

DESCRIPTION

The ADT6200 is a AC direct LED driver with very few total components. ADT6200 eliminates the need for the electrolytic capacitor and magnetic components. With superior efficiency, power factor correction and low total harmonic distortion, the ADT6200 is ideal for advanced energy saving LED lighting applications.

LED Power is set by only one resistor.

ADT6200 ensures high reliability and long life time for LED-based luminaire designs. It also include over-temperature protection, it turns off LED current when its junction temperature exceeds 150°C.

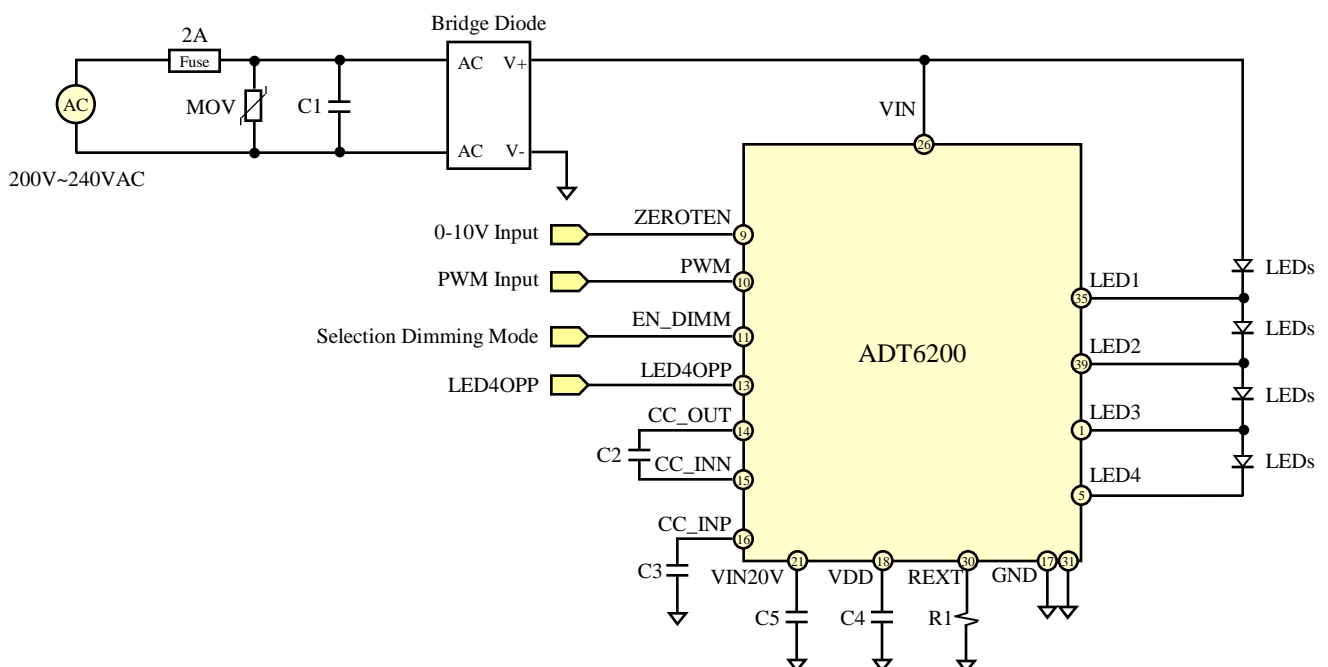
FEATURES

- 85~135VAC, 175~265VAC Wide Input Range
- High Power Factor > 0.95
- Input Power : Up to 50W
- Low THD < 25%
- High Efficiency > 90%
- Improved Line Regulation : $\pm 3\%$ @200~240VAC
- Dimming Method : PWM, 0-10V
- 5V Regulator Output
- Over-Temperature Protection, Over-Current Protection
- Available in QFN-48L (7x7) package

