

### DESCRIPTION

MT7893 is a high precision LED constant current controller. It operates in critical conduction mode (CRM) with zero current switched-on and peak current switched-off. It's mainly targeted for BUCK, Fly-back LED power systems. MT7893 supports high power factor application. The Power Factor (PF) can reach 0.8 or higher.

CRM ensures that the MT7893 turns on the internal power MOSFET when the inductor current reaches zero, reducing the power MOSFET switching loss. With critical conduction mode, and line compensation, MT7893 outputs high accuracy LED current, and further achieves excellent line regulation and load regulation.

MT7893 embedded with 300V power MOSFET, it can achieve simplified peripheral circuits and low BOM cost.

MT7893 provides various protection features to improve the system reliability, including over current protection (OCP), short circuit protection (SCP), adjustable over voltage protection (OVP) and over temperature LED current foldback, etc. With a wide dimmer compatibility, the dimming curve meets the NEMA SSL6 standard.

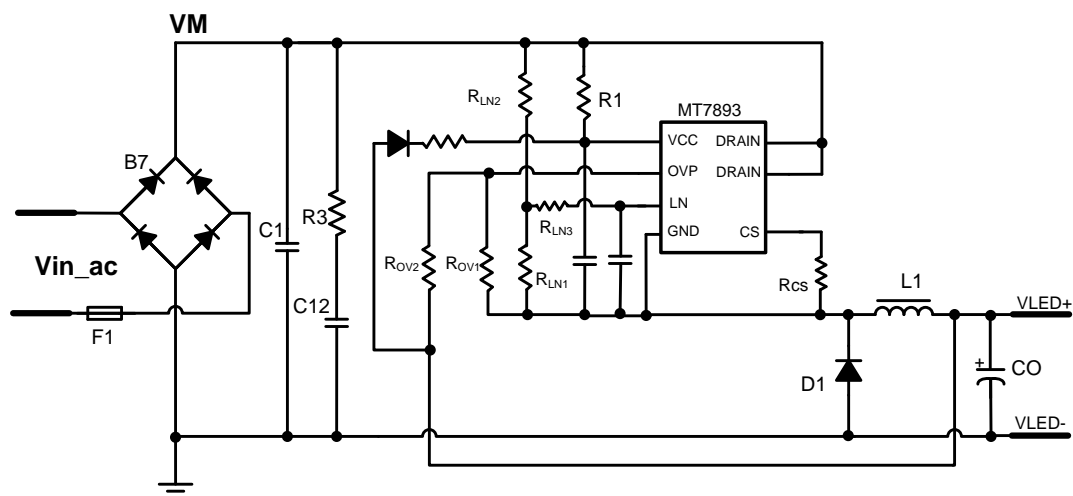
### FEATURES

- Supports high PF application ( $PF > 0.8$ )
- Wide range of dimmer compatibility
- Deep dimming level ( $< 1\%$ )
- Internal 300V power MOSFET
- Highly accurate constant LED current
- Cycle-by-cycle current limiting
- LED short circuit protection
- Adjustable LED over voltage protection
- Under-voltage lockout (UVLO) protection
- Over temperature LED current foldback
- Available in SOP7 package

### APPLICATIONS

- LED bulb, panel light
- Filament bulb
- General purpose constant current source

### Typical Application Circuit



**ABSOLUTE MAXIMUM RATINGS**

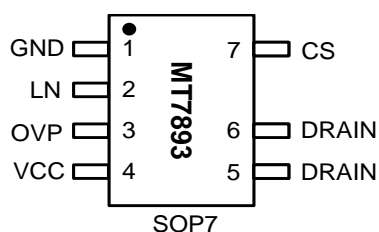
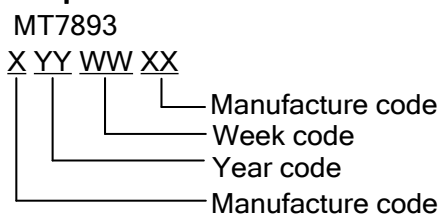
VCC maximum sink current	5mA
OVP (over voltage protection pin voltage)	-0.3 ~ 6V
LN (line compensation pin voltage)	-0.3 ~ 6V
DRAIN (internal HV power MOSFET drain voltage)	-0.3V ~ 300V
CS (current sense pin input voltage)	-0.3V ~ 6V
P <sub>DMAX</sub> (maximum power consumption)	0.8W
Storage Temperature	-55°C ~ 150°C
Junction Temperature (T <sub>j</sub> )	150°C

**RECOMMENDEDE OPERATING CONDITIONS**

Operating Temperature range	-40°C ~ 105°C
Output Power	<12W @ V <sub>OUT</sub> =36V

**Thermal resistance**

Junction to ambient (R <sub>θJA</sub> )	128°C/W
Junction to Case (R <sub>θJC</sub> )	90°C/W

**PIN CONFIGURATIONS**

**Chip Mark**

**PIN DESCRIPTION**

Name	Pin No.	Description
GND	1	Chip ground
LN	2	Line compensation pin. Tie to GND to disable line compensation function
OVP	3	Adjustable over voltage protection pin
VCC	4	Power supply, internal clamped at 19V
DRAIN	5/6	Drain of internal high-voltage power MOSFET
CS	7	Current sense pin, connect a sense resistor to ground