

## DESCRIPTION

MT7813B is a high precision LED constant current controller operating at critical conduction mode (CRM) with zero current switched-on and peak current switched-off. It's mainly targeted for non-isolated buck LED power systems.

Critical conduction mode ensures that the MT7813B turns on the internal power MOSFET when the inductor current reaches zero, reducing the power MOSFET switching loss, and achieving more than 95% efficiency. With critical conduction mode, and the input compensation, MT7813B can achieve precise output current and excellent line regulation and load regulation.

MT7813B embedded with internal power MOSFET, it can achieve simplified peripheral circuits and low BOM cost.

MT7813B has wide working voltage range, which is suitable for full-range AC input. MT7813B provides various protection features to improve the system reliability, including over current protection (OCP), short circuit protection (SCP), adjustable over voltage protection (OVP) and thermal adjustment, etc.

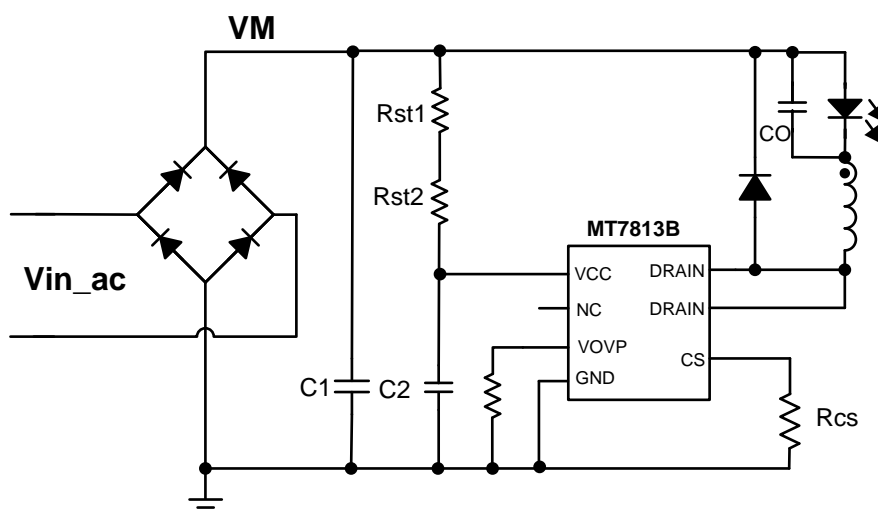
## FEATURES

- Critical Conduction Mode, insensitive to the inductance.
- High efficiency (up to 95%)
- Highly accurate constant LED current
- Cycle-by-cycle current limiting
- LED short circuit protection
- Adjustable OVP through external resistor
- Leading edge blanking technique
- Under-voltage lockout (UVLO) protection
- Thermal adjustment
- Available in SOP8 / DIP7 package

## APPLICATIONS

- LED bulb, LED tube, LED signal and landscape lamp
- LED stage light, LED candle light, LED corn light, etc.
- General purpose constant current source

## Typical Application Circuit



## ABSOLUTE MAXIMUM RATINGS

VCC maximum sink current	5mA
VOVP (over voltage protection pin voltage)	-0.3 ~ 6V
DRAIN (internal HV power MOS drain voltage)	-0.3V ~ 500V
SOURCE (internal HV power MOS source voltage)	-0.3 ~ 40V
CS (current sense pin input voltage)	-0.3V ~ 6V
P <sub>DMAX</sub> (maximum power dissipation )	0.8W(SOP8); 1.2W (DIP7)
Storage Temperature range	-55°C ~ 150°C
Junction Temperature (T <sub>j</sub> )	150°C

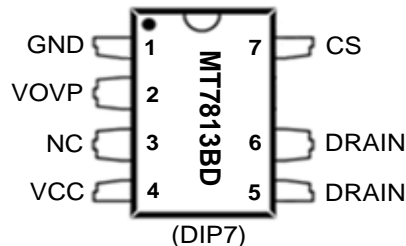
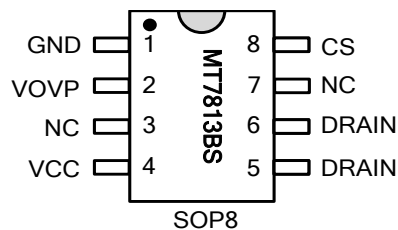
## RECOMMENDEDE OPERATING CONDITIONS

Operating Temperature	-40°C ~ 105°C
Output Current (SOP8)	<300mA
Output Current (DIP7)	<360mA

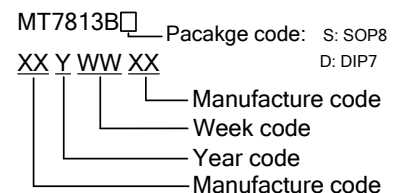
## ORDERING INFORMATION

Device	Package
MT7813BS	SOP8
MT7813BD	DIP7

## PIN CONFIGURATIONS



### Chip Mark



## PIN DESCRIPTION

Name	Pin No. SOP8	Pin No. DIP7	Description
GND	1	1	Chip ground
VOVP	2	2	Over voltage protection pin
NC	3	3	No connection
VCC	4	4	Power supply, internal clamped at 15.5V
DRAIN	5/6	5/6	Drain of internal high-voltage power MOSFET
NC	7		No connection
CS	8	7	Current sense input, connect a sense resistor to ground