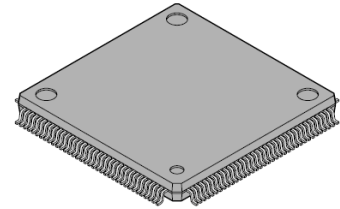


# 1. General Description

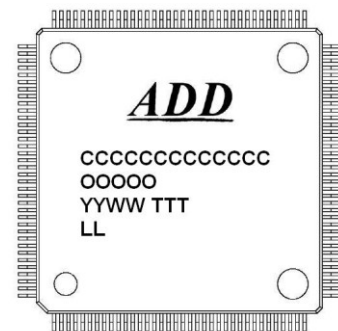
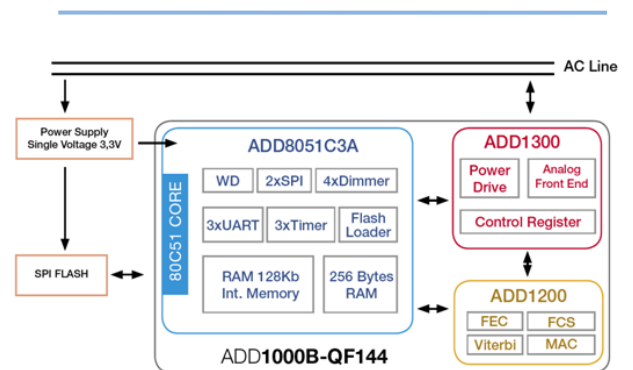
The ADD1000B is a Power Line System on Chip oriented to industrial and home automation applications. It includes an enhanced 8051 microcontroller (IP core ADD8051C3A), a Medium Access Controller (MAC), and a FSK Modem circuit for the C band CENELEC Power Line Medium specifications. The complete system works with a single 3.3v DC power supply.



144-pin plastic LQFP (16x16 mm)

**Features:**

- Power Line Carrier Modem for 50 and 60Hz mains
- Carrier Frequency: 132.5 kHz
- Baudrate Selectable: 600 to 4800 bps
- Compliant to EHS and KONNEX
- Half Duplex
- Receiver Sensitivity: Up to 44dB $\mu$ Vrms
- Convolutional coding, Viterbi decoding
- CRC and FEC error correction
- Enhanced 8051 core, Average speedup of 5 times
- 128Kbytes internal SRAM
- Auto Boot-loading Program from Serial Flash
- In-circuit Serial Flash Programming
- Programmable Watchdog
- 3 x UART
- SPI to Serial Flash and external RTC
- Buffered SPI to external metering IC
- Quadruple Dimmer in/out
- Power Supply 3.3v
- Pb-Free and RoHS compliant
- Ambient Temperature Range: -40°C to +85°C



**Typical Applications:**

- Automated Meter Reading (AMR)
- Street lighting
- Home Automation

**MARKING DIAGRAM**

<b>ADD</b>	=Customer Logo
<b>CCCCCCCCCCCC</b>	=Customer Part number
<b>OOOOO</b>	=Country of Origin
<b>YYWW</b>	=Year/week code
<b>TTT</b>	=Control Code
<b>LL</b>	=Lead Free Code