APPLICATIONS

- General LED lighting

TYPICAL APPLICATION



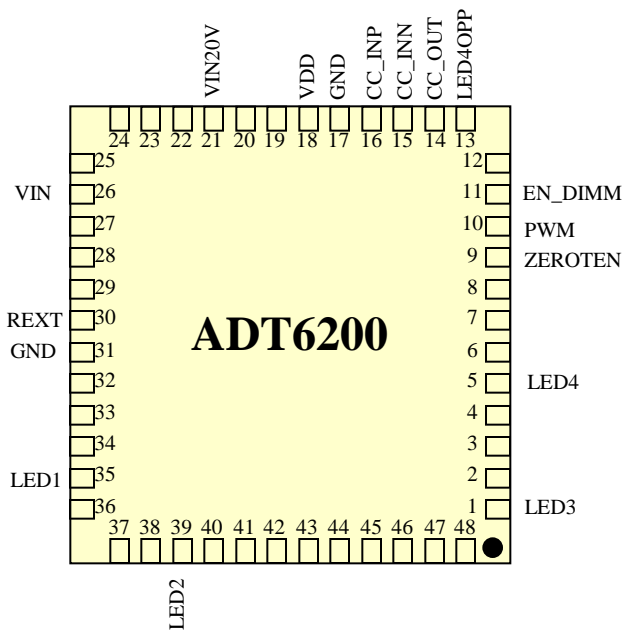
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PIN DESCRIPTION

Pin No.	Pin Name	Description
1	LED3	3 rd LED Sink Driver
5	LED4	4 th LED Sink Driver
9	ZEROTEN	0-10V Dimming Input It must be FLOAT, if you don't use PWM or ZEROTEN dimming functions.
10	PWM	PWM Dimming Input It must be connected to VDD, if you don't use PWM dimming function.
11	EN_DIMM	GND : Zero-Ten Dimming Mode VDD : PWM or Non Dimming Mode
13	LED4OPP	LED4OPen Protection GND : Disable Floating : Enable
14	CC_OUT	Capacitor for Line Regulation
15	CC_INN	Capacitor for Line Regulation
16	CC_INP	Capacitor for Line Regulation
17	GND	Ground
18	VDD	5V Regulator Output
21	VIN20V	20V Regulator Output
26	VIN	Rectified AC Input Voltage
30	REXT	External Resistor Pin for LED Current Setting
31	GND	Ground
35	LED1	1 st LED Sink Driver
39	LED2	2 nd LED Sink Driver

Note. Unassigned pins should not be connected.

