TEA1611T

Zero voltage switching resonant converter controller

Rev. 01 — 7 September 2009 Product data sheet

1. General description

The TEA1611T is a monolithic integrated circuit implemented in a high voltage Diffusion Metal Oxide Semiconductor (DMOS) process, which is a high voltage controller for a zero voltage switching resonant converter. The IC provides the drive function for two discrete power MOSFETs in a half-bridge configuration. It also includes a level-shift circuit, an oscillator with accurately programmable frequency range, a latched shut-down function and a transconductance error amplifier.

To guarantee an accurate 50 % switching duty factor, the oscillator signal passes through a divide-by-two flip-flop before being fed to the output drivers.

The circuit is very flexible and enables a broad range of applications for different mains voltages.

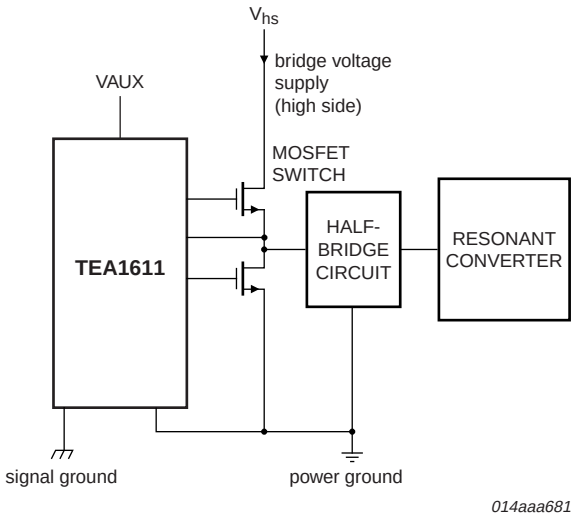

Fig 1. Basic configuration

2. Features

- Integrated high voltage level-shift function
- Integrated high voltage bootstrap diode
- Low start-up current (green function)
- Adjustable non-overlap time
- Internal OverTemperature Protection (OTP)
- OverCurrent Protection (OCP) that activates a shut-down timer

- Soft start timing pin
- Transconductance error amplifier for ultra high-ohmic regulation feedback
- Latched shut-down circuit for OverVoltage Protection (OVP)
- Adjustable minimum and maximum frequencies
- UnderVoltage LockOut (UVLO)
- Fault latch reset input
- Wide (max 20 V) supply voltage range

3. Applications

- TV and monitor power supplies
- High voltage power supplies

4. Ordering information

Table 1. Ordering information

Type number	Package		
	Name	Description	Version
TEA1611T	SO20	plastic small outline package; 20 leads; body width 7.5 mm	SOT163-1

