



IN2013

Solution for Off-Line UPS

ASIC for UPS
Regulator and Drivers Embedded

1 Overview

1.1 Features

3.3 or 5 V Regulator

Power On/Off Control

Start-up Delay Circuit

Relay Drivers

Relay driver x 2, built-in kickback diode

Relay driver x 1

Speed-up relay driver x 1

PWM Drivers

PWM driver x 5

Output peak current up to 1 A

Operating frequency up to 100 KHz

Buzzer Driver

Operating frequency up to 4 KHz

Operating Range

Operating Voltage: 8 V to 15 V

Operating Temperature: -40 °C to +85 °C

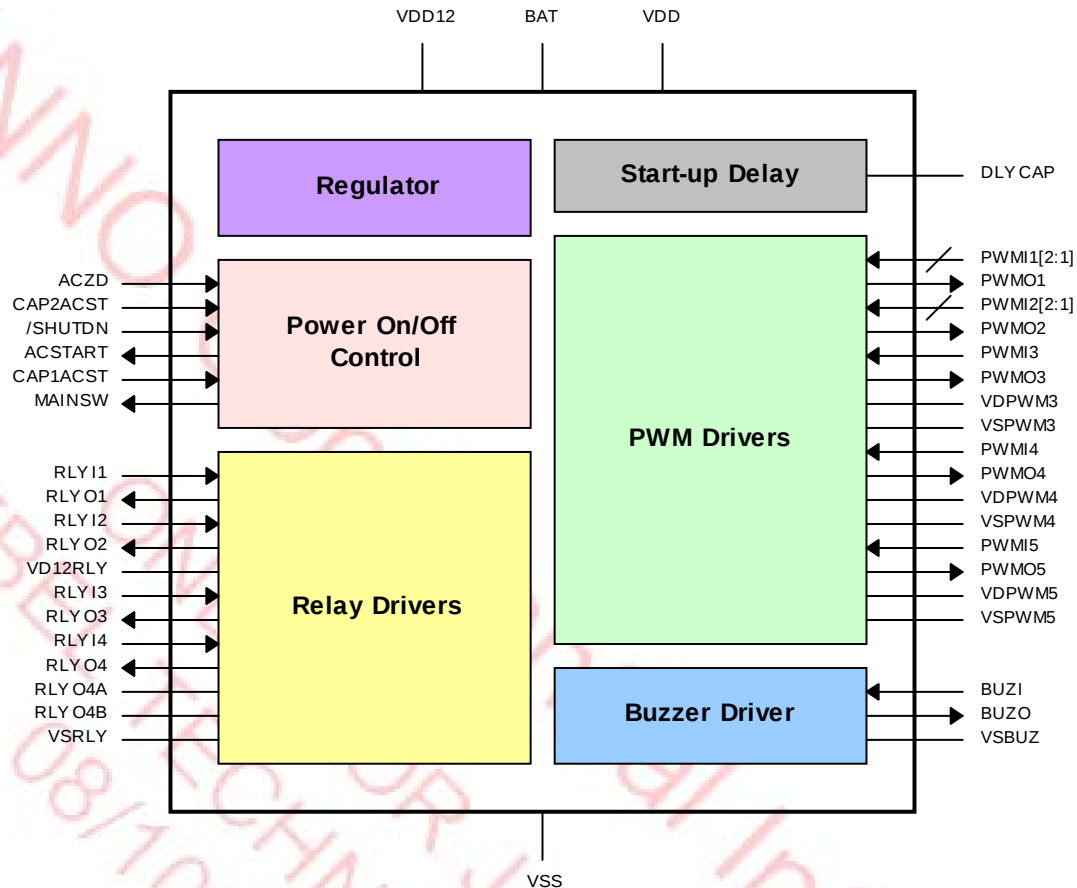
Package

44-Pin LQFP



1.2 Block Diagram

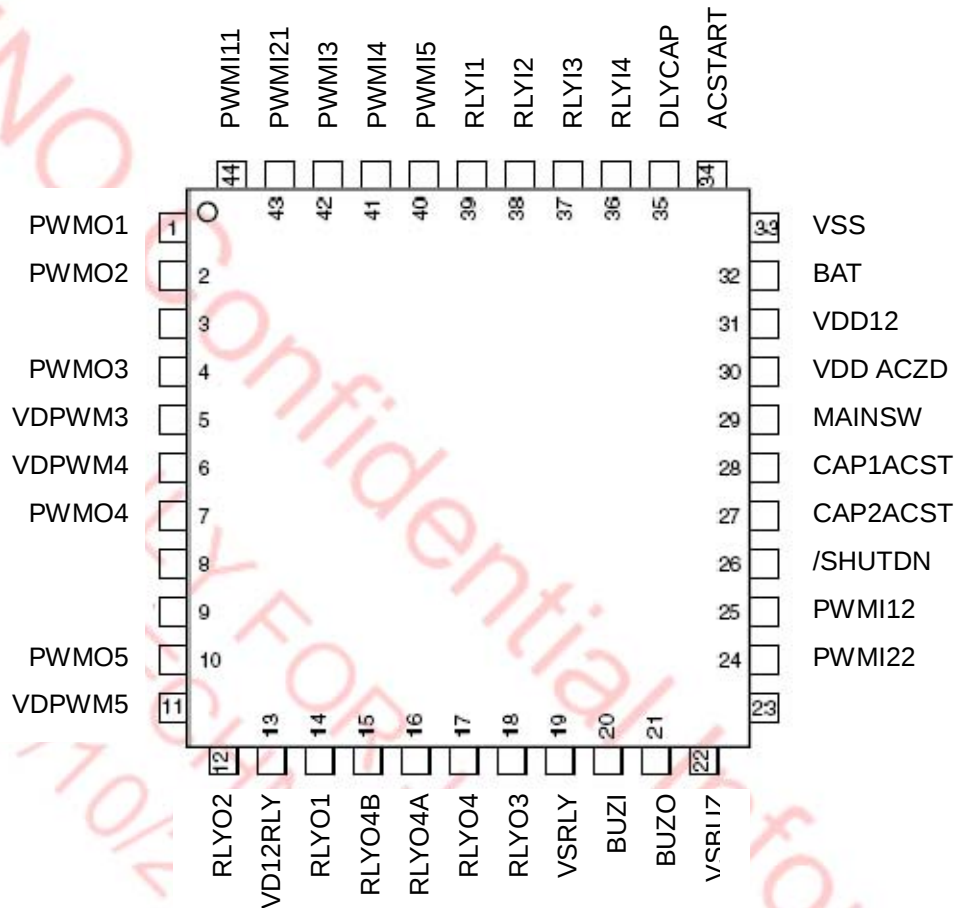
Figure 1.1 Block Diagram





1.3 Pin Configuration

44-Pin LQFP





1.4 Pin Description

Name	Type	Description
BAT		Device supply voltage input (from battery).
VDD12		Device supply voltage input.
VDD		Regulator output.
VSS		Ground.
DLYCAP		Connect to start-up delay capacitor positive.
Power On/Off Control		
ACZD	I L	Power on/off control Input (from AC start circuit).
CAP2ACST	I L	Power on/off control Input (from SW start circuit).
/SHUTDN	I L	Power on/off control Input (from CPU).
ACSTART	O	Power on/off control drive output (connect to start-on transistor's base).
CAP1ACST	I L	Main SW state input, 12 V level (from SW start circuit).
