

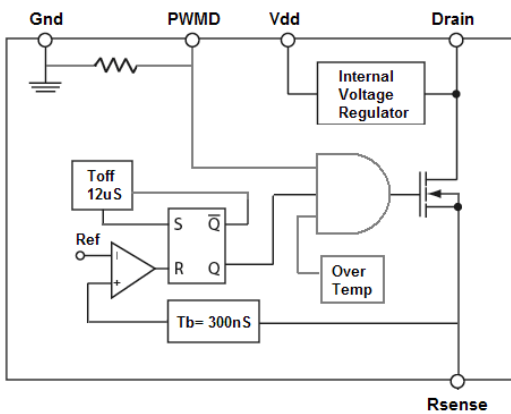
Features

- Working DC voltage range : 20 to 400VDC
- Working AC voltage range : 85 to 264VAC
- Constant current: 100mA
- Over temperature protection with hysteresis
- PWM dimming
- Fixed off time control buck converter
- Internal 475V power MOSFET

Applications

- Decorative lighting
- LED lamps with AC or DC operation

Equivalent Block Diagram



General Description

The LD7209 is a PWM high efficiency programmable current LED driver with PWM dimming control IC. It allows efficient operation of LED strings from voltage source ranging up to 400VDC. It includes an internal high voltage switching MOSFET controlled with fixed off-time of approximately 12µs.

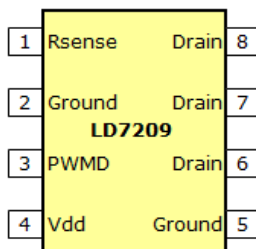
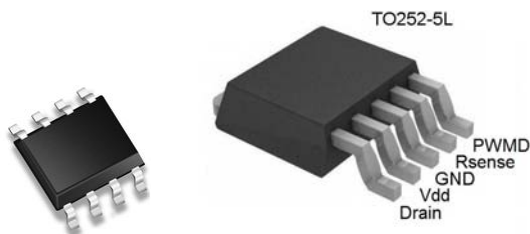
The LED string is driven at constant current, thus providing constant light output and enhanced reliability. The output current is internally fixed at 100mA. The peak current control scheme provides good regulation of the output current throughout the universal AC line voltage range of 85~264VAC or 20~400VDC.

Ordering Information

		Packing Options	
Part No.	Package	Tube(TU)	Tape & Reel(TR)
LD7209	SOP-8	LD7209S1-TU	LD7209S1-TR
	TO-252-5	LD7209T7-TU	LD7209T7-TR

- Package material default is "Green" package.

Package Pin out



Product Marking

LD8888	◇ Line 1 – "LD" is a fixed character
SSSSS...	8888: product name
●	◇ Line 2 – SSSSS...: lot number

Absolute Maximum Ratings

Parameter	Limit	Units	
Input voltage range	475	V	
V _{DD} to GND	9	V	
PMWD, R _{sense} to GND	V _{DD} +0.3	V	
Power Dissipation @T _A =25°C	Internal Limited		
Operating Ambient temperature	-40 to +85	°C	
Storage temperature range	-65 to +150	°C	
Thermal Resistance – Junction to Ambient	SOP-8	160	°C/W
	TO-252-5L	50	°C/W

The values beyond the boundaries of absolute maximum rating may cause the damage to the device. Functional operation in this context is not implied. Continuous use of the device at the absolute rating level might influence device reliability. All voltages have their reference to device ground.

