

60V/20mA~150mA Single Channel Constant Current LED Driver

General Description

PS4505 is a single channel LED driver with constant current regulator. PS4505 offers excellent temperature stability and output current accuracy ($\pm 4.5\%$) with a wide input voltage from 4.5V to 40V and temperature range. PS4505 implements various fixed output current versions without external current setting resistors and thus creates a simple solution for constant current LED driver. Besides, for the thermal management in LED, PS4505 is featured a current ramp down function from 125°C to 145°C of junction temperature. Moreover, taking reliability into consideration, the maximum voltage rating on VDD, VP and VN is designed as 60V ability to handle high voltage pulse suddenly. Thoughtfully, PS4505 also supports both high-side and low-side driving for the LED strings. PS4505 is available in the cost-effective package SOT-23-3 or SOT-89-3.

Features

- 20mA~150mA constant current LED regulator
- Wide input voltage range
Output<80mA: 4.5V to 40V
Output>80mA: 7V to 40V
- 60V breakdown voltage
- $\pm 4.5\%$ LED current accuracy
- Thermal protection: Current ramp down
- RoHS Compliant and Halogen Free

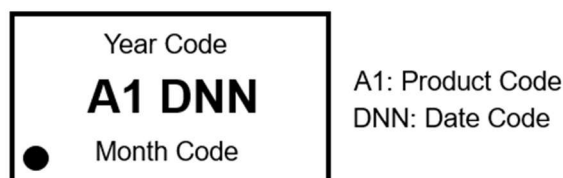
Applications

- Constant current LED (CCLED)
- Constant current COB light engine

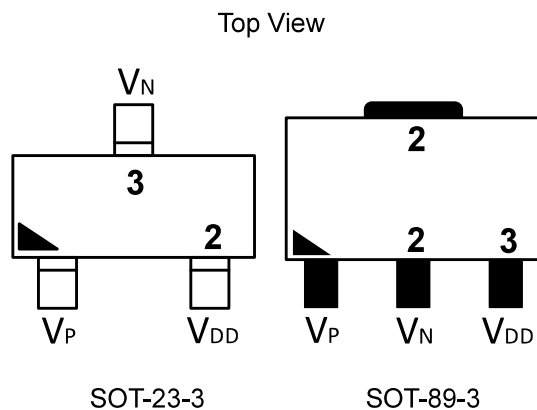
Ordering Information



Marking Information



Pin Configuration

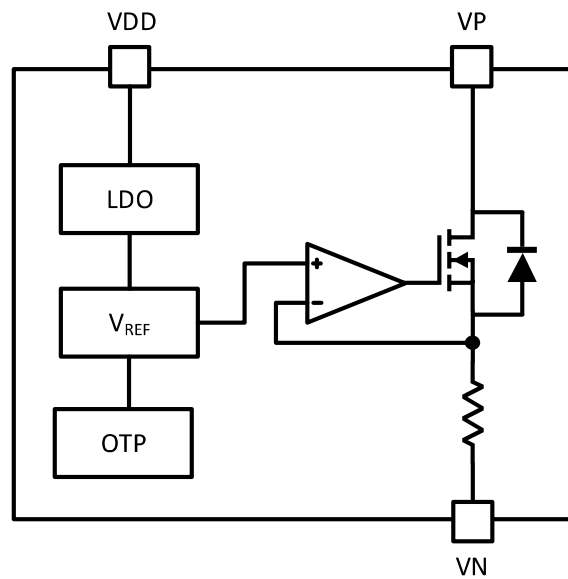


Pin Definitions and Functions

PIN			I/O ⁽¹⁾	Description
NAME	SOT-23-3	SOT-89-3		
VP	1	1	I	Output current regulated pin. Output current flows through this pin and regulated.
VDD	2	3	I	Supply voltage.
VN	3	2	--	Ground pin.

(1) I=Input, O=Output, --=Other

Functional Block Diagram



Absolute Maximum Ratings (Note 1)

- Supply Input Voltage: VDD, VP-0.3V to 60V
- Other Pin Voltage: VN-0.3V to 60V

Power Dissipation, $P_D@T_A=25^\circ\text{C}$

- SOT-23-3 0.41W
- SOT-89-3 0.6W

Package Thermal Resistance (Note 2)

- SOT-23-3, θ_{JA} 245°C/W
- SOT-89-3, θ_{JA} 168°C/W
- SOT-23-3, θ_{JC} 33°C/W
- SOT-89-3, θ_{JC} 20°C/W
- Lead Temperature (Soldering, 10sec.)..... 260°C
- Junction Temperature 150°C
- Storage Temperature-65°C to 150°C

Recommended Operating Conditions (Note 3)

- Supply Input Voltage: VDD, VP 4.5V/7V to 40V
- Junction Temperature Range-40°C to 125°C

Note 1: Stresses above the ones listed here may cause permanent damage to the device. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

Note 2: θ_{JA} is measured under natural convection (still air) at $T_A= 25^\circ\text{C}$ with the component mounted on a high effective-thermal-conductivity four-layer test board on a JEDEC 51-7 thermal measurement standard. θ_{JC} is measured at the exposed pad of the package

Note 3: Device function is not guaranteed if it is operated out of this range.