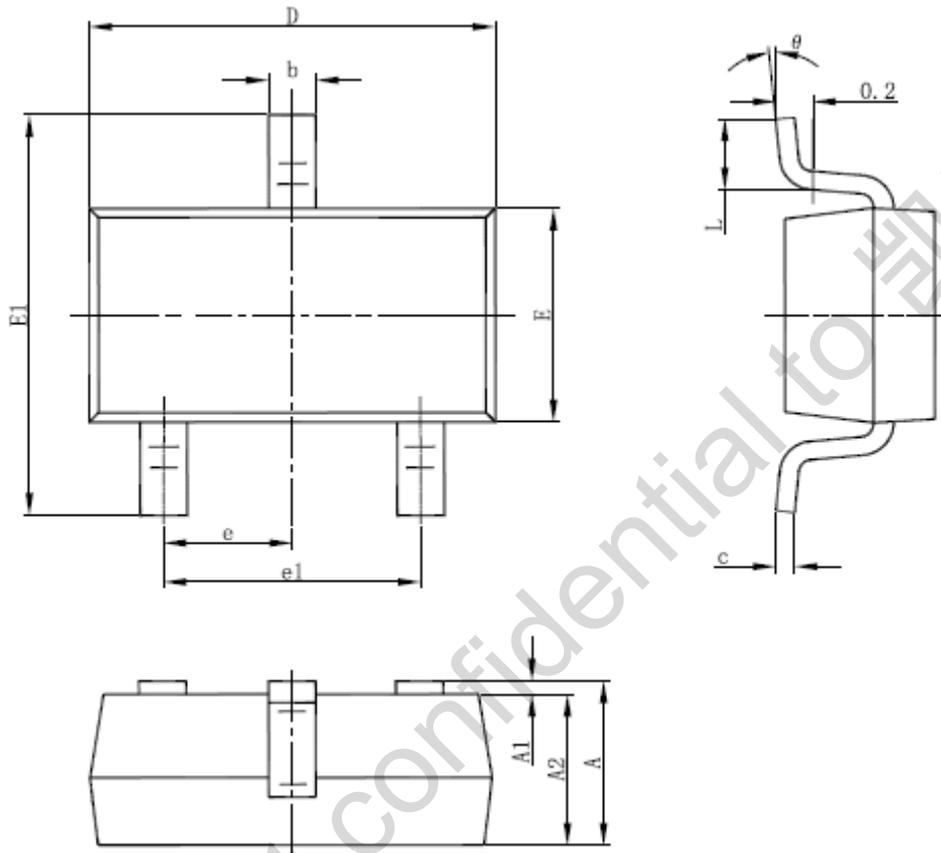
OB3677 can be used in traditional and dimming LED lighting application.

**● Gate-Source Capacitor**

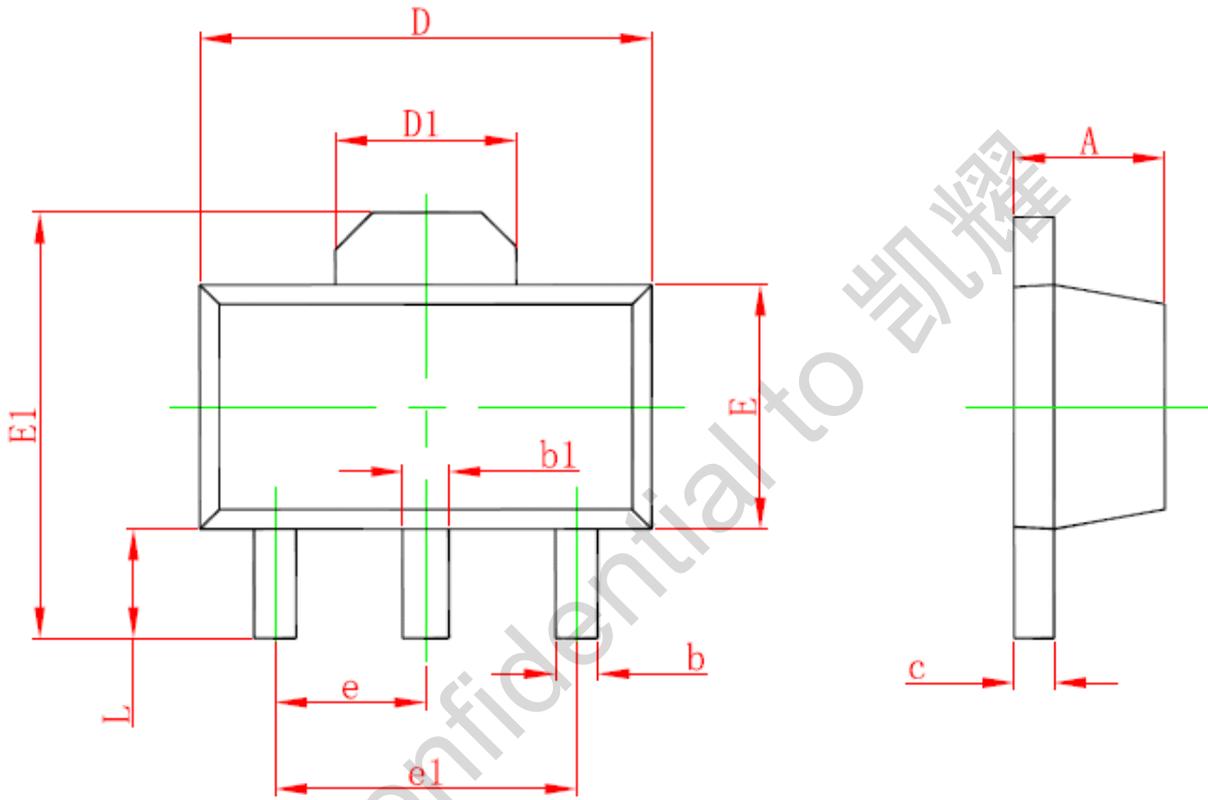
OB3677 regulates gate voltage of internal NMOSFET to ensure it works in saturation region. A capacitor is used to filter 100/120Hz voltage ripple.