5. Block diagram

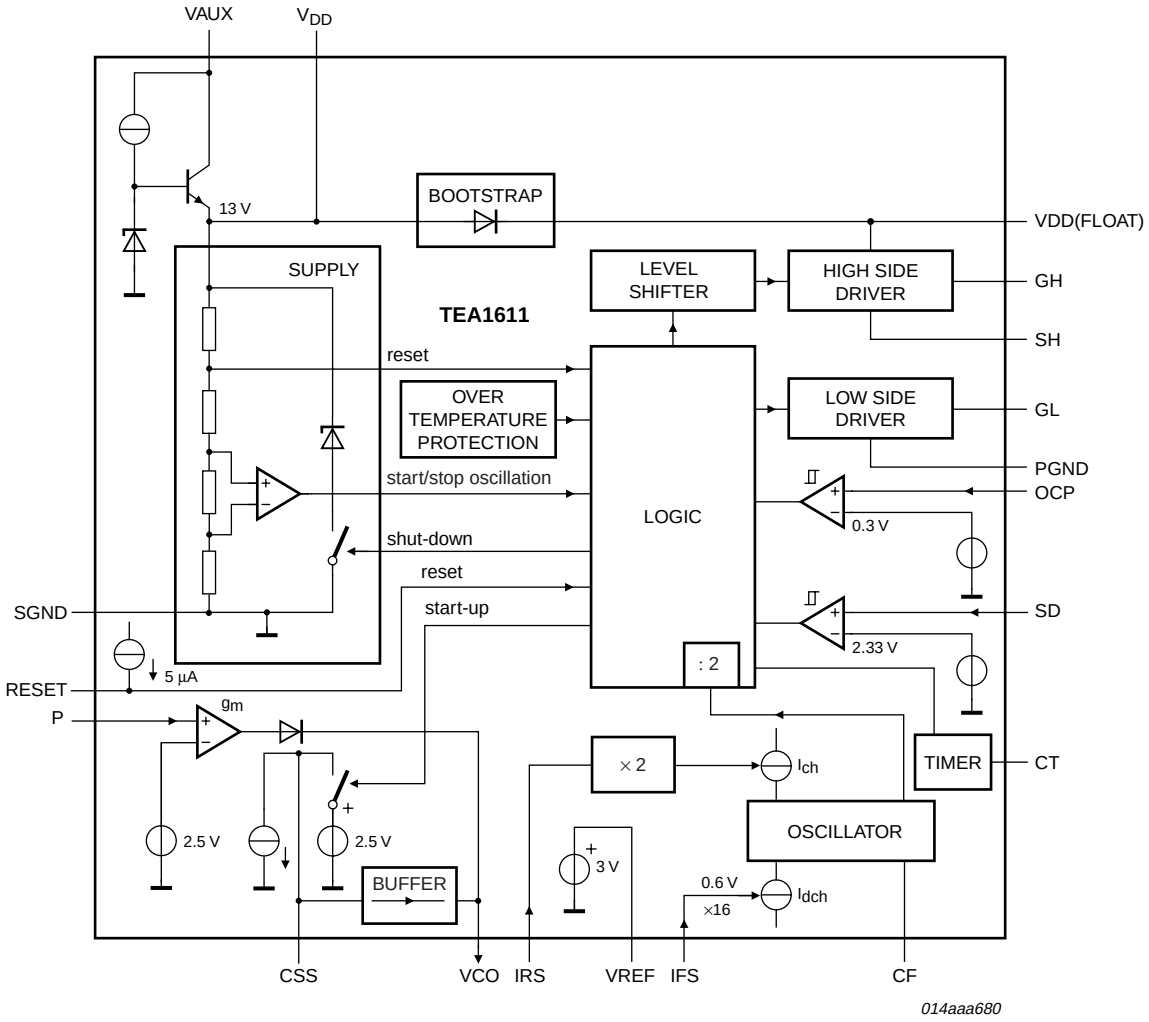

Fig 2. Block diagram

6. Pinning information

6.1 Pinning

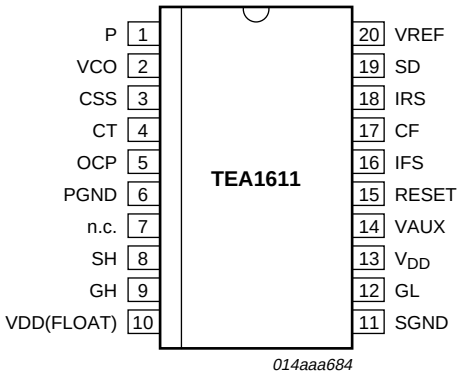

Fig 3. Pin configuration

6.2 Pin description

Table 2. Pin description

Symbol	Pin	Description
P	1	error amplifier non-inverting input
VCO	2	error amplifier output
CSS	3	soft start capacitor input
CT	4	timer capacitor input
OCP	5	overcurrent protection input
PGND	6	power ground
n.c.	7	not connected[1]
SH	8	high side switch source connection
GH	9	high side switch gate connection
VDD(FLOAT)	10	floating supply high side driver
SGND	11	signal ground
GL	12	low side switch gate connection
V_{DD}	13	supply voltage
VAUX	14	auxiliary supply voltage
RESET	15	latch reset input
IFS	16	oscillator discharge current input
CF	17	oscillator capacitor
IRS	18	oscillator charge input current
SD	19	shut-down input
VREF	20	reference voltage

[1] Provided as a high voltage spacer