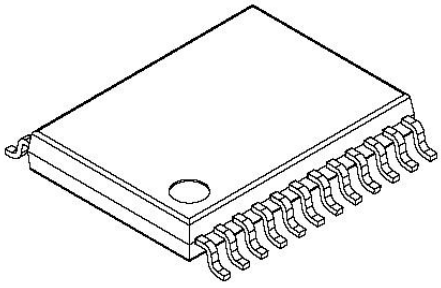
TOSHIBA CMOS Digital Integrated Circuit Silicon Monolithic

TB9060FNG

3-Phase Full-Wave Sensorless Controller for Brushless DC Motors

The TB9060FNG is a 3-phase full-wave sensorless controller for brushless DC motors in automobile. It is capable of controlling voltage by PWM signal input. When combined with various drive circuits, it can be used for various types of motors.



SSOP24-P-300-0.65A

Weight: 0.13 g (typ.)

Features

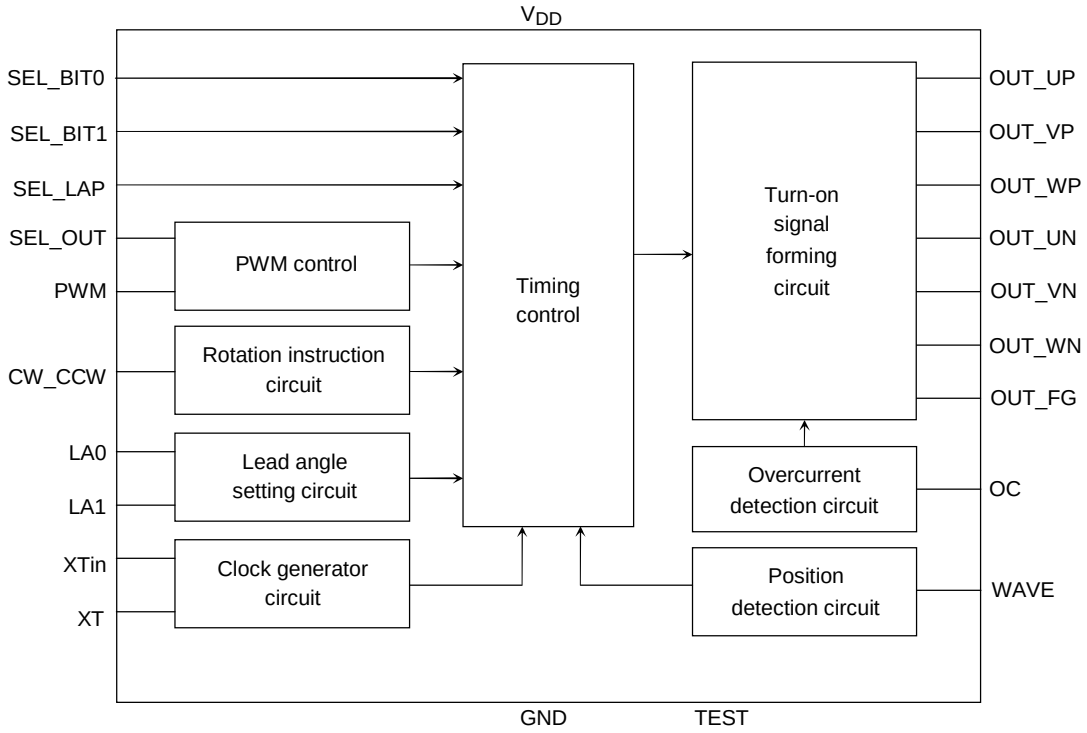
- 3-phase full-wave sensorless drive
- PWM control (PWM signal is applied externally.)
- Turn-on signal output current: 20 mA
- Overcurrent detection function
- Forward/reverse modes
- Lead angle control function (0°, 7.5°, 15° and 30°)
- Lap turn-on function
- Two types of PWM output (upper PWM and upper/lower alternate PWM)
- Rotational speed sensing function
- The product(s) is/are compatible with RoHS regulations (EU directive 2002 / 95 / EC) as indicated, if any, on the packaging label ("[[G]]/RoHS COMPATIBLE", "[[G]]/RoHS [[Chemical symbol(s) of controlled substance(s)]]", "RoHS COMPATIBLE" or "RoHS COMPATIBLE, [[Chemical symbol(s) of controlled substance(s)]]>MCV").