The capacitor is suggested to use 1uF.

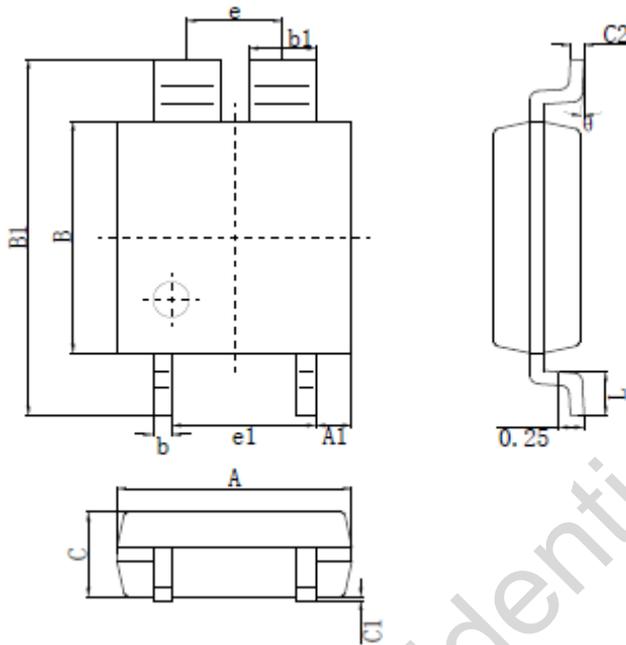
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**PACKAGE MECHANICAL DATA**
**3-Pin Plastic SOT23 (SOT23-3)**


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.000	1.450	0.000	0.057
A1	0.000	0.150	0.000	0.006
A2	0.900	1.300	0.035	0.051
b	0.300	0.500	0.012	0.020
c	0.080	0.220	0.003	0.009
D	2.800	3.026	0.110	0.119
E	1.500	1.726	0.059	0.068
E1	2.600	3.000	0.102	0.118
e	0.950 (BSC)		0.037 (BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

**3-pin Plastic SOT89 (SOT89-3)**


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.600	1.830	0.063	0.072
E	2.290	2.600	0.090	0.102
E1	3.940	4.250	0.155	0.167
e	1.500(BSC)		0.059	
e1	3.000(BSC)		0.118	
L	0.800	1.200	0.031	0.047

**4-Pin Plastic CPC(CPC-4)**


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	2.50	2.70	0.098	0.106
A1	0.35	0.45	0.014	0.018
B	2.50	2.70	0.098	0.106
B1	3.85	4.15	0.152	0.163
b	0.16	0.26	0.006	0.010
b1	0.69	0.79	0.027	0.031
C	0.85	1.05	0.033	0.041
C1	0.00	0.15	0.000	0.006
C2	0.15	0.18	0.006	0.007
e	1.06(BSC)		0.042(BSC)	
E1	1.59(BSC)		0.063(BSC)	
L	0.40	0.60	0.016	0.024
θ	0°	8°	0°	8°

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