Preliminary – **LD7661**

High Voltage 120V Linear LED Driver
60mA Constant Current with Control

Features

- Wide input voltage range : 8V to 120V
- Constant output current : 56mA
- Constant application current : 60mA±6.0%
- Parallel working for higher currents
- Dropout voltage: 2.0V
- RoHS and green compliant packages

Applications

- Turn signal
- LED traffic light
- Signage or decorative LED lamp
- Constant source or constant sink

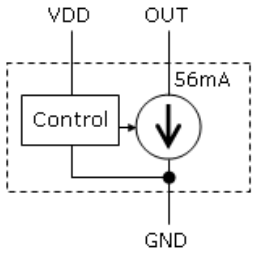
General Description

The LD7661 is a cost-effective linear regulator optimized for high input voltage. It regulates to supply a constant application current of 60mA±6.0% at input voltage of 8V to 120Vdc with the enable control by VDD. The Device can be used as a constant current source or a constant current sink.

The typical application of LD7661 is to drive a string LED with a constant current 60mA. The dropout voltage can be low as 2.0V. The parallel connection of LD7661 can be used to provide higher constant current.

For a wider application, the package is available in SOT-89, TO-252, and TO-220.

Equivalent Block Diagram

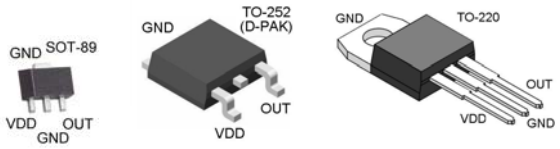


Ordering Information

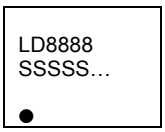
		Packing Options		
Part No.	Package	**Tube(TU)**	**Bag(BG)**	**Tape & Reel(TR)**
LD7661	SOT-89-3	N/A	LD7661L5-BG	LD7661L5-TR
	TO-252-3	LD7661T6-TU	N/A	LD7661T6-TR
	TO-220-3	LD7661T3-TU	N/A	LD7661T3-TR

- Package material default is “Green” package.

Package Pin Out



Product Marking



- Line 1 – “LD” is a fixed character
  8888: product name
- Line 2 – SSSSS…: lot number

Thermal Characteristics

Package	Power Dissipation @T_A=25°C	θ_{JC} °C/W	θ_{JA} °C/W
SOT-89	1.3W	15	80
TO-252	2.0W	1.3	40
TO-220	2.0W	2.5	62

Absolute Maximum Ratings

Parameter	Maximum	Units
Maximum Operating Voltage	130	V
Operating Junction Temperature	-40 to +125	°C
Storage Temperature	-55 to +150	°C

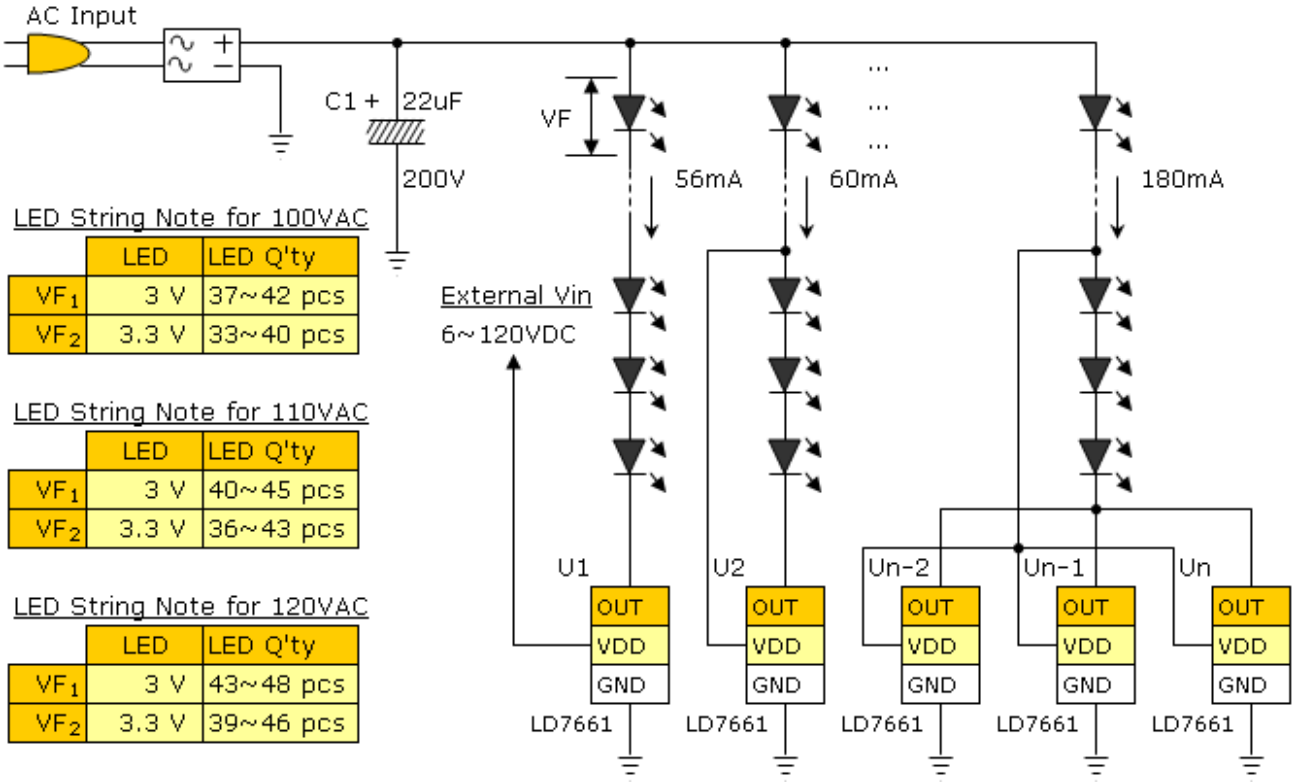
The values beyond the boundaries of absolute maximum rating may cause the damage to the device. Functional operation in this context is not implied. Continuous use of the device at the absolute rating level might influence device reliability. All voltages have their reference to device ground.