**Ordering Code :**      **ADD1000BQF144**  
**Pb-Free**

### 1.1 Block Diagram

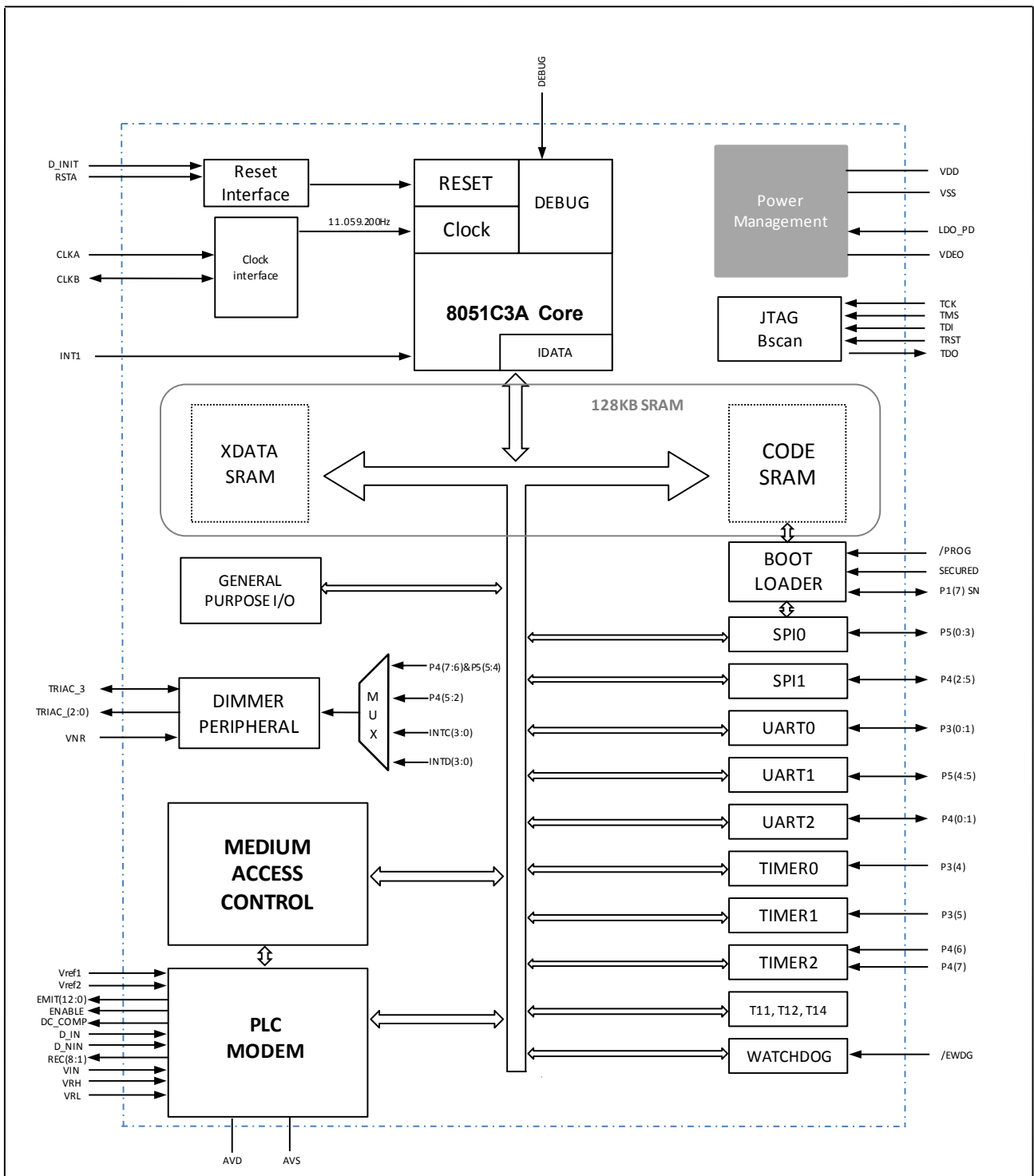


Figure 1. ADD1000B Block Diagram

### 1.2 Pin Assignment

The following figure illustrates the pinout of the ADD1000B LQFP144 package:

