

## DESCRIPTION

The PT5613 is a ballast control IC, with the Power Factor Correction (PFC) control and the 650V half-bridge driver, designed to drive all types of fluorescent lamps. In the Ballast Control section, the features such as programmable preheat time and frequency, programmable and precise run frequency, self-adapting ignition time regulator and auto-restart for lamp replacement, provide a high degree of flexibility for the ballast design engineers. The protection features include the filaments detection, ignition failure, rectifier effect and end-of-life protection for lamp and the over-current protection for half bridge. It is easy to support full protection in multi-lamp design. In the PFC control section, there are two control modes: Critical Conduction Mode for nominal load and Discontinuous Conduction Mode for light load. The PFC features include internal fixed maximum on-time, programmable current limitation, over voltage and open loop protections. The PFC control, with the controlled on-time and internal THD optimization, provides the quality of high PF and low THD.

## APPLICATION

- Electronic Ballast for all types of Fluorescent Lamps

## FEATURES

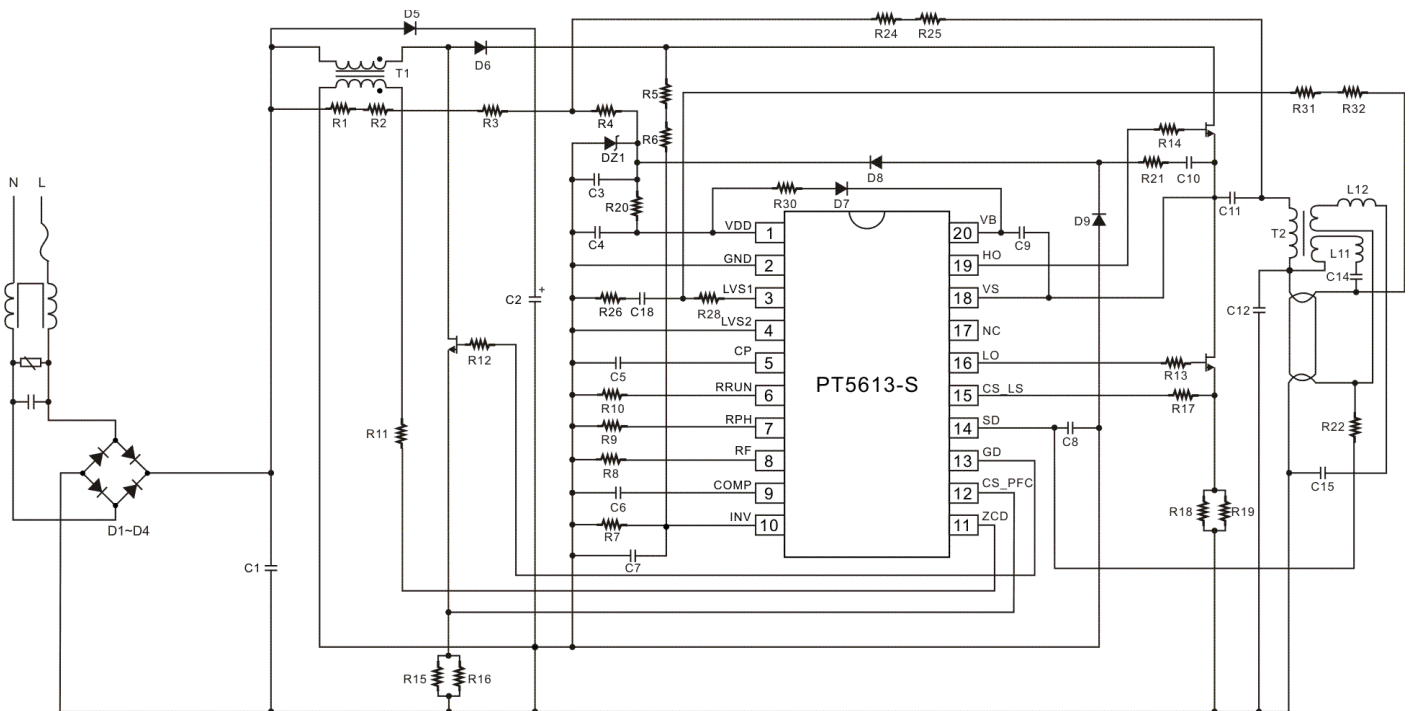
### BALLAST CONTROL

- 650V Half-Bridge Driver
- Programmable Preheat Time and Frequency
- Fixed Dead Time
- Programmable and Precise Run Frequency
- Self-adapting Ignition Time Regulator
- Ignition Failure Protection
- Rectifier Effect and End-Of-Life Protection
- Programmable Half-Bridge Over-Current Protection
- Low side and High side Filaments Detection
- Auto-Restart for Lamp Replacement
- Support Multi-Lamp Design