Electrical Characteristics

Test conditions unless otherwise specified: T_A=25°C, V_{IN}=50V

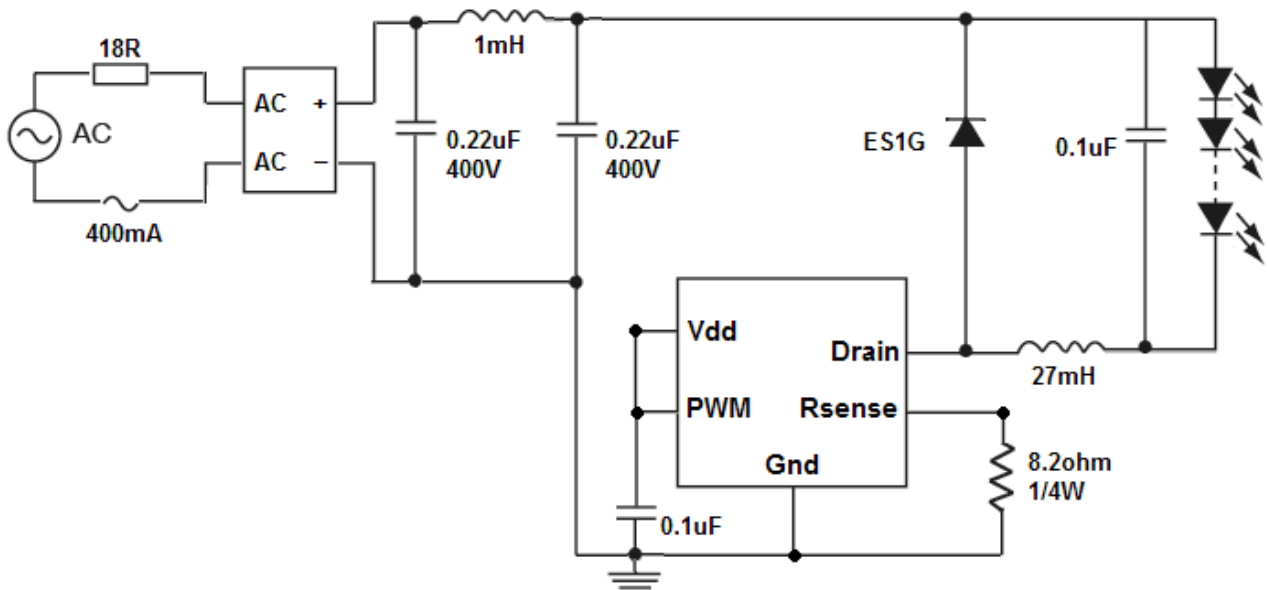
Parameter	Symbol	Condition	Min	Typ	Max	Units
Internal Regulator						
V _{DD} output	V _{DD}	–	–	7.5	–	V
V _{DRAIN} supply voltage	V _{DRAIN}	–	20	–	400	V
V _{DD} under-voltage threshold	V _{UVLO}	V _{DD} rising	4.8	–	–	V
V _{DD} under-voltage lockout Hysteresis	ΔV _{UVLO}	V _{DD} falling	–	200	–	mV
Input quiescent current	I _{DD}	V _{DD(EXT)} = 8.0V	–	–	500	μA
Output Drain						
Breakdown voltage	V _{BR}	*1	475	–	–	V
On resistance	R _{ON}	I _{DRAIN} = 50mA	–	100	200	Ω
MOSFET saturation current	I _Q	–	100	150	–	mA
Current Sense Comparator						
Threshold voltage	V _{TH}	*1	0.43	–	0.53	V
Leading edge blanking delay	T _{BLANK}	*1*2	200	300	400	nS
Minimum turn on time	T _{ON}	–	–	–	650	nS
Off Time Generator						
Off time duration	T _{OFF}	–	8	12	18	μS
PWMD						
PWMD Input Voltage	V _{PWMD}	High voltage	2.0	–	–	V
		Low voltage	–	–	0.8	
PWMD Pull Down Resistance	R _{PWMD}	V _{PWMD} =5V	100	–	300	Ω

Note:

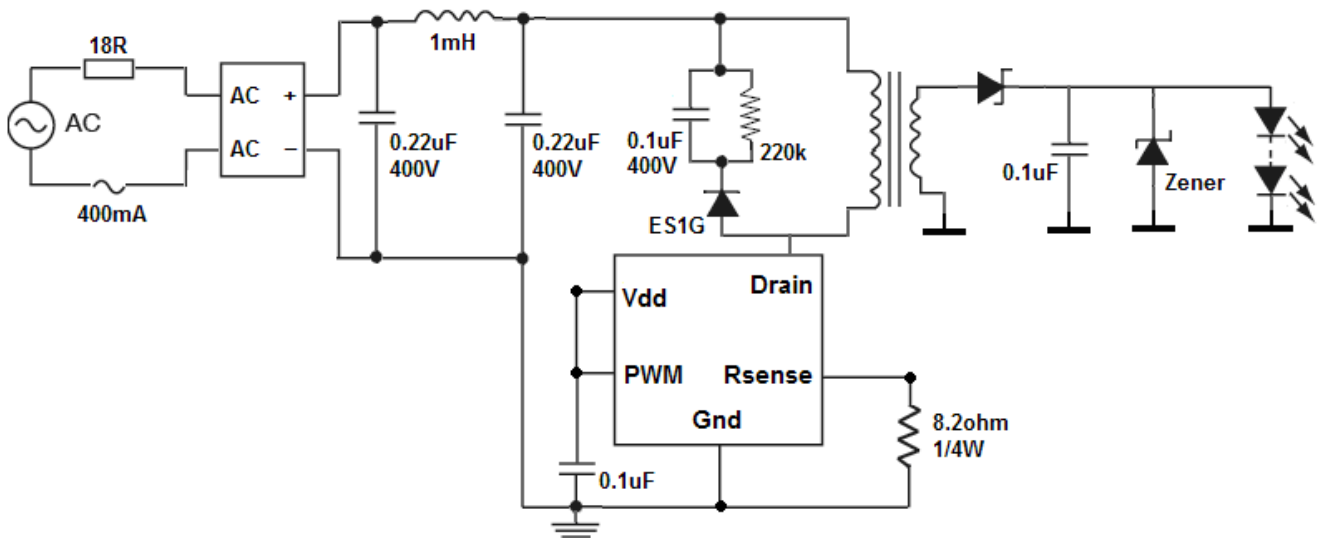
1. Operating under ambient temperature range -40°C < T_A < 85°C
2. Guaranteed by design