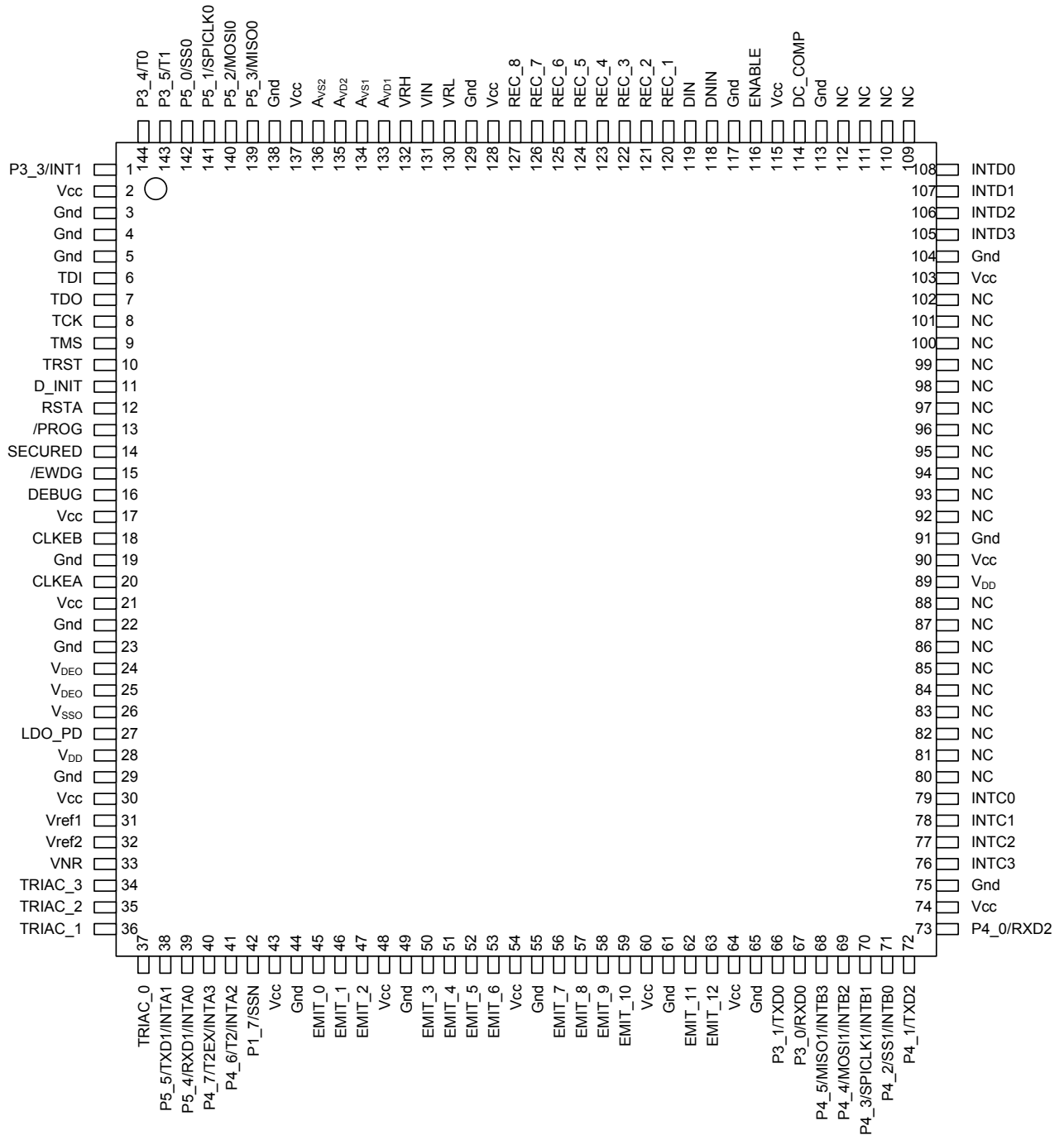


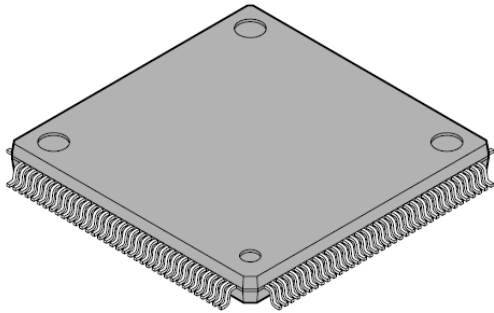
Figure 2. LQFP pin assignment

## 2. Mechanical data

144-pin plastic LQFP (16x16mm) Pb-free, RoHS compliant.

