



## Application

Copying machine, printer, etc. for office use

[www.onsemi.com](http://www.onsemi.com)

## Features

- Forward, reverse, and braking operations can be controlled with external input signals.
- Provides a startup output current of 4.2 A and supports a peak braking output current of 8 A.
- Built-in current detection resistor (0.1  $\Omega$ ) - current control.
- Does not require design of a dead time period in which the high and low side devices are turned off when switching between the forward and reverse directions.

## PACKAGE PICTURE

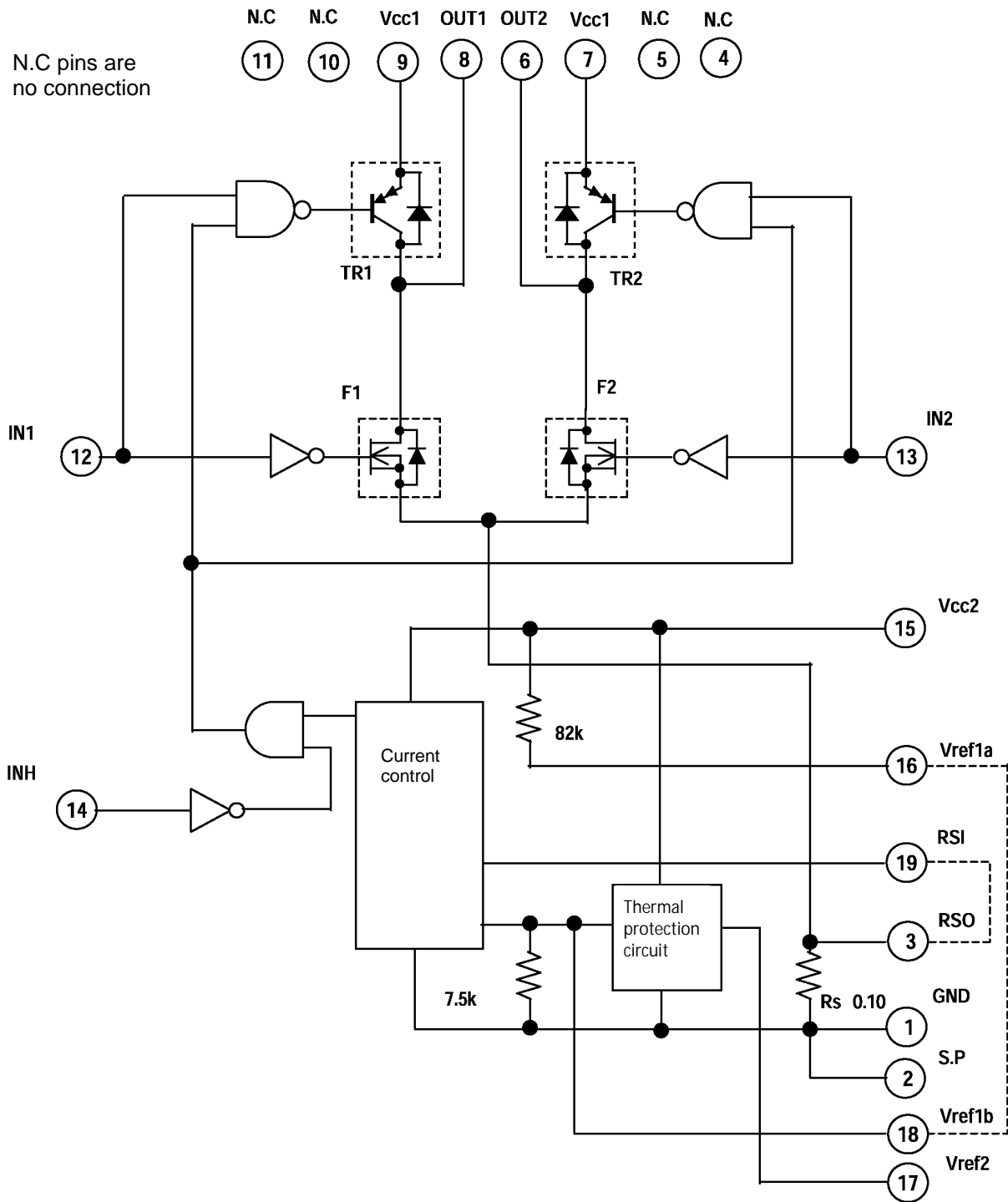
## MARKING DIAGRAM

STK681-310N = Type name

# STK681-310N-E

## Block Diagram

N.C pins are no connection



## STK681-310N-E

**Absolutely Maximum Ratings** at Ta = 25°C, Tc = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage 1	V <sub>CC1</sub> max	V <sub>CC2</sub> = 0 V	52	V
Maximum supply voltage 2	V <sub>CC2</sub> max	No signal	-0.3 to +7.0	V
Input voltage	V <sub>in</sub> max	At logic input pin	-0.3 to +7.0	V
Output current 1	I <sub>O</sub> max	V <sub>CC2</sub> = 5.0 V, DC current		

## STK681-310N-E

### Coution

- Motor current  $I_o$  shown above is the range for chopping operation when  $V_{CC1}$  is under 28 V
- Substrate temperatures in the figure above are values measured when the motor is operating.

