

### DESCRIPTION

MT7816 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 and PWM-dimmable application.

Critical conduction mode ensures that the MT7816 turns on the internal power MOSFET when the inductor current reaches zero, reducing the power MOSFET switching loss, and achieving more than 93% efficiency.

With critical conduction mode, and the input compensation, MT7816 outputs high accuracy LED current, and further achieves excellent line regulation and load regulation.

MT7816 has wide working voltage range, which is suitable for full-range AC input or 12V ~ 500V DC input voltage. MT7816 provides various protection features to improve the system reliability, including over current protection (OCP), short circuit protection (SCP), over voltage protection (OVP) and over temperature regulation (OTR), etc.

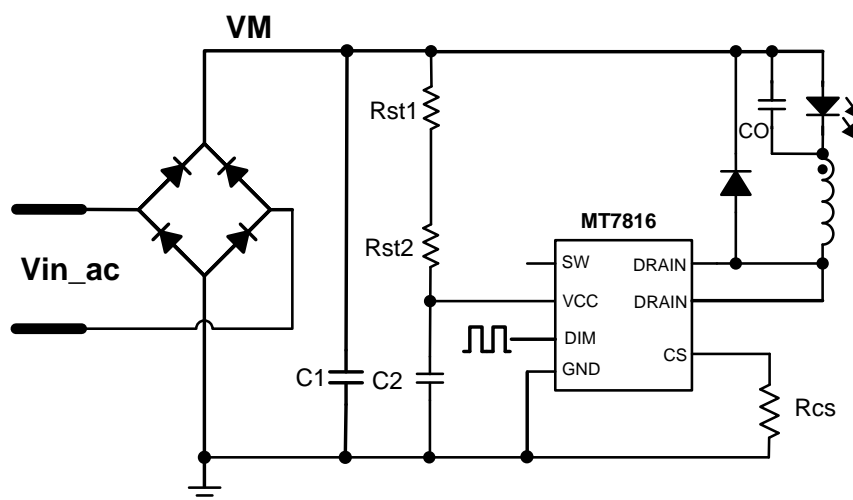
### FEATURES

- Internal 500V power MOSFET
- Critical Conduction Mode, insensitive to the inductance.
- Supporting PWM dimming
- High efficiency (up to 93%)
- Highly accurate constant LED current
- Cycle-by-cycle current limiting
- LED short circuit protection
- LED over voltage protection
- Leading edge blanking technique
- Under-voltage lockout (UVLO) protection
- Over temperature regulation (OTR)
- Available in SOP8 / DIP8 package

### APPLICATIONS

- LED tube, signal lamp, landscape lamp
- LED stage light, etc
- Intelligent LED lighting application

### Typical Application Circuit



**ABSOLUTE MAXIMUM RATINGS**

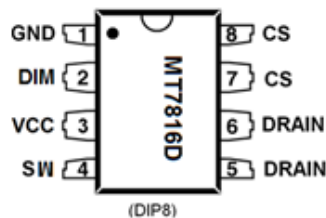
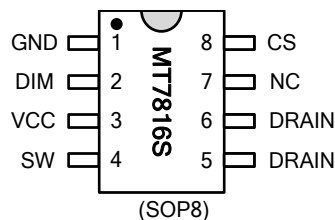
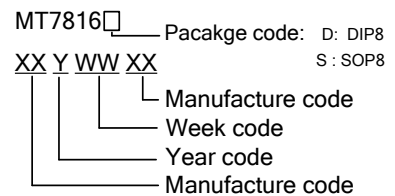
VCC maximum sink current	5mA
DRAIN (internal HV power MOSFET drain voltage)	-0.3V ~ 500V
DIM (PWM dimming pin input voltage)	-0.3V ~ 6V
CS (current sense pin input voltage)	-0.3V ~ 6V
P <sub>DMAX</sub> (maximum power dissipation)	0.8W (SOP8); 1.2W (DIP8)
Storage Temperature range	-55°C ~ 150°C
Junction Temperature (T <sub>j</sub> )	150°C

**RECOMMENDEDE OPERATING CONDITIONS**

Operating Temperature range	-40°C ~ 105°C
Output Current ( SOP8)	<300mA
Output Current ( DIP8)	<360mA

**Ordering information**

Device	Package
MT7816S	SOP8
MT7816D	DIP8

**PIN CONFIGURATIONS**

**Chip Mark**

**PIN DESCRIPTION**

Name	Pin No. SOP8	Pin No. DIP8	Description
GND	1	1	Ground
DIM	2	2	Dimming control input. Internal has a 300K pull_up resistor.
VCC	3	3	Power supply pin, internal clamped at 14V
SW	4	4	Source of internal high-voltage power MOSFET, and internal sense pin
DRAIN	5/6	5/6	Drain of internal high-voltage power MOSFET
NC	7		No connection
CS	8	7/8	Current sense input, connect a sense resistor to ground