About solderability, following conditions were confirmed

- Solderability
  (1)Use of Sn-37Pb solder Bath
  - solder bath temperature=230℃
  - dipping time=5seconds
  - the number of times=once
  - use of R-type flux

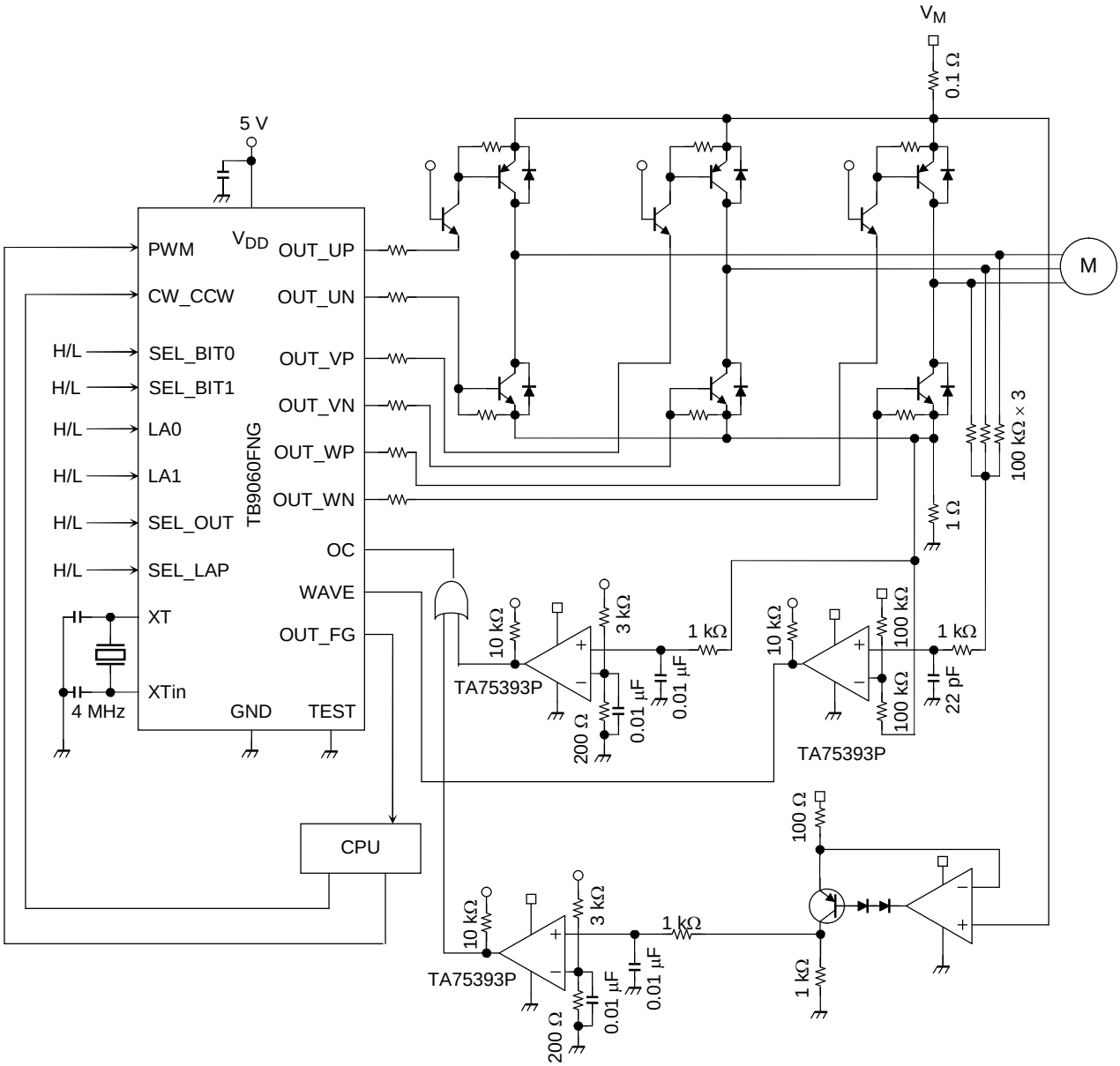
  (2)Use of Sn-3.0Ag-0.5Cu solder Bath
  - solder bath temperature=245℃
  - dipping time=5seconds
  - the number of times=once
  - use of R-type flux

Block Diagram



Note: Some of the functional blocks, circuits, or constants in the block diagram are omitted or simplified to clarify the descriptions of the relevant features.

