

## DESCRIPTION

MT7990 is a high precision primary-side constant voltage controller while achieving power factor correction. Both of regulations of constant - voltage (CV) and current - limiting (CL) are integrated into the MT7990.

MT7990 outputs constant voltage while the LED current is within the range of current limiting, it will limit the output current while the output voltage decreases as the load increases.

MT7990 can adjust the working mode automatically to save efficiency and enlarge output loading range. It works under Quasi-Resonant Mode (QRM) at heavy loading, under Discontinuous Conduction Mode (DCM) at medium loading and under Pulse Frequency Mode (PFM) at light loading. So that it can be achieved to save efficiency and enlarge output loading range. Various protection schemes are integrated to improve robustness, including over temperature protection (OTP), over voltage protection (OVP), and short circuit protection (SCP), etc.

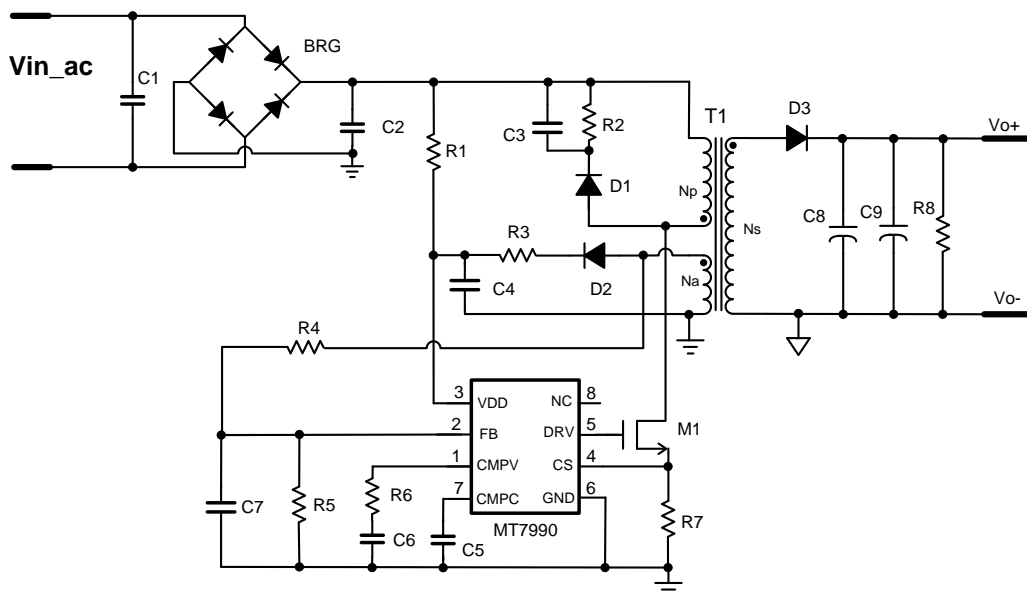
## FEATURES

- Start-up without internal/external HV MOS
- Wide output loading range
- QRM at heavy loading to reduce EMI
- Accurate output voltage sensing and cable drop compensation
- Fast response for CV regulation
- Low output ripple for CV regulation
- Various protection schemes
- Power-on soft-start
- Available in SOP8 package

## APPLICATIONS

- Intelligent LED lighting
- Battery chargers for cellular phones, pads, power tools, etc.
- High PF, low ripple LED driver

### Typical Application Circuit



## ABSOLUTE MAXIMUM RATINGS

VDD/DRV pin Voltage range	-0.3V to VDD Clamp
COMPC/COMPV/CS/FB pins voltage range	-0.3V to 6V
Lead temperature (soldering, 10 sec.)	260°C
P <sub>DMAX</sub> (Maximum Power)	0.8W
Storage Temperature range	-55°C to 150°C

## Recommended operating conditions

Supply voltage range	7.2V to 24V
Operating Temperature range	-40°C to 105°C

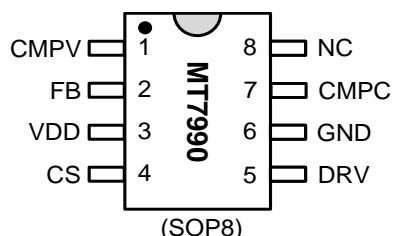
## Thermal resistance<sup>①</sup>

Junction to ambient (R <sub>θJA</sub> )	128°C/W
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### Note:

① R<sub>θJA</sub> is measured in the natural convection at TA = 25°C on a low effective single layer thermal conductivity test board of JEDEC 51-3 thermal measurement standard. Test condition: Device mounted on 2" X 2" FR-4 substrate PCB, 2oz copper, with minimum recommended pad on top layer and thermal vias to bottom layer ground plane.

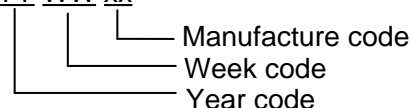
## PIN CONFIGURATIONS



## Chip Mark

MT7990

YY WW xx



## PIN DESCRIPTION

Name	Pin No.	Description
CMPV	1	Constant voltage loop compensation pin
FB	2	Feedback pin
VDD	3	Power supply
CS	4	Current sensing pin
DRV	5	Drive signal for external power MOSFET.
GND	6	Chip ground.
CMPC	7	Current limiting compensation.
NC	8	No connection.