



## Product brief

# AP1050

## Pre-Driver IC for 3-Phase Brushless Motor

### 1. General Description

The AP1050 is a pre-driver for a 3-phase brushless motor with built-in power supplies, which operates motor drive voltage in range of 8V to 36V. It incorporates a step-down DC-DC converter and LDOs to generate the power supply that the motor drive system requires. The bootstrap circuit is embedded and it enables to use N type MOSFET for both low side and high side.

### 2. Features

- Motor Drive Voltage 8V~36V
- Buck DC-DC 10V/500mA, Built-in FET, Synchronous rectification type
- LDOE 3.3V/200mA (For external circuit and DVDD connection)
- LDOA 5.0V(For AVDD connection)
- VREG 4.83V(For internal analog circuit)
- LDOD 1.88V(For internal digital circuits)
- Pre-Driver With Power Good signal output  
Built-in bootstrap circuit for high side driver  
With Dead Time Control function
- PWM Controller 13 bit setting, PWM waveform mode switching
- VGA +17dB~28dB, 3dB step, 2ch same setting
- ADC 12bit, 2ch
- 4-wire serial interface CSB, SCK, SDI, SDO
- PWM cycle input / output INT
- Protection function Undervoltage detection (VIN,VDC,VREG,LDOE,LDOA,LDOD)  
Overvoltage detection (VIN,VDC,LDOE,LDOA,LDOD)  
Overcurrent detection (Buck DC-DC,Pre-Driver)  
Built-in thermal shutdown circuit (TSD)
- Overcurrent protection (OCP)
- Error output 1-Output (ERRB)
- Operation Temperature Range -40~105°C (Tj max=150°C)
- Package 48-pin QFN (7 × 7mm)

