Advanced Digital Design
Providing Solutions

ADD7232

Reference board for ADD1000A

DATA SHEET

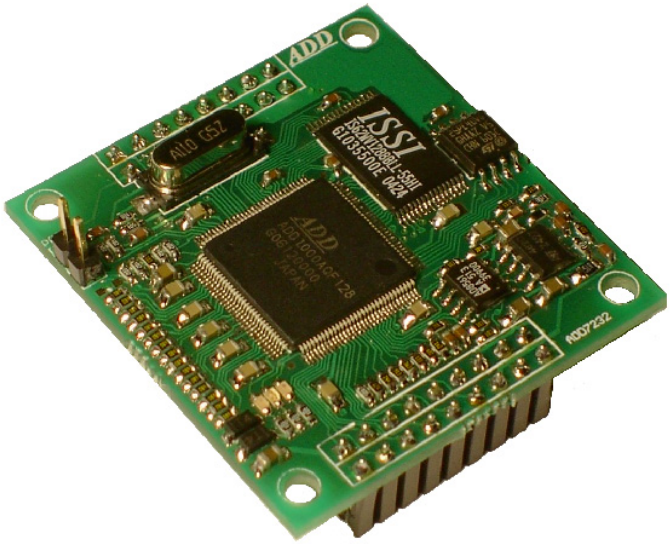
DESCRIPTION

The Power Line Communication (PLC) technology provides a low cost and easy way to connect and to control devices in the industrial, or domestic, environment. Advanced Digital Design PLC technology is based on ADD1000A chip. It implements a full PLC node, which includes an enhanced 8051 microcontroller, a Medium Access Controller (MAC) and a Modem circuit compatible with the EHS Power Line medium specifications. It is designed to be used by OEM and provides a low cost and small size solution for narrow band power line communications.

ADD7232 board is the reference prototyping board to develop and prototyping new devices using the Power Line Communication (PLC) technology of Advanced Digital Design and its System on Chip (SoC) solutions.

ADD7232 reference board includes an ADD1000A chip, a FLASH memory (512Kx8bit), a RAM memory (128Kx8bit), 22 general purpose I/O and a serial RS232 link. The microcontroller included in the system is an 8051 compatible core the ADD8051C12A, with 256 bytes of internal RAM memory, two timers, five interrupt sources (RI/TI, T0, T1, INT0, INT1) and the Standard Serial Interface. The program memory of 8051 microcontroller is stored in an external 512kbytes FLASH chip. The program of the 8051 can be reprogrammed by the user using a software application through a RS232 link. The rest of the flash memory can be used by applications to write and read non volatile information, such as IP address, unique Ethernet address, reference control levels... After the power up, the reset process of ADD8051C12A transfers the program from the external flash to the top half of the external 128kbytes RAM and uses the bottom half for the data map. The UART lines of microcontroller are directly available.