# STK681-310N-E

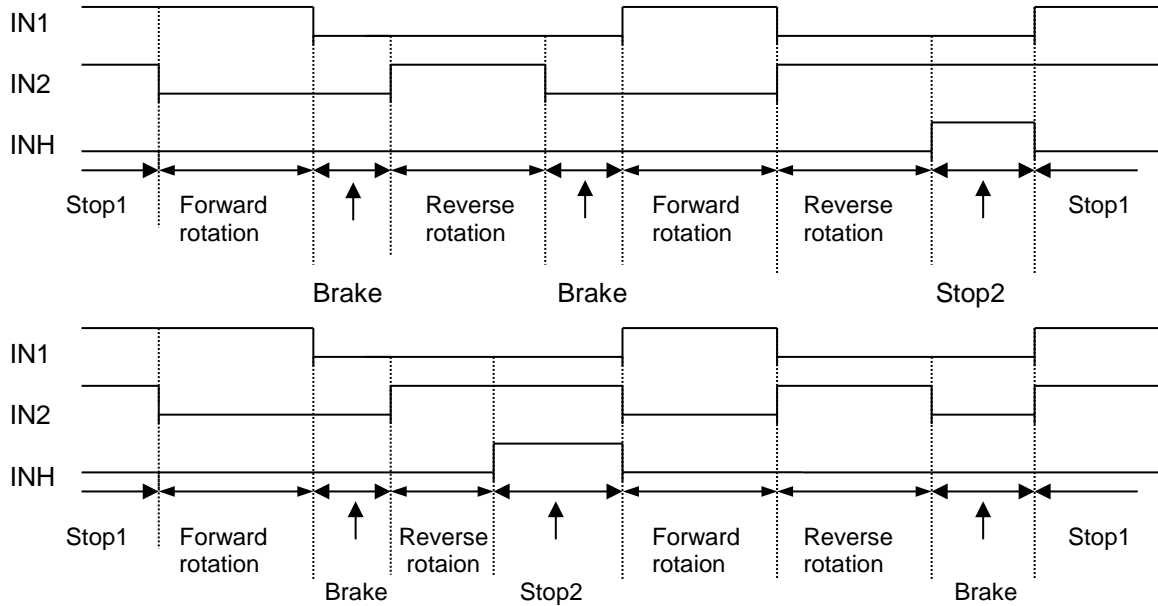
## Application Circuit

**Motor Drive Conditions** (H : high-level input, L : low-level input) 310N

## STK681-310N-E

(5) Since the response time of the ground side drive element during forward/reverse direction switching is a few tens of microseconds, this product is not appropriate for H bridge applications. This device should only be used as a DC motor driver.

### (6) Timing Charts



(7) Smoke Emission precautions : There is a possibility of smoke emission if the IPM is subjected to physical or electrical damage as the result of being used without compliance with specifications.

# STK681-310N-E

## Pin Functions

Pin Name	Pin Number	Function
IN1	12	Input pin for turning TR1 and F1 ON/OFF at high level, TR1 : ON and F1 : OFF ; at low level TR1 : OFF and F1 : ON.
IN2	13	Input pin for turning TR2 and F2 ON/OFF at high level, TR2 : ON and F2 : OFF ; at low level TR2 : OFF and F2 : ON.
INH	14	Pin for turning TR1 and TR2 OFF ; at high level TR1 and TR2 : OFF This pin is usually low or open
OUT1	8	This pin connects to the motor and outputs source/sync current depending on conditions at IN1 and IN2.
OUT2	6	This pin connects to the motor and outputs source/sync current depending on conditions at IN1 and IN2. This pin is used for current