Application Circuit Example



Note 1: Take enough care in designing output V_{DD} line and ground line to avoid short circuit between outputs, V_{DD} fault or ground fault which may cause the IC to break down.

Note 2: The above application circuit and values mentioned are just an example for reference. Since the values may vary depending on the motor to be used, appropriate values must be determined through experiments before using the device.

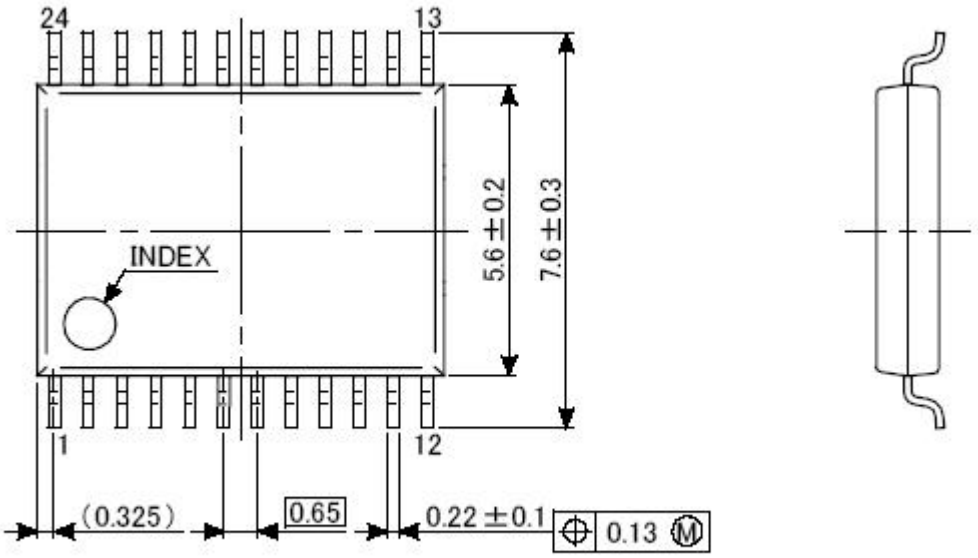
Note 3: TEST pin is only used for factory test, so connect it to ground in application.

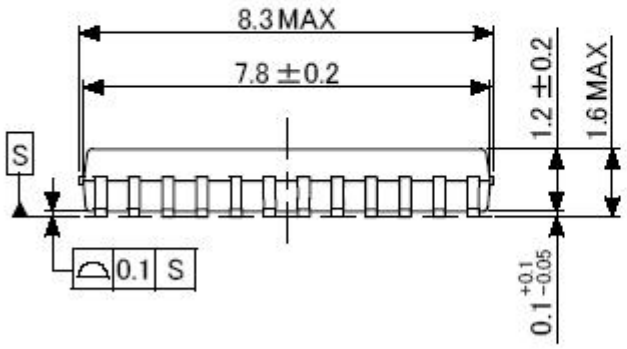
Note 4: Ensure that the IC is mounted correctly. Failing to do so may result in the IC or target equipment being damaged.

Note5: The example application circuit is not guaranteed for mass production. Additional thorough evaluation is required if the device is used in an application intended for mass production.

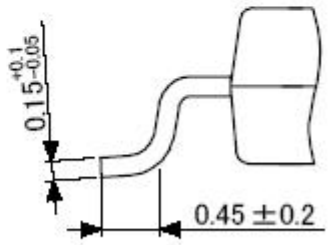
Package Dimensions

Unit : mm





Lead edge dimension



Weight: 0.13 g (typ.)

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