MAINSW	O	Main SW state output, 3.3 V level (to CPU).
Relay Drivers		
RLYI1	I	Input for relay driver 1.
RLYO1	O	Output for relay driver 1.
RLYI2	I	Input for relay driver 2.
RLYO2	O	Output for relay driver 2.
RLYI3	I	Input for relay driver 3.
RLYO3	O	Output for relay driver 3.
RLYI4	I	Input for relay driver 4.
RLYO4	O	Output for relay driver 4.
RLYO4A		Connect to VDD12.
RLYO4B		Connect to speed-up capacitor negative.
VD12RLY		Supply input for relay drivers.
VSRLY		Ground for relay drivers.
PWM Drivers		
PWMI11	I	Input for PWM driver 1.
PWMI12	I	Input for PWM driver 1.
PWMO1	O	Output for PWM driver 1.
PWMI21	I	Input for PWM driver 2.
PWMI22	I	Input for PWM driver 2
PWMO2	O	Output for PWM driver 2.



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PWMI3	I	Input for PWM driver 3.
PWMO3	O	Output for PWM driver 3.
VDPWM3		Supply input for PWM driver 3.
PWMI4	I	Input for PWM driver 4.
PWMO4	O	Output for PWM driver 4.
VDPWM4		Supply input for PWM driver 4.
PWMI5	I	Input for PWM driver 5.
PWMO5	O	Output for PWM driver 5.
VDPWM5		Supply input for PWM driver 5.
Buzzer Driver		
BUZI	I	Input for buzzer driver.
BUZO	O	Output for buzzer driver.
VSBUZ		Ground for buzzer driver.

Note: Type I: input, O: output, P: power, H: pull-high, L: pull-low