Vref1a 16  
Vref1b 18

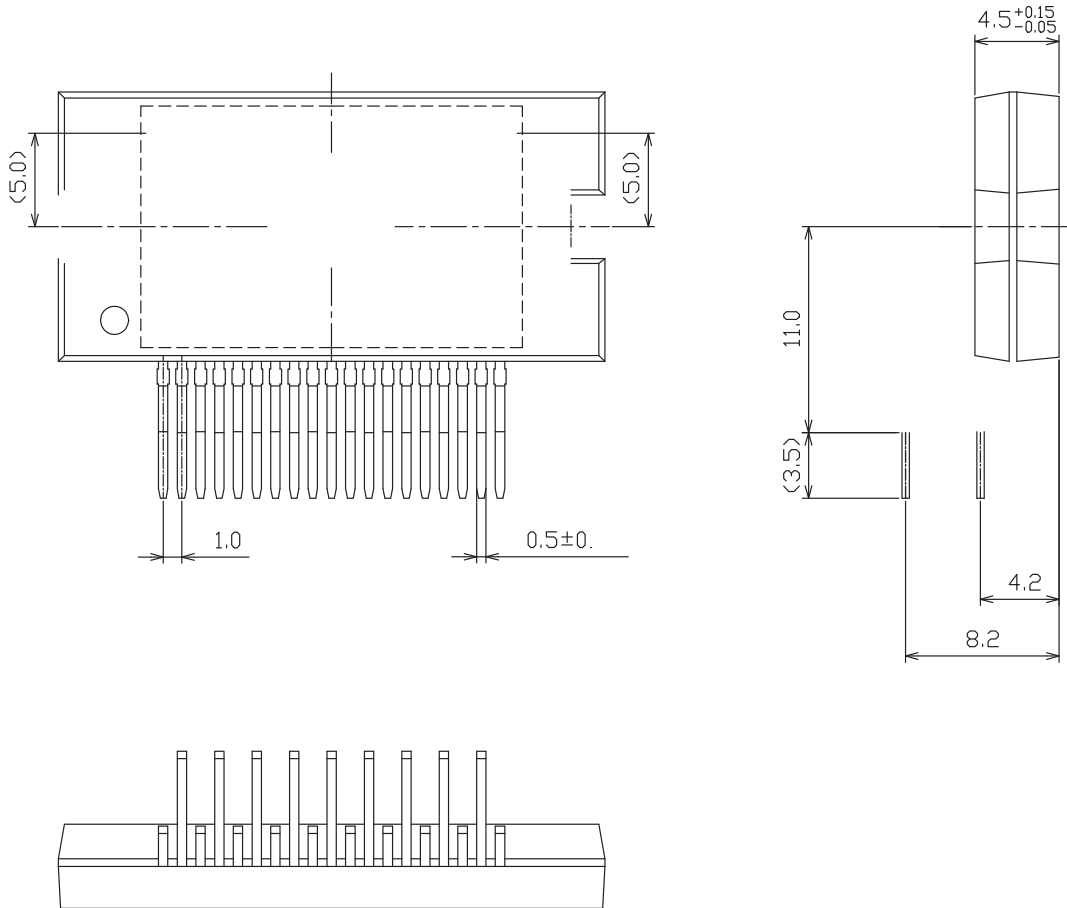


# STK681-310N-E

## Package Dimensions

unit : mm

SIP19 29.2x14.4  
CASE 127CF  
ISSUE O



## Technical data

- Internal average power dissipation, PD
2. Internal average power dissipation,  $P_{d,in}$  in the DC current-motor current,  $I_o$ , characteristics