Ambient Temperature Range: -40°C to +85°C.

Ordering Code: **ADD1000BQF144**

 <p>144-pin plastic LQFP</p>	Lead pitch	0.40 mm
	Package width × package length	16.0 × 16.0 mm
	Lead shape	Gullwing
	Sealing method	Plastic mold
	Mounting height	1.70 mm MAX
	Weight	0.88 g
	Code (Reference)	P-LFQFP144-16×16-0.40

Dimensions in mm (inches).

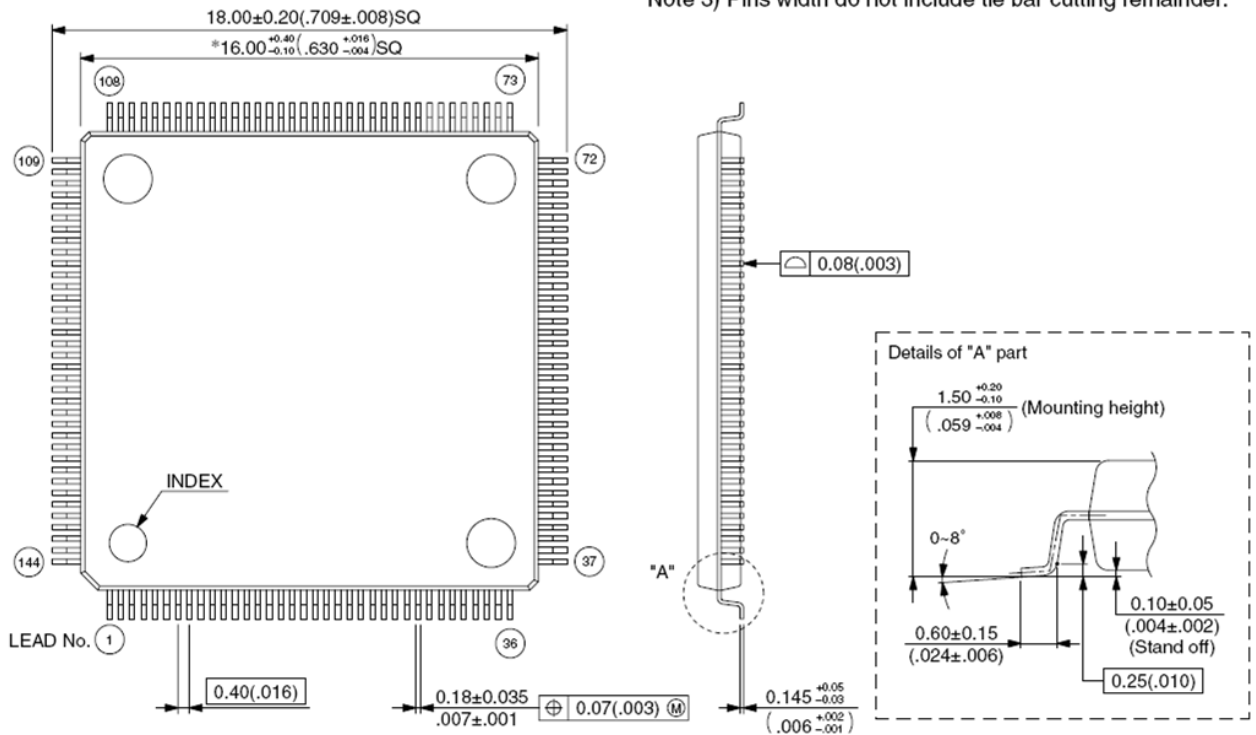
Note: The values in parentheses are reference values.

