

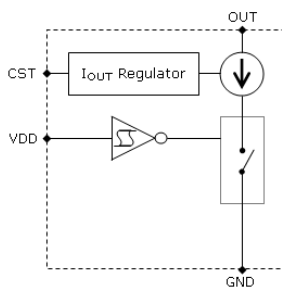
Features

- Input voltage range: 5V to 50V
- Output driving voltage: 50V(maximum)
- Output current : 100mA(maximum)
- Output dropout voltage 0.5V at 50mA
- Adjustable output current
- RoHS and green compliant packages

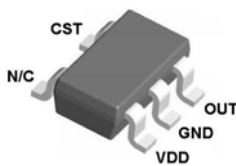
Applications

- High power LED driver
- LED table lamp
- Display backlight

Equivalent Block Diagram



Package Pin Out



Thermal Characteristics

Package	Power Dissipation PD @ $T_A=25^\circ\text{C}$	Thermal Resistance θ_{JA}
SOT23-5L	420mW	240 $^\circ\text{C}/\text{W}$

Note: Temperature vs. Current Chart is shown on the right.
Please apply the VOUT under 70 $^\circ\text{C}$ to prevent over heating.

General Description

The LD7633 is a continuation of Lighting Device's successful and most widely adopted linear regulator for high input voltage. It provides a further overall cost reduction alternative to the existing LED power design. It is as fully featured as the previous regulator by integrating the Lighting Device perfection technology that has proven to be high-quality and most reliable. The outstanding chip regulates to supply a constant current up to 100mA at input voltage of 5V ~ 50Vdc. The output current is programmable by adding an external resistor.

The typical application of LD7633 is to drive a high power LED with a constant current 100mA. The Built-in thermal protection is made to prevent the chip from over-heating damage.

Ordering Information

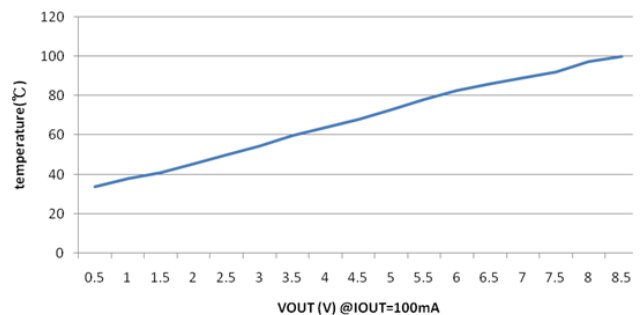
Part No.	Package	Packing Options	
		Bag(BG)	Tape & Reel(TR)
LD7633	SOT-23-5L	LD7633L2-BG	LD7633L2-TR

- Package material default is "Green" package.

Product Marking

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

Temperature vs. VOUT Chart



Absolute Maximum Ratings

Parameter	Maximum	Units
VDD, OUT	50	V
CST	5	V
Operating Junction Temperature	-40 to +150	°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

V_{DD}=24V, T_A=25°C unless specified; or minimum and maximum values are guaranteed by production testing requirements.

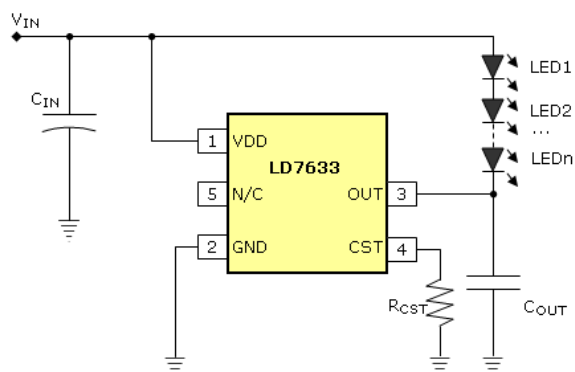
Parameter	Symbol	Condition	Minimum	Typical	Maximum	Units
Output Current	I _{OUT}	V _{OUT} =0.5V, R _{CST} =12Ω	–	20	–	mA
		V _{OUT} =0.5V, R _{CST} =5Ω	–	60	–	
		V _{OUT} =0.5V, R _{CST} =3Ω	–	100	–	
Output Current Deviation	I _{OUTD}	V _{OUT} =0.5V, R _{CST} =3~12Ω	–	–	±5	%
CST Current Range	I _{CST}		5	–	100	mA
Maximum Output Current	I _{OUT}	I _{CST} =100mA	–	60	–	mA
Output Dropout Voltage	V _{DROP}	I _{CST} =100mA	–	0.5	–	V
Supply Current	I _{DD}		–	–	6	mA
Line Regulation	REG _{LINE}	V _{OUT} =0.5V, I _{OUT} =100mA V _{DD} =5V to 50V	–	–	1	mA/V
Load Regulation	REG _{LOAD}	V _{OUT} =0.5V to 3V	–	–	3	mA/V
Power On Delay Time*	t _{DR}	V _{DD} on to I _{OUT} on	–	16	–	μS
Power Off Delay Time*	t _{DF}	V _{DD} off to I _{OUT} off	–	3	–	μS
Thermal Shutdown Temperature*	T _{STDN}	Hysteresis 20°C	–	160	–	°C