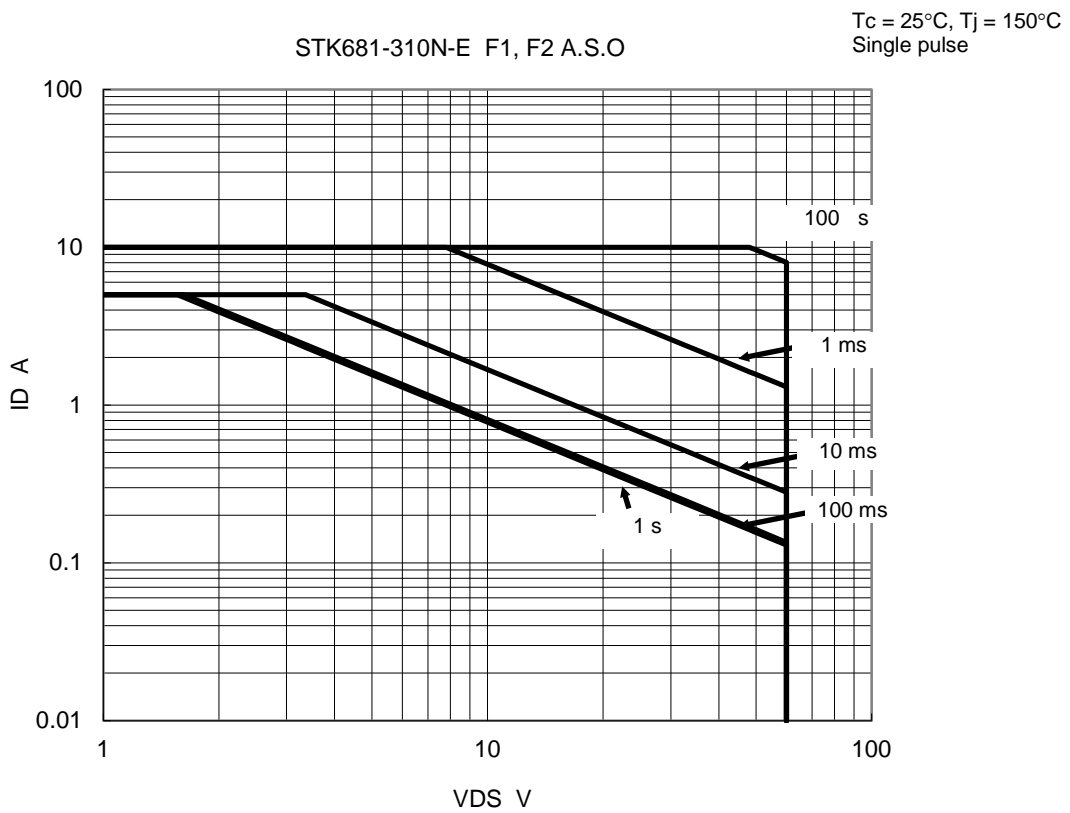
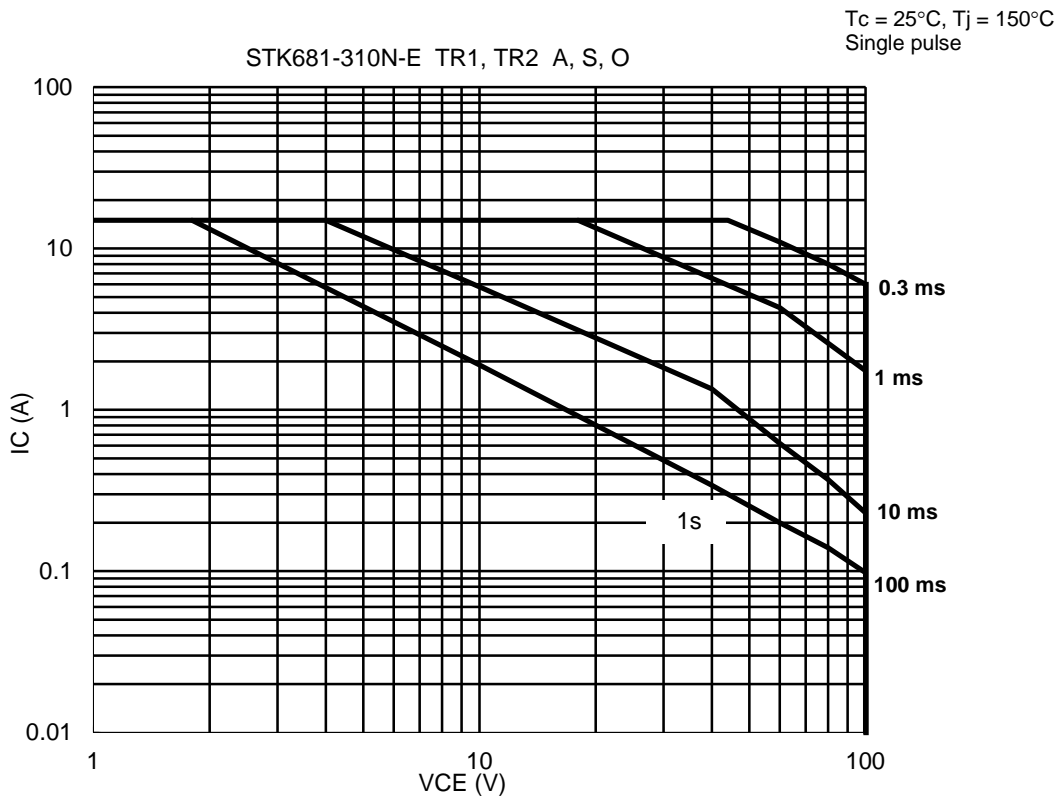
**STK681**



**STK681-310N-E**

# STK681-310N-E

## 6. TR1, TR2 A.S.O, F1, F2 A.S.O



# STK681-310N-E

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