### PFC CONTROL

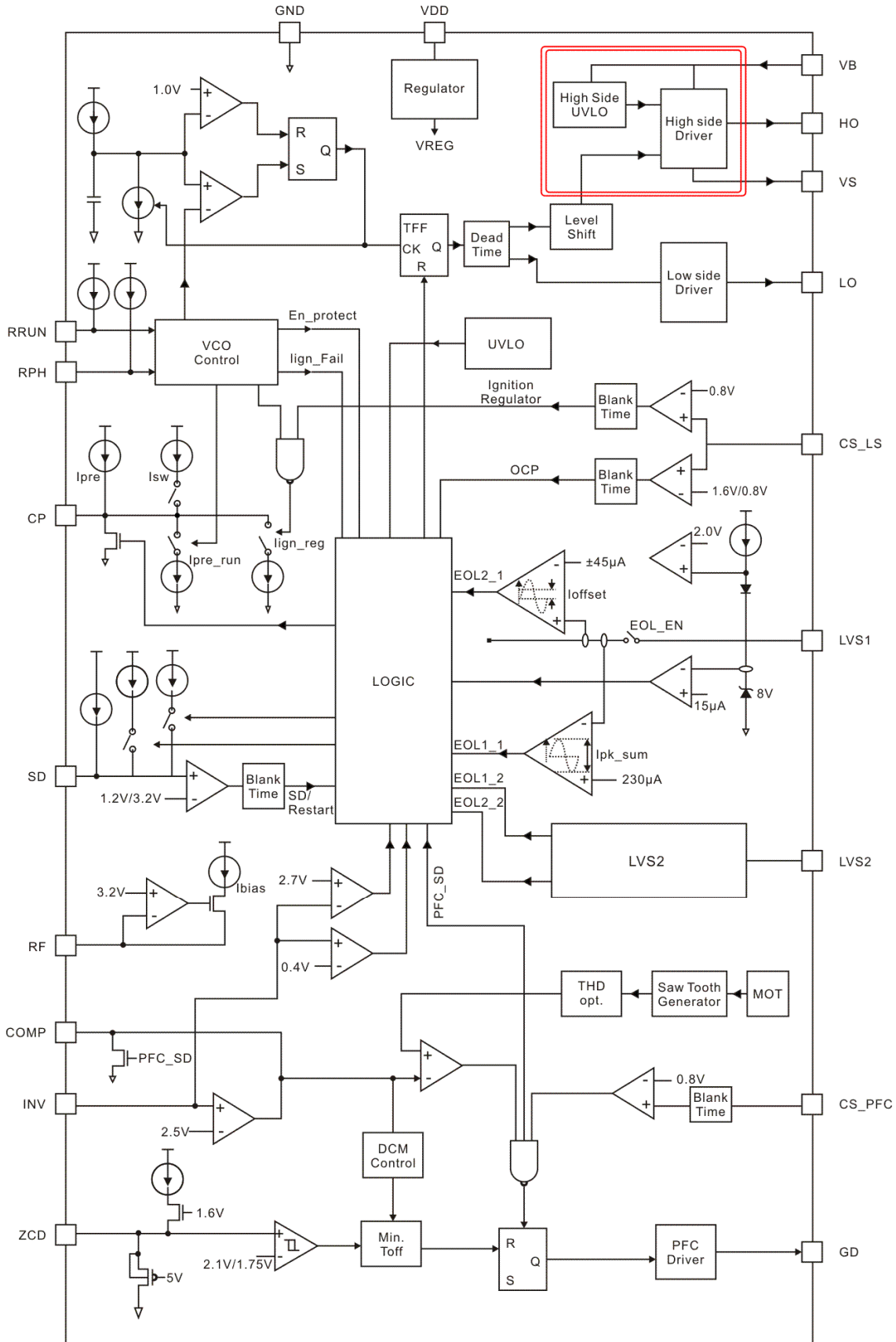
- Critical Conduction Mode (CRM) Control
- Discontinuous Conduction Mode (DCM) Control in light load condition
- Programmable Current Limitation
- Fixed Maximum On-Time (MOT)
- PFC Over Voltage and Open Loop Protection