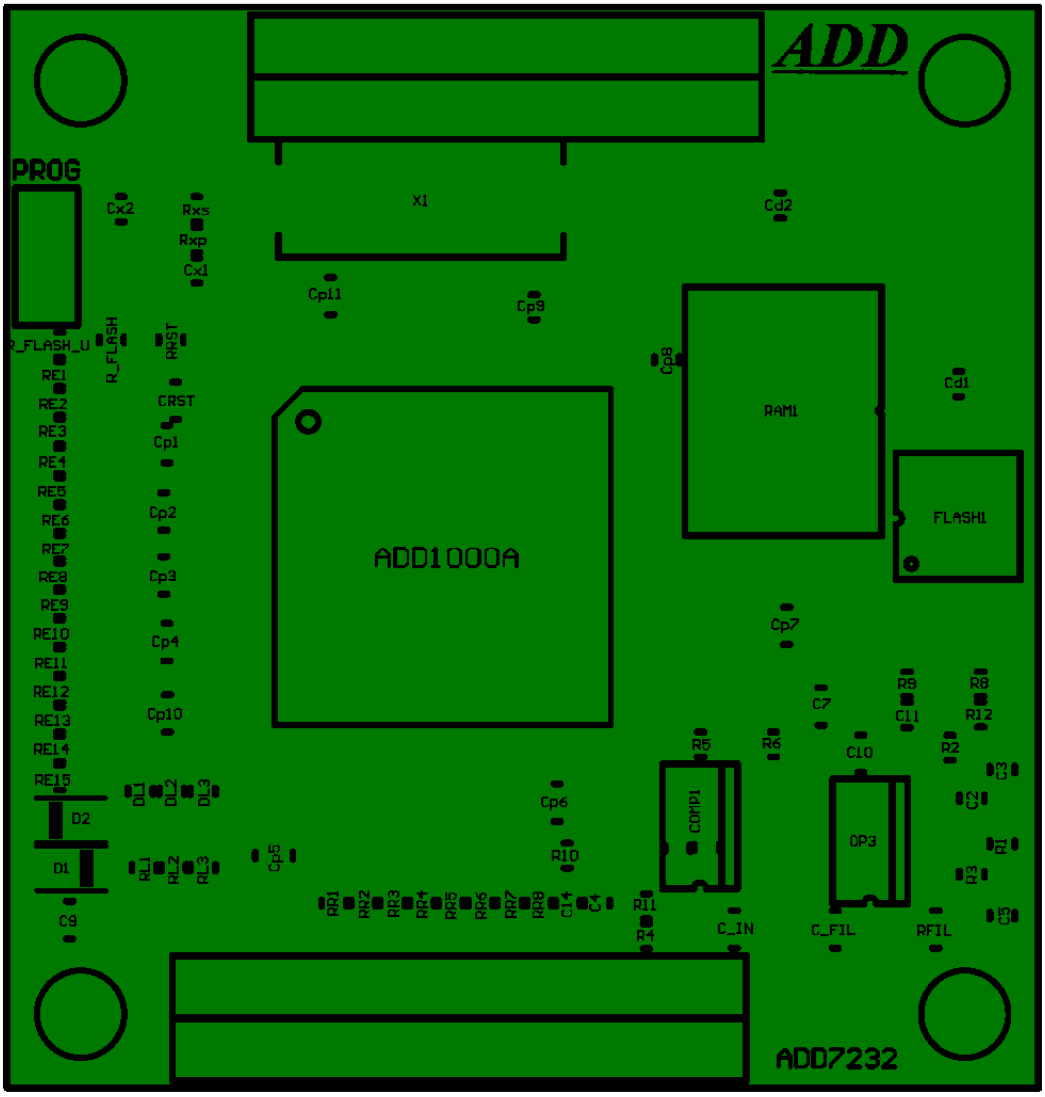
MODULE PICTURE



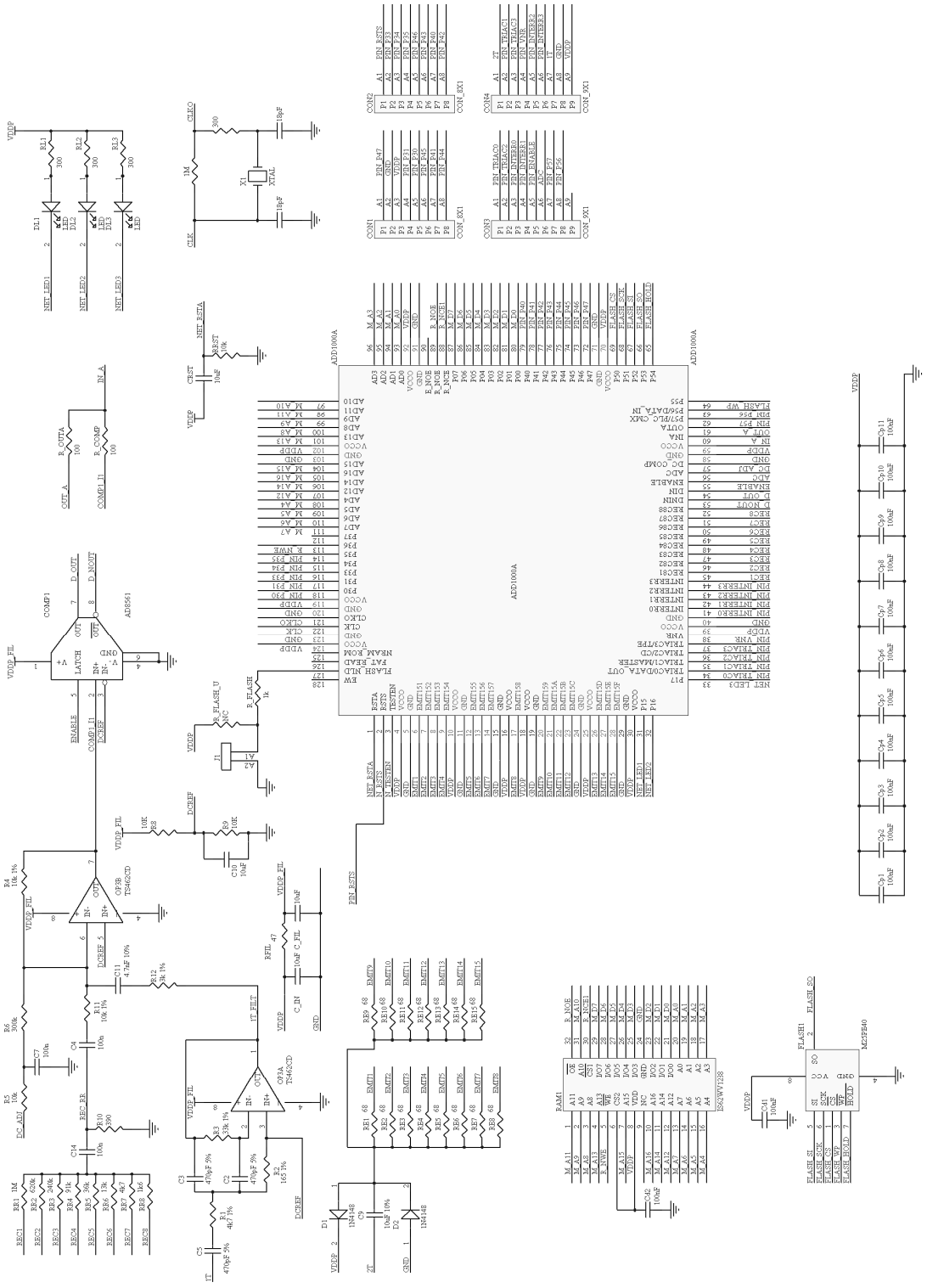
FEATURES

POWER SUPPLY	Voltage	3.3 VDC
	Consumption on standby	300mW
	Maximum consumption (emitting)	1 W
DIMENSIONS AND WEIGHTS	Dimensions (mm)	44Lx42Wx17D
	Weight	8gr
TEMPERATURE	Operating	-5 to 40ºC
	Storage	-10 to 70ºC