Electrical Characteristics

T_A=25°C unless specified, otherwise minimum and maximum values are guaranteed by production testing requirements.

Parameter	Symbol	Condition	Minimum	Typical	Maximum	Units
Supply Voltage	V_{DD}	Normal	6.5	–	28	V
		Extended	6.5	–	120	
Output Voltage at OUT	V_{OUT}	Normal	2.0	–	28	V
		Extended	2.0	–	120	
VDD current	I_{DD}		–	4.0	5.0	mA
Regulated Constant OUT Current	I_{OUT}	V_{OUT} = 2.0V ~ 120V	48.8	56	63.2	mA
		V_{OUT} < 2.0V	–	–	48.8	
Application Constant Current	I_{OUT} + I_{DD}	Bin 1 Category	52.8	–	57.6	mA
		Bin 2 Category	56.4	60	63.6	
		Bin 3 Category	62.4	–	67.2	
OUT Current while VDD open	$I_{OUT(OFF)}$	V_{DD} open	–	–	10	μA
OUT shut off VDD voltage	$V_{OUT(OFF)}$	I_{DD} < 10μA	–	–	3.0	V
Time for VDD applied	t_{ON}		–	–	20	μS
Time for VDD off	t_{OFF}		–	–	10	μS
Operating Junction Temperature	T_J		-40		120	°C

Typical Application Circuit



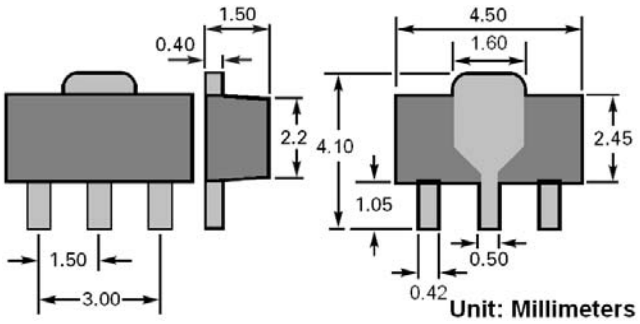
LED String Note for 100VAC	LED	LED Q'ty
VF_1	3 V	37~42 pcs
VF_2	3.3 V	33~40 pcs

LED String Note for 110VAC	LED	LED Q'ty
VF_1	3 V	40~45 pcs
VF_2	3.3 V	36~43 pcs

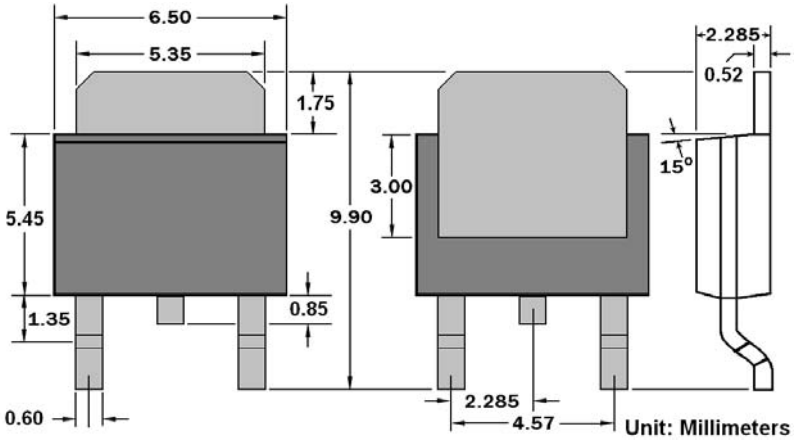
LED String Note for 120VAC	LED	LED Q'ty
VF_1	3 V	43~48 pcs
VF_2	3.3 V	39~46 pcs

Package Outline

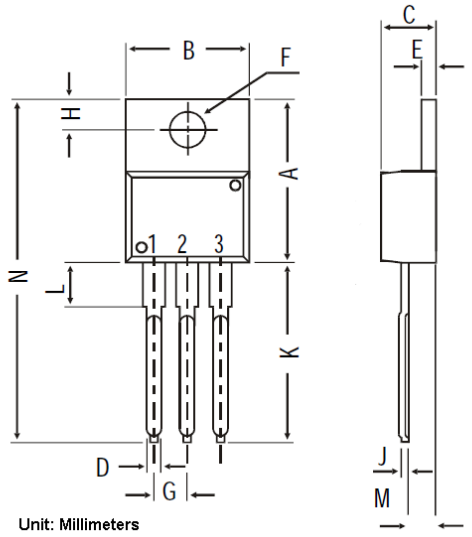
SOT-89:



TO-252:



TO-220:



Symbols	Minimum	Normal	Maximum
A	14.42	15.47	16.51
B	9.63	10.15	10.67
C	3.56	4.20	4.83
D	-	0.90	-
E	1.15	1.28	1.4
F	3.75	3.82	3.88
G	2.29	2.54	2.79
H	2.54	2.99	3.43
J	-	0.56	-
K	12.7	13.72	14.73
L	2.8	3.44	4.07
M	2.03	2.48	2.92
N	-	31.24	-

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