3. Block Diagram

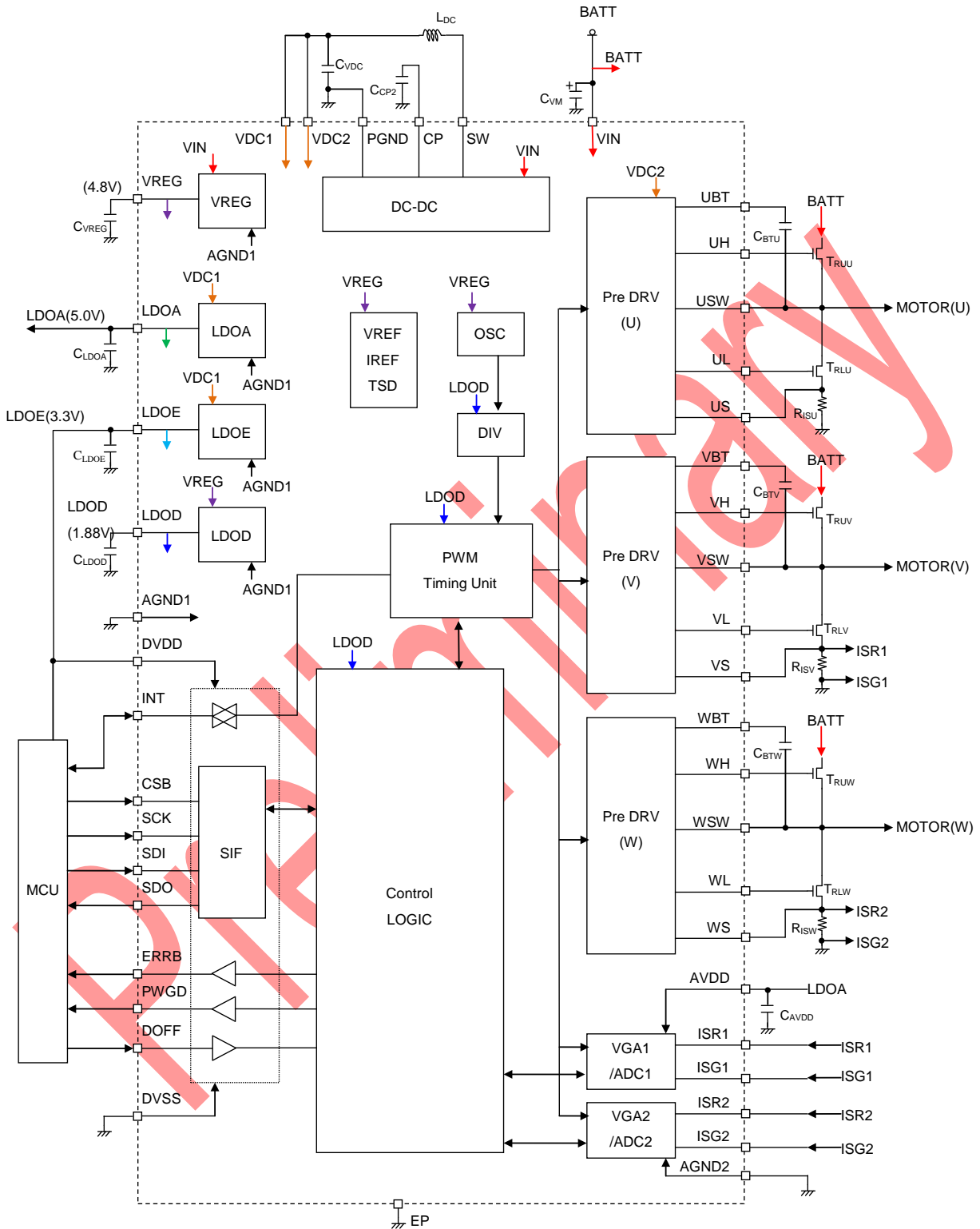
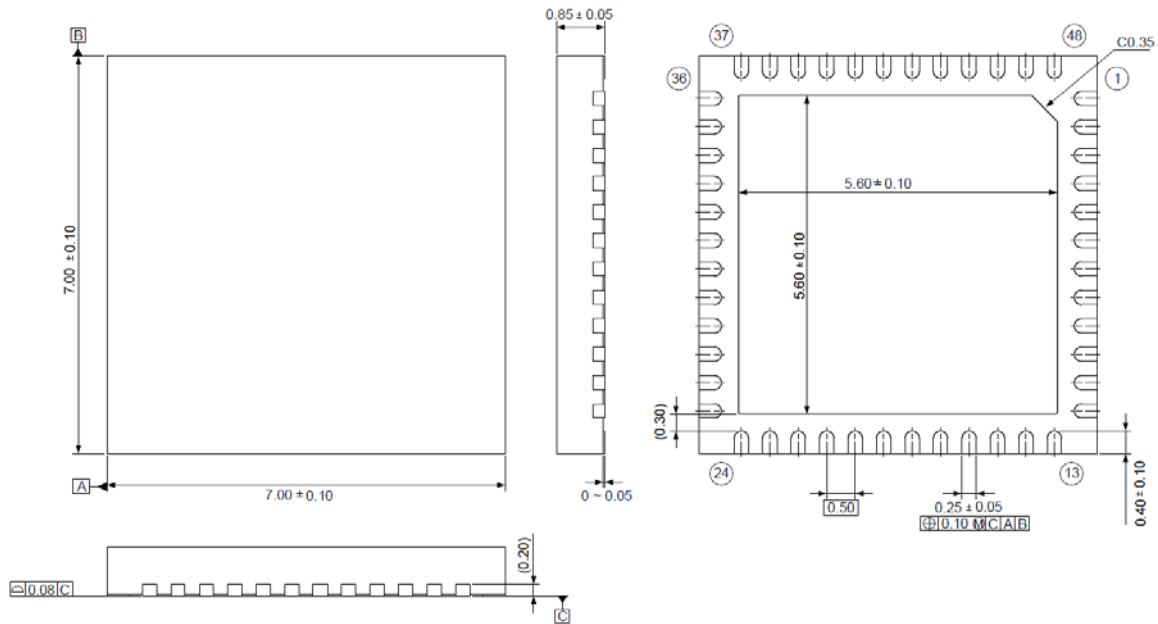


Figure 1. Block Diagram

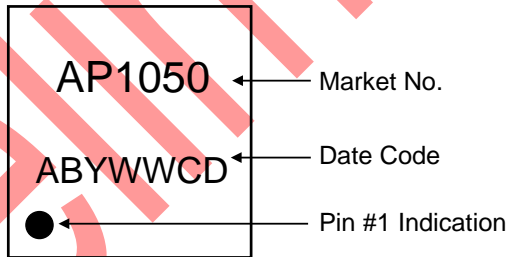
## 4. Package

### 4.1 External dimensions (Preliminary)

• 48-pin QFN (Unit : mm)



### 4.2 Marking



Date code (7 digit)

A : Wafer Lat#(last 1 digit)  
 B : FAB Revision#  
 Y : Year code (last 1 digit)  
 WW : Week code  
 C : Foundry code  
 D : Assembly code

**This product brief is a preliminary version. If you would like more information, please consult our sales representative or our dealer sales representative.**

Preliminary