PIN CONFIGURATION

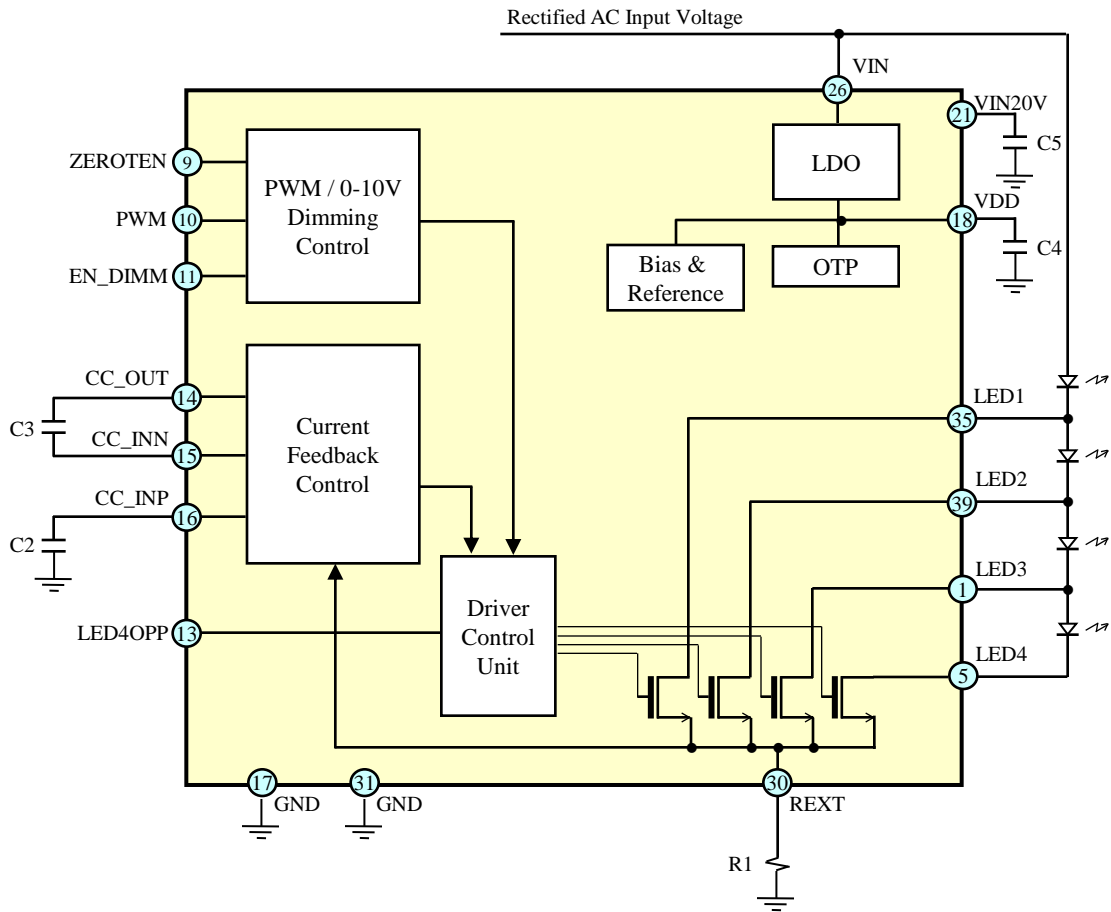


< Top View >

< Package outline >

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BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS (Ta = 25°C, Note1)

PARAMETER	SYMBOL	RATING	UNIT
Ground Voltage	GND	-0.3	V
Power Voltage	VIN	450	V
Regulator Voltage	VIN20V	20	V
LED Output Voltage	LED1~4	450	V
Input/Output Voltage	EN_DIMM, PWM, CC_INP, CC_INN, CC_OUT, VDD, REXT, LED4OPP	6	V
ZEROTEN Dimming Voltage	ZEROTEN	12	V
Storage Temperature	T _{stg}	-65 ~ 150	°C
Thermal Resistance	θ _{JA}	30	°C/W

Note1. Stresses beyond those listed under “Absolute Maximum Ratings” may cause permanent damage to the device.