PRINTED CIRCUIT BOARD



SCHEMATIC

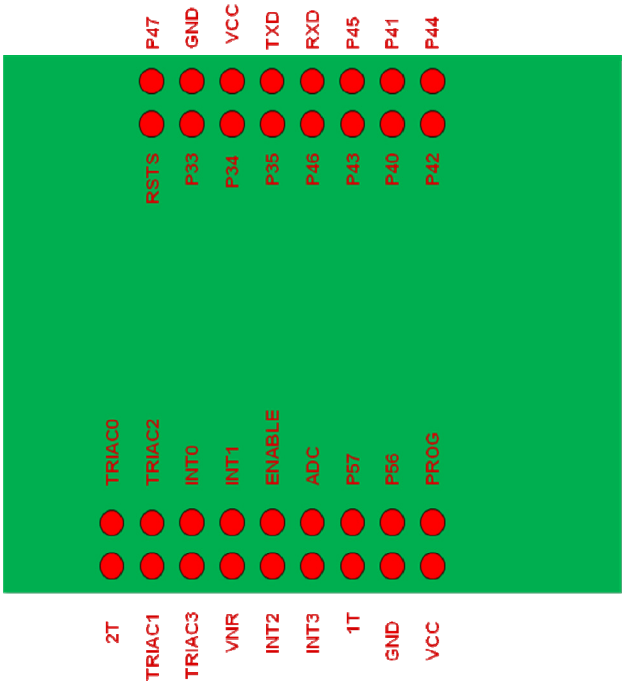


BILL OF MATERIALS

DESIGNATOR	VALUE	VOLT/DIEL	TOLERANCE	PACKAGE
ADD1000A	ADD1000AQF128			QFP15-128
C_FIL	10uF	10V	[-20%+80%]	0805
C_IN	10uF	10V	[-20%+80%]	0805
C10	10uF	10V	[-20%+80%]	0805
C11	4.7nF		[-+10%]	0603
C14	100nF	25V X7R	[-+10%]	0603
C2	470pF		[-+5%]	0603
C3	470pF		[-+5%]	0603
C4	100nF	25V X7R	[-+10%]	0603
C5	470pF		[-+5%]	0603
C7	100nF	25V X7R	[-+10%]	0603
C9	10uF	10V	[-+10%]	0805
Cd1	100nF	25V X7R	[-+10%]	0603
Cd2	100nF	25V X7R	[-+10%]	0603
COMP1	AD8561			SOIC8
Cp1	100nF	16V	[-+10%]	0805
Cp10	100nF	16V	[-+10%]	0805
Cp11	100nF	25V X7R	[-+10%]	0805
Cp2	10uF	10V	[-20%+80%]	0805
Cp3	100nF	16V	[-+10%]	0805
Cp4	10uF	10V	[-20%+80%]	0805
Cp5	100nF	25V X7R	[-+10%]	0805
Cp6	100nF	25V X7R	[-+10%]	0805
Cp7	100nF	25V X7R	[-+10%]	0805
Cp8	100nF	25V X7R	[-+10%]	0603
Cp9	100nF	25V X7R	[-+10%]	0603
CRST	10uF	10V	[-20%+80%]	0805
Cx1	18pF			0603
Cx2	18pF			0603
D1	1N4148W-TR			SOD123
D2	1N4148W-TR			SOD123
DL1	LED GREEN			0603
DL2	LED YELLOW			0603
DL3	LED RED			0603
FLASH1	M25PE40			SO8 wide 208 mil
OP3	TS462CD			SOIC8
R_FLASH	1K		[-+5%]	0603
R_FLASH_U	1K		[-+5%]	0603
R1	4K7		[-+1%]	0603
R10	390 ohm		[-+5%]	0603
R11	10K		[-+1%]	0603

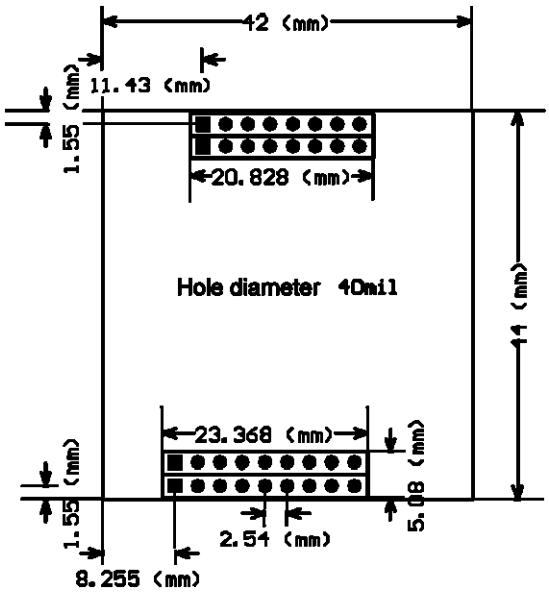
DESIGNATOR	VALUE	VOLT/DIEL	TOLERANCE	PACKAGE
R12	3K		[-+1%]	0603
R2	165 ohm		[-+1%]	0603
R3	33K		[-+1%]	0603
R4	10K		[-+1%]	0603
R5	10K		[-+5%]	0603
R6	300K		[-+5%]	0603
R8	10K		[-+5%]	0603
R9	10K		[-+5%]	0603
RAM1	IS62WV1288			STSOP32
RE1	33 ohm		[-+5%]	0603
RE10	33 ohm		[-+5%]	0603
RE11	33 ohm		[-+5%]	0603
RE12	33 ohm		[-+5%]	0603
RE13	33 ohm		[-+5%]	0603
RE14	33 ohm		[-+5%]	0603
RE15	33 ohm		[-+5%]	0603
RE2	33 ohm		[-+5%]	0603
RE3	33 ohm		[-+5%]	0603
RE4	33 ohm		[-+5%]	0603
RE5	33 ohm		[-+5%]	0603
RE6	33 ohm		[-+5%]	0603
RE7	33 ohm		[-+5%]	0603
RE8	33 ohm		[-+5%]	0603
RE9	33 ohm		[-+5%]	0603
RFIL	47 ohm		[-+5%]	0805
RL1	300 ohm		[-+5%]	0603
RL2	300 ohm		[-+5%]	0603
RL3	300 ohm		[-+5%]	0603
RR1	1M		[-+5%]	0603
RR2	620K		[-+5%]	0603
RR3	240K		[-+5%]	0603
RR4	91K		[-+5%]	0603
RR5	36K		[-+5%]	0603
RR6	13K		[-+5%]	0603
RR7	4K7		[-+5%]	0603
RR8	1K6		[-+5%]	0603
RRST	10K		[-+5%]	0603
Rxp	1M			0603
Rxs	300 ohm			0603
X1	ABRACON AT49	11.0592MHz		HC49US