## TYPICAL APPLICATION



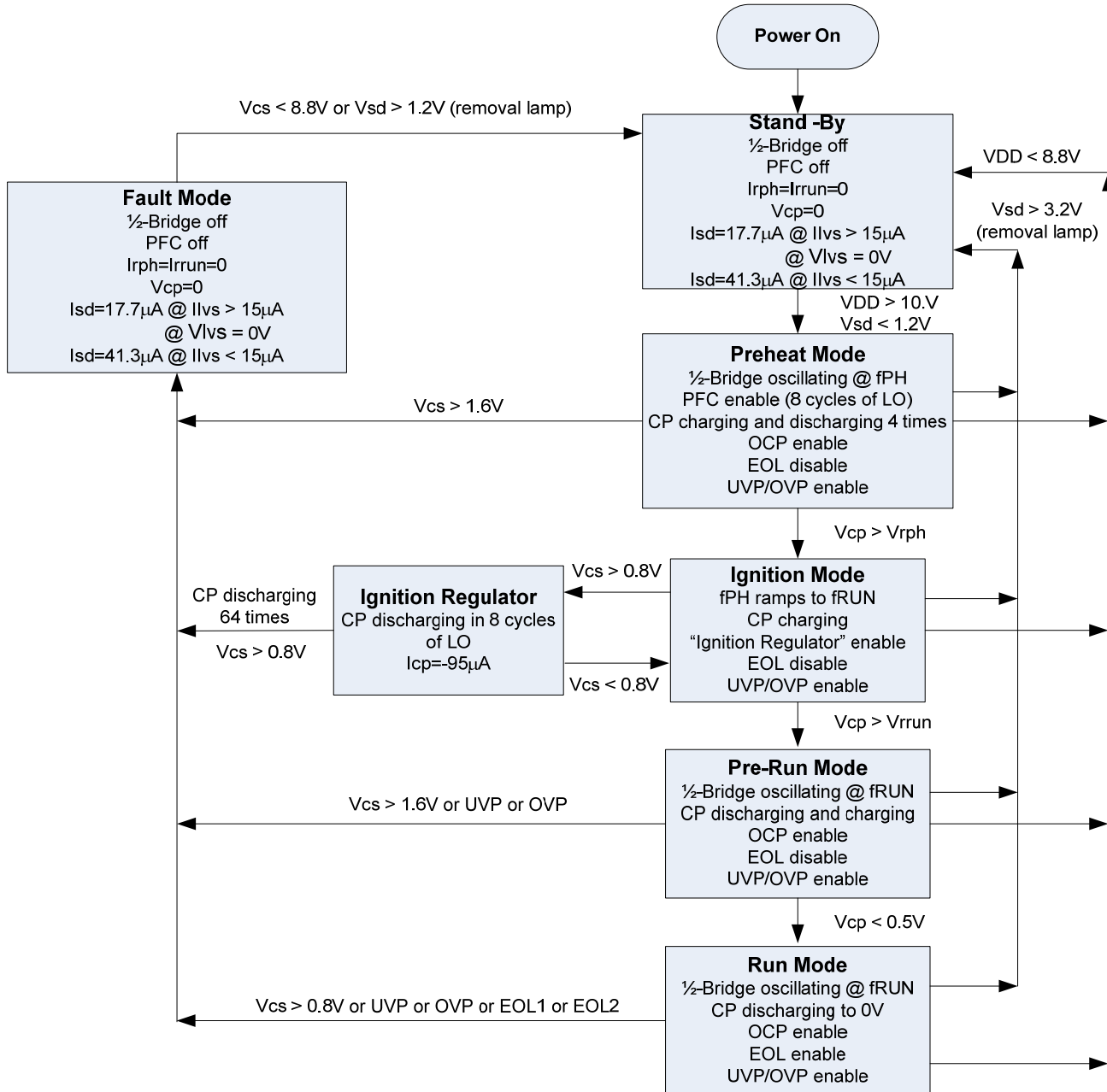


# BLOCK DIAGRAM





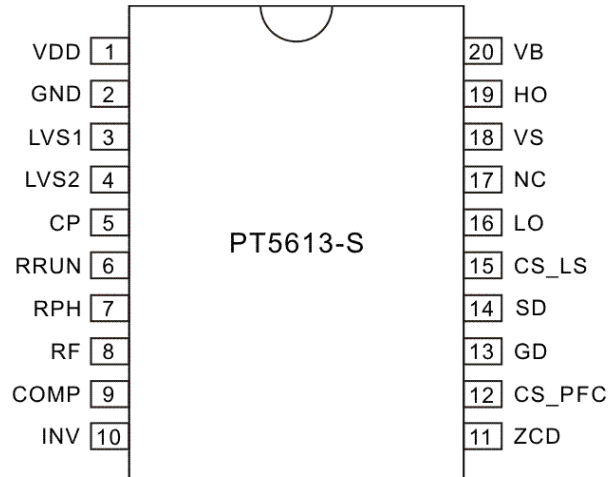
# STATE DIAGRAM



## ORDER INFORMATION

Valid Part Number	Package Type	Top Code
PT5613-S	20 Pins, SOP, 300mil	PT5613-S

## PIN DESCRIPTION



## PIN DESCRIPTION

Pin Name	Description	Pin No.
VDD	IC power supply	1
GND	System ground	2
LVS1	Lamp1 voltage sensing	3
LVS2	Lamp2 voltage sensing	4
CP	Preheat time setting	5
RRUN	Run frequency setting	6
RPH	Preheat frequent setting	7
RF	Internal current bias control, connecting a external resistor (68K, typ.) to GND	8
COMP	PFC error amplifier compensation	9
INV	PFC error amplifier inverting input	10
ZCD	PFC zero current detection	11
CS_PFC	PFC current sensing	12
GD	PFC gate driver output	13
SD	Low side filament sensing and shut-down control	14
CS_LS	Half-bridge current sensing	15
LO	Low side gate driver output	16
NC	No connection	17
VS	High side driver floating ground	18
HO	High side gate driver output	19
VB	High side driver floating supply	20