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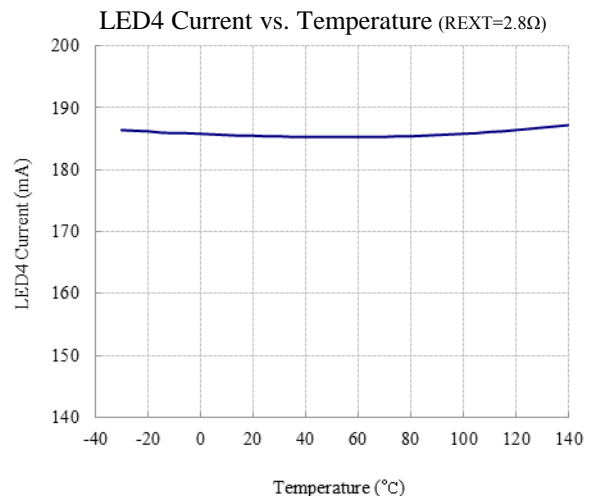
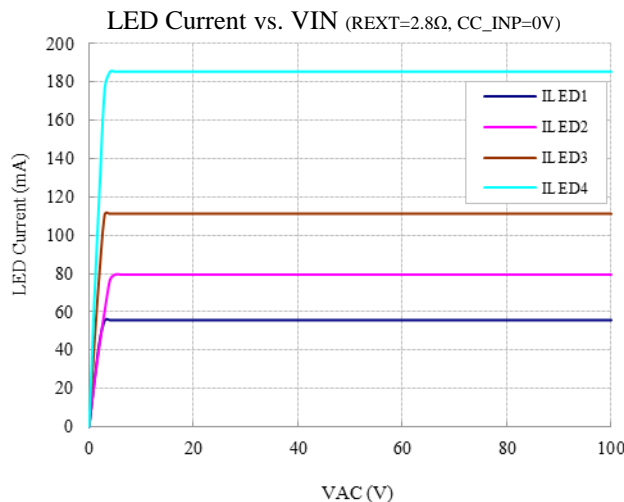
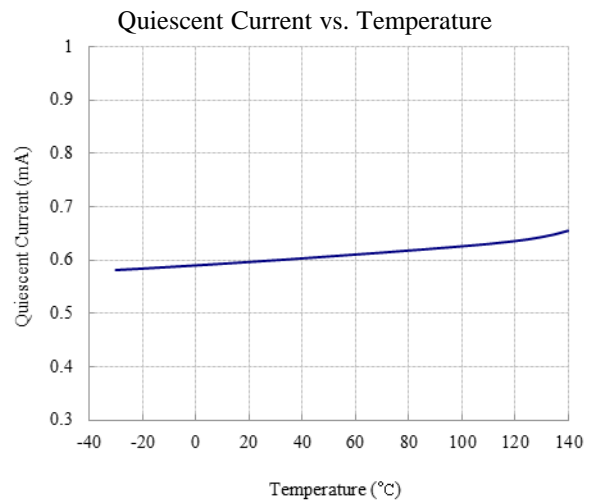
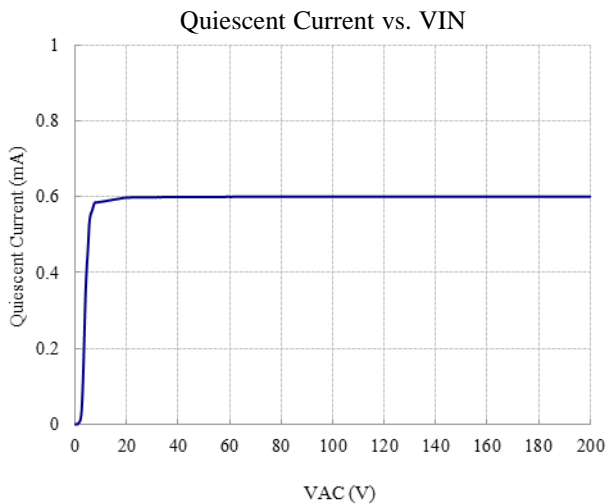
ELECTRICAL CHARACTERISTICS

(VIN=20V, REXT=6.6Ω, Typical values are at TA=25°C)

CHARATERISTICS	CONDITIONS	MIN.	TYP.	MAX.	UNIT
VIN Quiescent current	VIN = 20 ~ 450V	-	-	1.2	mA
VDD Voltage	VIN = 20V	4.5	5.0	5.5	V
LED1 Current	VIN = 20V, VLED1=20V	-	23	-	mA
LED2 Current	VIN = 20V, VLED2=20V	-	33	-	mA
LED3 Current	VIN = 20V, VLED3=20V	-	47	-	mA
LED4 Current	VIN = 20V, VLED4=20V	69.3	77	84.7	mA
LED RMS Current ⁽¹⁾	Total VF=260V, REXT=0.75Ω	-	257	-	mA
Internal OTP shutdown threshold ⁽²⁾		-	150	-	°C
Internal OTP shutdown reset ⁽²⁾		-	100	-	°C

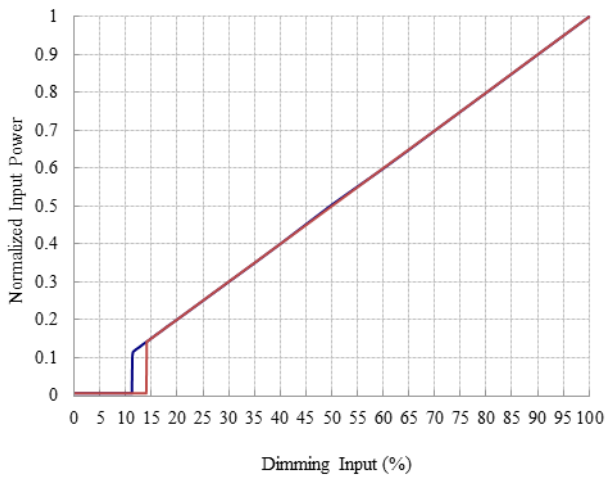
Note 1. LED RMS Current = 0.193 / REXT

Note 2. The parameter is guaranteed by design. It is not tested in production.