Typical Application Circuits

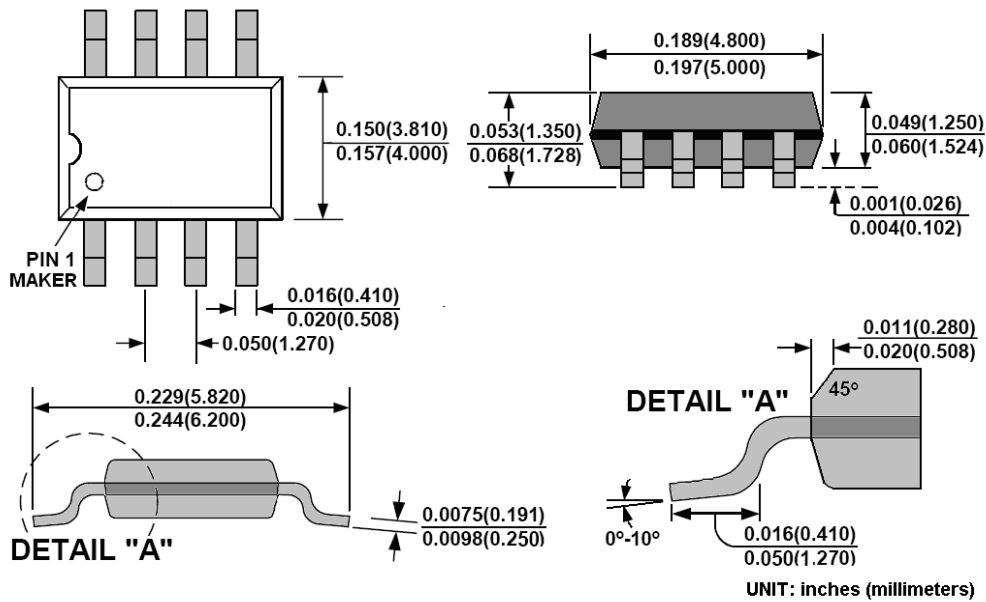
Universal 85~264VAC LED Lamps Driver (Non-Isolation)



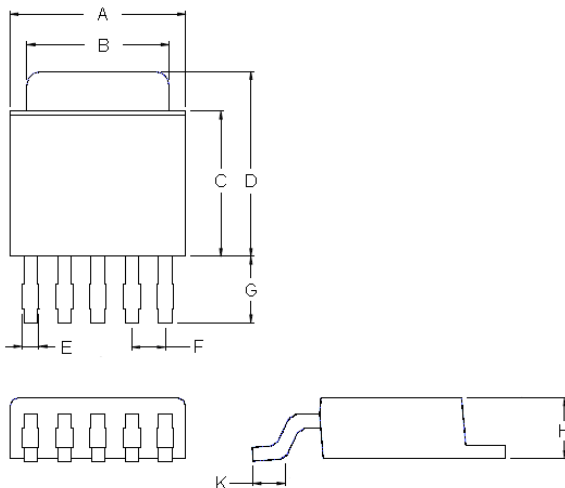
Universal 85~264VAC LED Lamps Driver (Isolation)



Package Outline
SOP-8:



TO-252-5L:



Symbols	Dimensions in Millimeters		
	Minimum	Normal	Maximum
A	6.40	6.50	6.60
B	5.30	5.37	5.46
C	6.00	6.10	6.20
D	7.10	7.20	7.30
E	0.55	0.60	0.65
F	1.22	1.27	1.32
G	2.40	2.65	2.90
H	2.22	2.31	2.40
K	1.42	1.53	1.64

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