Note: guaranteed by design, no production tested

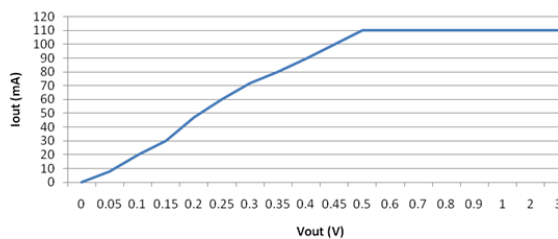
Pin Description

Pin #	Name	Description
1	VDD	Power supply to device
2	GND	Device ground
3	OUT	Output pin. Sink current is adjusted by the current on R _{CST} , I _{OUT} = 0.3V/R _{CST}
4	CST	Output current setting input. R _{CST} from CST to GND to set bias current, I _{CST} = 0.3V/R _{CST}

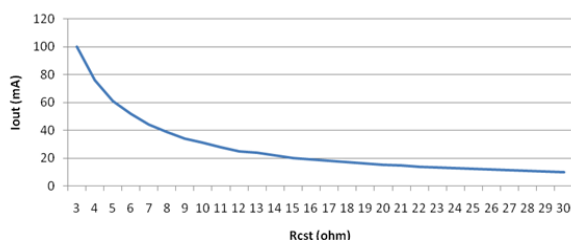
Typical Application Circuit



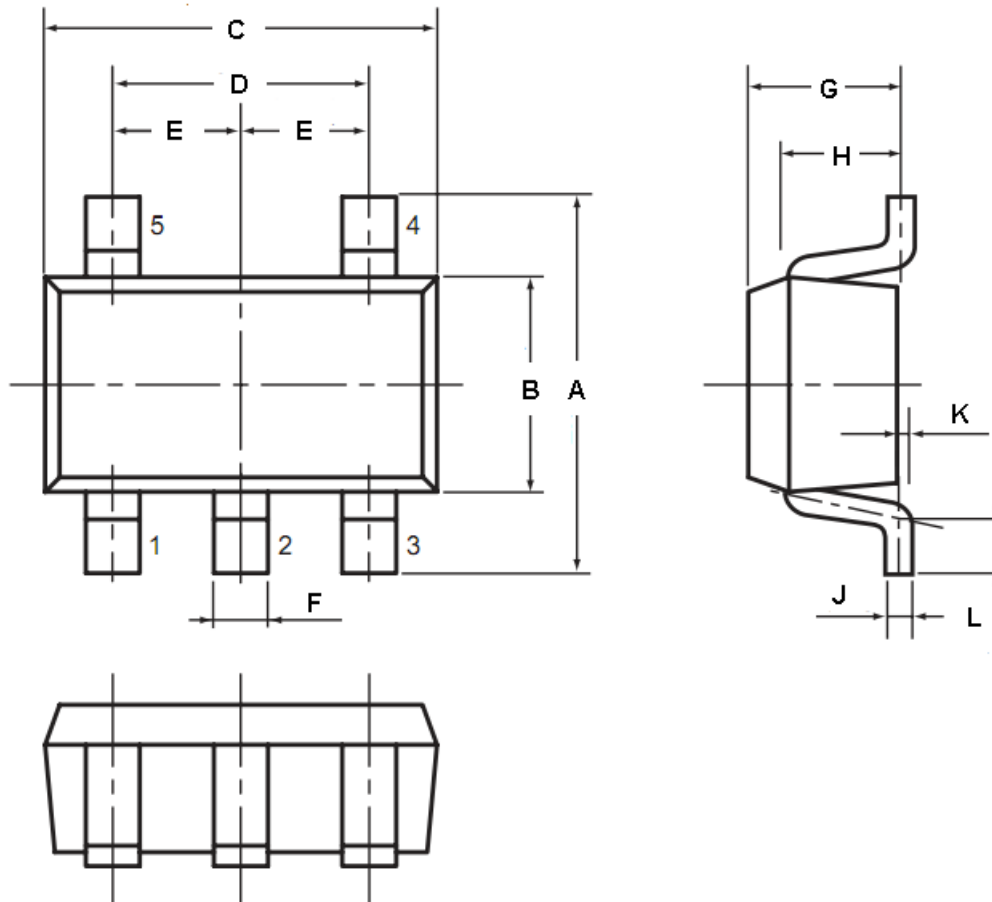
Output voltage versus output current



External resistor versus output current



Package Outline



Symbols	Dimensions in Millimeters		
	Minimum	Normal	Maximum
A	2.77	2.80	2.83
B	1.59	1.60	1.62
C	2.7	2.9	3.1
D	1.7	1.9	2.1
E	-	0.95	-
F	0.39	0.4	0.41
G	1.0	1.1	1.2
H	0.7	0.8	0.9
J	0.1	0.15	0.25
K	-	-	0.1
L	0.2	-	-

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