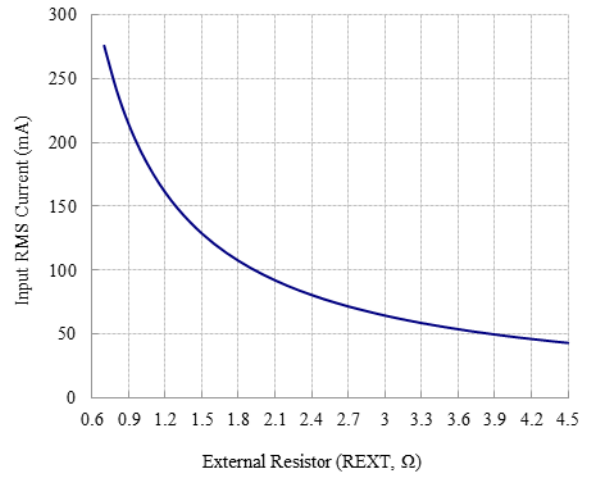


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Normalized Input Power vs. Dimming Input



Input RMS Current vs. REXT



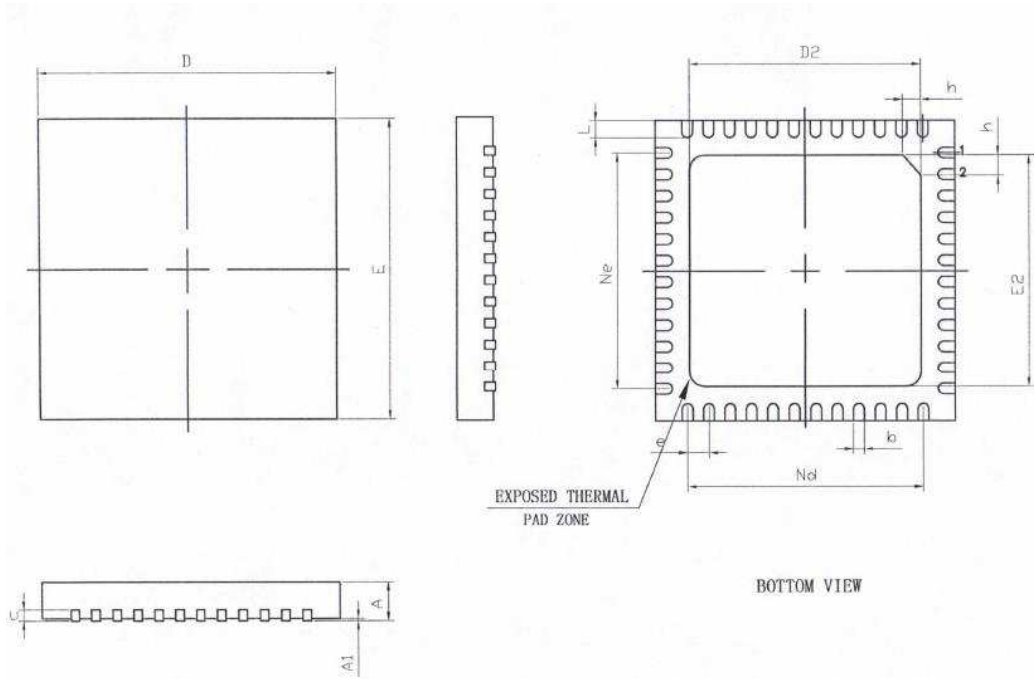
Power Setting Guide

External Resistor (ohm)	Input RMS Current (mA)	Input Power (W) @ VAC=220V
1.8	107.0	23.6
1.3	148.0	32.6
0.75	257.0	56.6

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PACKAGE DIMENSTION

QFN-48L (7 mm x 7 mm)



Symbol	Dimensions In Millimeters		
	Min	Nom	Max
A	0.70	0.75	0.80
A1	-	0.02	0.05
b	0.18	0.25	0.30
c	0.18	0.20	0.23
D	6.90	7.00	7.10
D2	5.30	5.40	5.50
e	0.50BSC		
Ne	5.50BSC		
Nd	5.50BSC		
E	6.90	7.00	7.10
E2	5.30	5.40	5.50
L	0.35	0.40	0.45
h	0.30	0.35	0.40

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