Note 1) \*: These dimensions include resin protrusion.

Resin protrusion is +0.25(.010)Max(each side).

Note 2) Pins width and pins thickness include plating thickness.

Note 3) Pins width do not include tie bar cutting remainder.

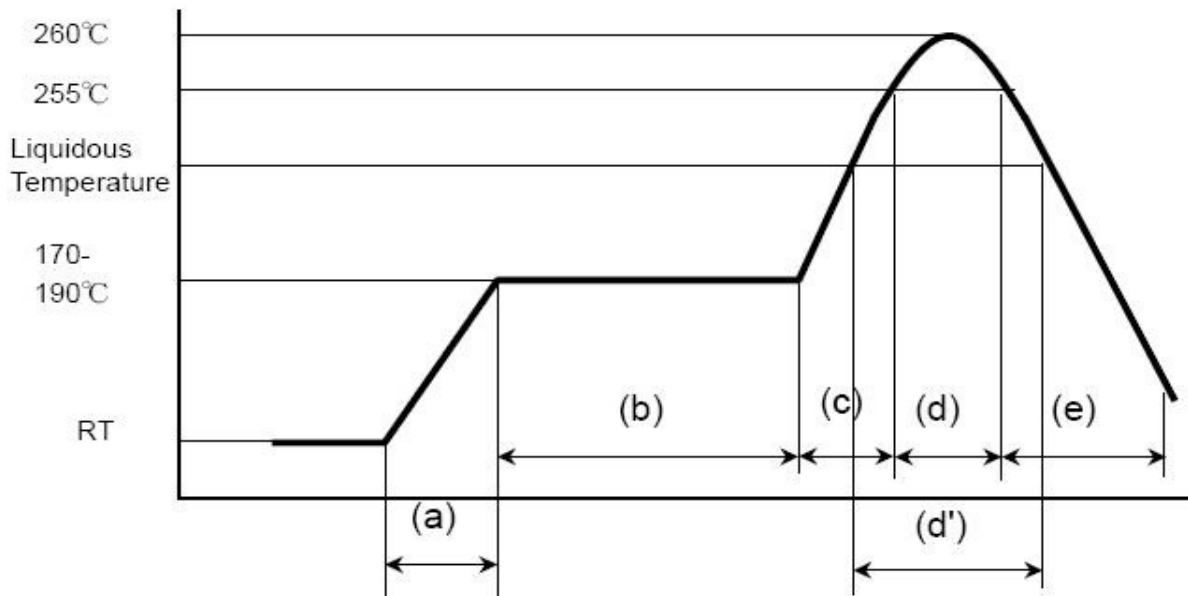


## 2.1 Recommended mounting conditions

### 2.1.1 Conditions of Standard Reflow

Items	Contents	
Method	IR(Infrared Reflow) / Convection	
Times	2	
Floor life	Before unpacking	Please use within 2 years after production
	From unpacking to second reflow	Within 8 days
	In case over period of floor life	Baking with 125°C +/- 3°C for 24hrs +2hrs/-0hrs is required. Then please use within 8 days. (please remember baking is up to 2 times)
Floor life condition	Between 5°C and 30°C and also below 70%RH required. (It is preferred lower humidity in the required temp range.)	

#### Temperature Profile



H rank: 260°C Max

(a) Average ramp-up rate: 1°C/s to 4°C/s

(b) Preheat & Soak: 170°C to 190°C, 60s to 180s

(c) Average ramp-un rate: 1°C/s to 4°C/s

(d) Peak temperature: 260°C Max, Up to 255°C within 10s

(d') Liquidous temperature:     Up to 230°C within 40s or  
   Up to 225°C within 60s or  
   Up to 220°C within 80s

(e) Cooling: Natural cooling or forced cooling

***\*Temperature on the top of the package is measured***