Preliminary – **LD7302**

High Side Range Linear Regulator
for SMPS PWM controller

Features

- Wide working voltage range : 15V to 450V
- Output current up to 3.0mA continuous supply, 30mA peak value
- Supply current : 100μA (typically)
- Line regulation : 0.1mV/V (typically)
- Output Voltage: Vin-5V to Vin-15V

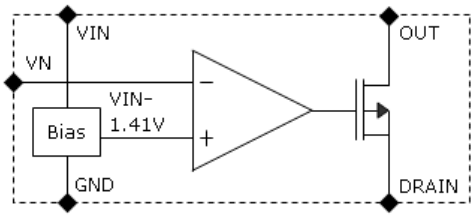
General Description

The LD7302 is a low cost high side range linear regulator producing top-quality power supply for high input voltage. Its features include a 5-terminal fixed output voltage version in TO-252-5 packages. Other than the functions like ordinary low voltage regulators, the LD7302 provides the use of much higher input voltages (up to 450V).

Applications

- Off-line SMPS PWM controller startup circuit
- High-side linear regulator

Equivalent Block Diagram



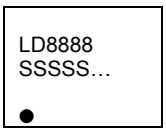
Ordering Information

		Packing Options	
Part No.	Package	**Tube(TU)**	**Tape & Reel(TR)**
LD7302	TO-252-5	LD7302T7-TU	LD7302T7-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

Absolute Maximum Ratings

Parameter	Value	Units
Maximum operating voltage	450	V
Maximum output voltage	15	V
Junction temperature range	-40 to +125	°C
Storage temperature range	-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.

Thermal Characteristics

Package	Power Dissipation @T_A=25°C	θ_{JC} °C/W	θ_{JA} °C/W
TO-252-5	2.0W	8	50

Electrical Characteristics

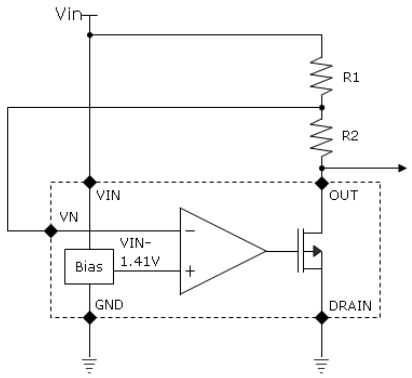
Test conditions unless otherwise specified: T_A=25°C, V_{IN}=50V, C_{OUT}=0.01μF

Parameter	Symbol	Condition	Min	Typ	Max	Units
Input DC Voltage Range	V_{IN}		15	–	450	V
Output voltage	V_{OUT}	5V version: Tj -40°C ~ +125°C, No load *1	V_{IN} – 5	V_{IN} – 10	V_{IN} – 15	V
Line regulation	$\Delta V_{OUT,line}$	V_{IN} = 15V ~ 400V, no load	–	40	200	mV
Load regulation	$\Delta V_{OUT,load}$	V_{IN} = 50V, I_{OUT} = 0 ~ 3.0mA	–	150	400	mV
Input quiescent current	I_Q	V_{IN} = 15V ~ 450V, no load	–	100	180	μA
V_{IN} off-state leakage current	I_{OFF}	$V_{AUX} \geqq V_{OUT}$+1V applied to V_{OUT} pin	–	0.1	10	μA
Input current to V_{OUT}	I_{AUX}	$V_{AUX} \geqq V_{OUT}$+1V applied to V_{OUT} pin	–	–	400	μA
Output peak current	I_{PEAK}	C_{OUT} = 10uF, V_{IN} = 400V *2	–	TBD	–	mA
External voltage applied to V_{OUT}	V_{AUX}	---	–	–	15	V

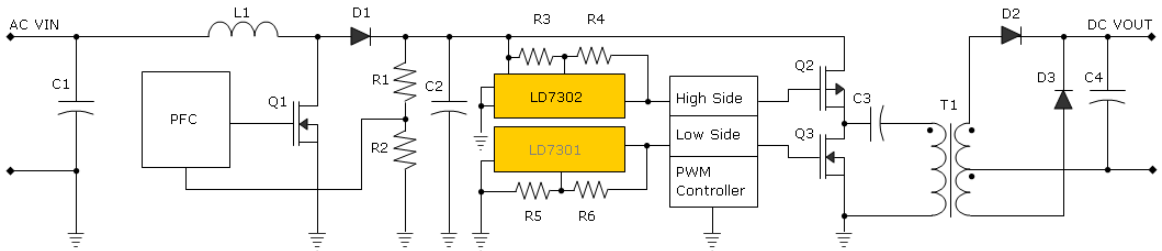
Note:
1. Guaranteed by design
2. Pulse test cycle < 1.0 mS, duty cycle < 2%

Typical Application Circuit

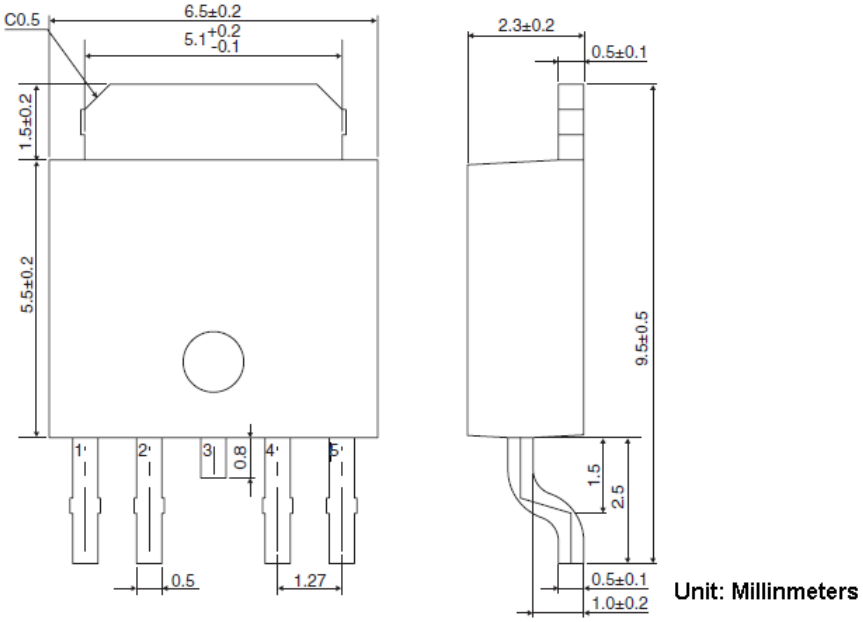
Application 1:



Application 2:



Package Outline



Unit: Millinmeters

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