PINOUT



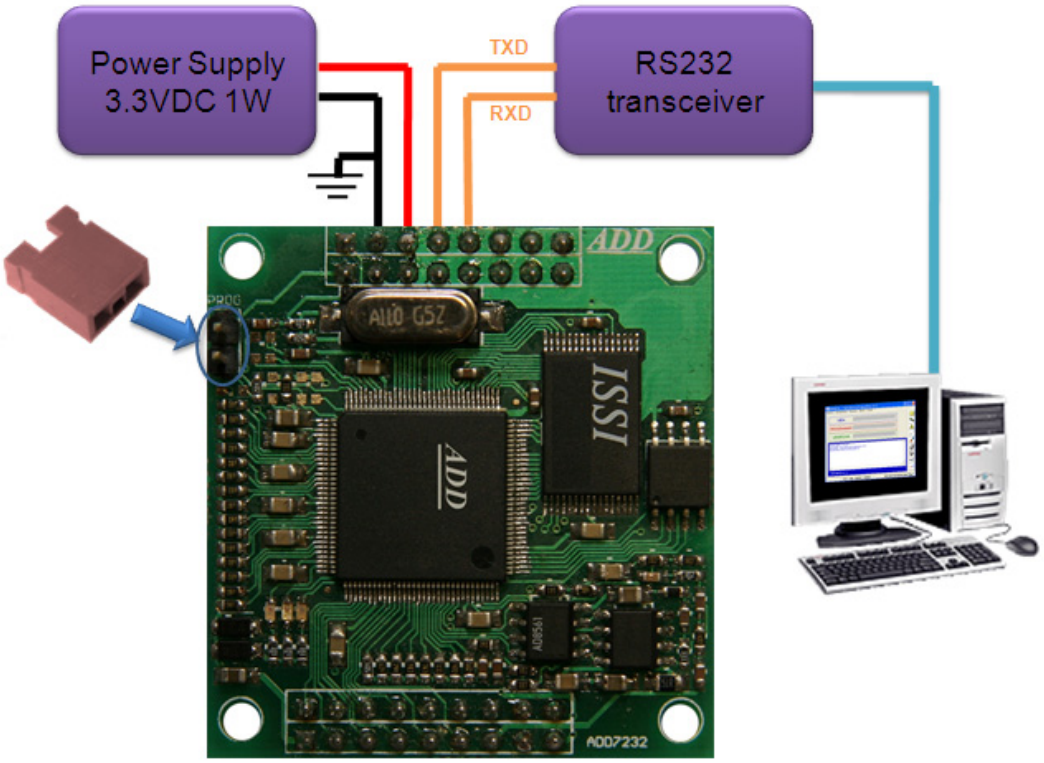
Note: see ADD1000AQF128 datasheet

DIMENSIONS



PROGRAM LOADING

ADD7281 is used to load a program in ADD7232 Flash memory. This is the diagram:



ADD7232 needs a power supply 3.3VDC 1W. Programming jumper must be set. A RS232 transceiver, like ADM3202A, converts from TTL level to RS232 level.

To load the program, launch ADD6030 application in a computer. See "APN100 How to Program the ADD7232.pdf" to solve any doubt on using this application.