

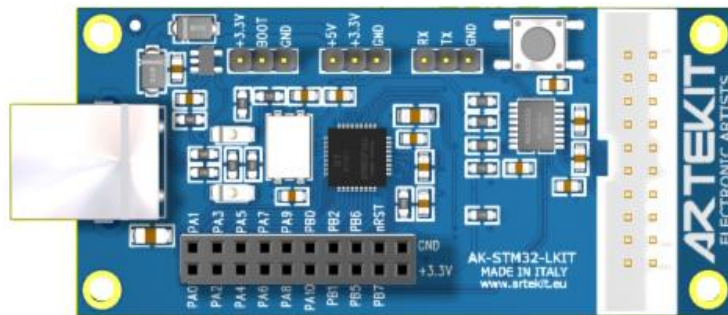


ARTEKIT

electronic artists

AK-STM32-LKIT Development Board

Reference manual





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About this document

Revision history

The table below displays the revision history for the chapters in this manual.

Chapter	Date	Revision	Changes made
All	March 2012	1.0	First publication

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Specifications

General description

The AK-STM32-LKIT board is a small but powerful ARM Cortex M3 development board. The board features a STM32 Cortex M3 microcontroller. The board can be powered from the USB connector or using a external 5VDC power supply

Environmental requirements

The AK-STM32-LKIT board must be stored between -40°C and 100°C . The recommended operating temperature is between 0° and 70°C .

The AK-STM32-LKIT board can be damaged without proper anti-static handling.

Handling the board

When handling the board, it is important to observe the following precaution:

Static discharge precaution — Without proper anti-static handling the board can be damaged. Therefore, take anti-static precautions while handling the board.

Board overview

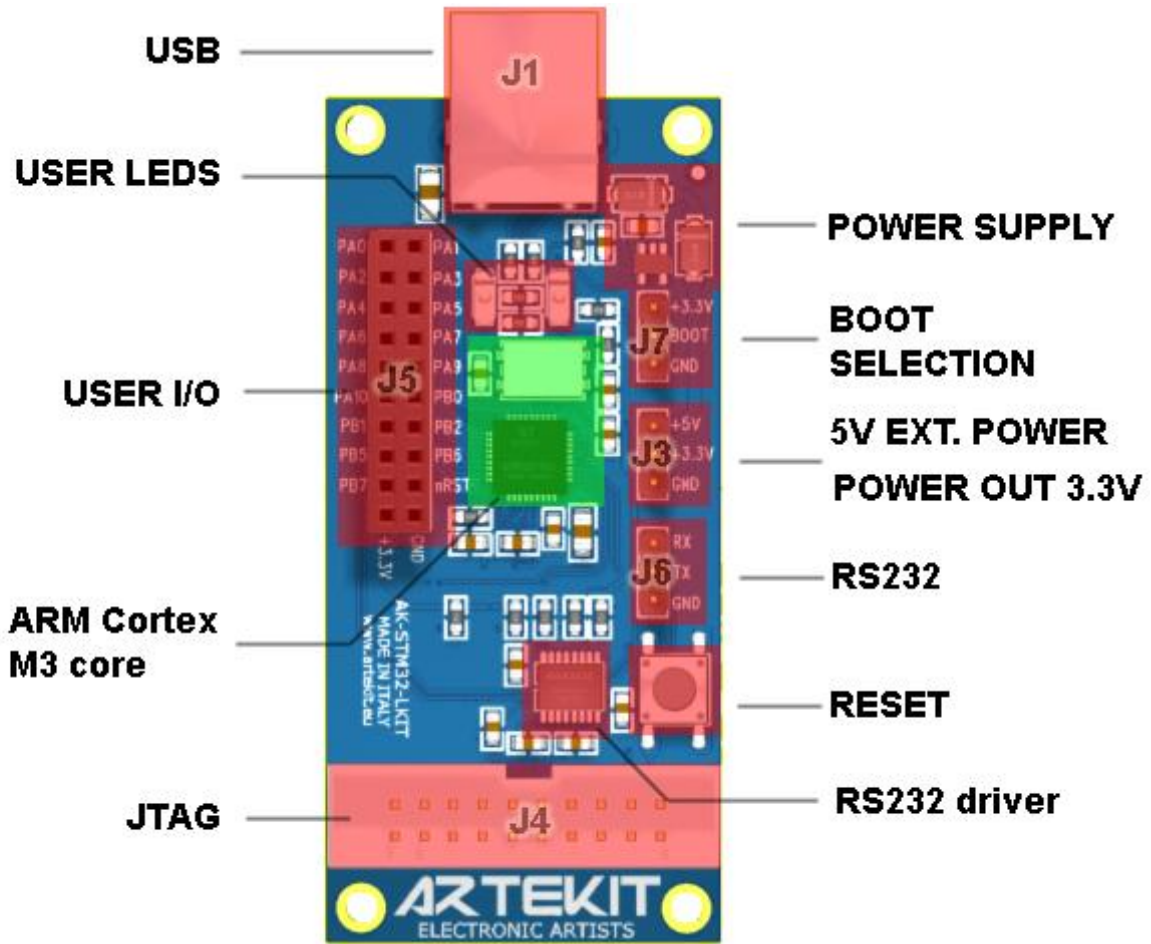
Main Components

The AK-STM32-LKIT Board has the following main components:

- ARM Cortex M3 STMicroelectronics STM32F103T8U6
- 8MHz quartz
- Reset button
- RS232 driver
- USB B connector
- 20 pin standard JTAG connector
- 2 user LED's
- 17 user I/O

Dimensions

Dimension	Value	Unit
Height	73	mm
Width	34	mm



Electrical characteristics

Test conditions

Unless otherwise specified, all voltages are referenced to GND.

Minimum and maximum values

Unless otherwise specified, the minimum and maximum values are guaranteed in the worst conditions of ambient temperature, supply voltage and frequencies by tests in production on 100% of the devices with an ambient temperature $T_A = 25\text{ }^\circ\text{C}$.

Typical values

Unless otherwise specified, typical data are based on $T_A = 25\text{ }^\circ\text{C}$, $V_{CC} = 3.3\text{ V}$ (for the $2\text{ V} < V_{CC} < 3.6\text{ V}$ voltage range). They are given only as design guidelines and are not tested.

Absolute maximum ratings

WARNING Exceeding values beyond these absolute maximum values may cause permanent damage to the device. Operating at absolute maximum rating conditions for extended periods may affect the device.

Symbol	Ratings	Min.	Max.	Unit
VCC-GND	External main supply voltage.	-0.3	5.5	V
Vin	Input voltage on 5V tolerant pins.	GND-0.3	+5.3	

Current consumption in operating mode

Symbol	Parameter	Max.	Unit
Icc	Supply current in RUN mode	50	mA

Normal operating parameters

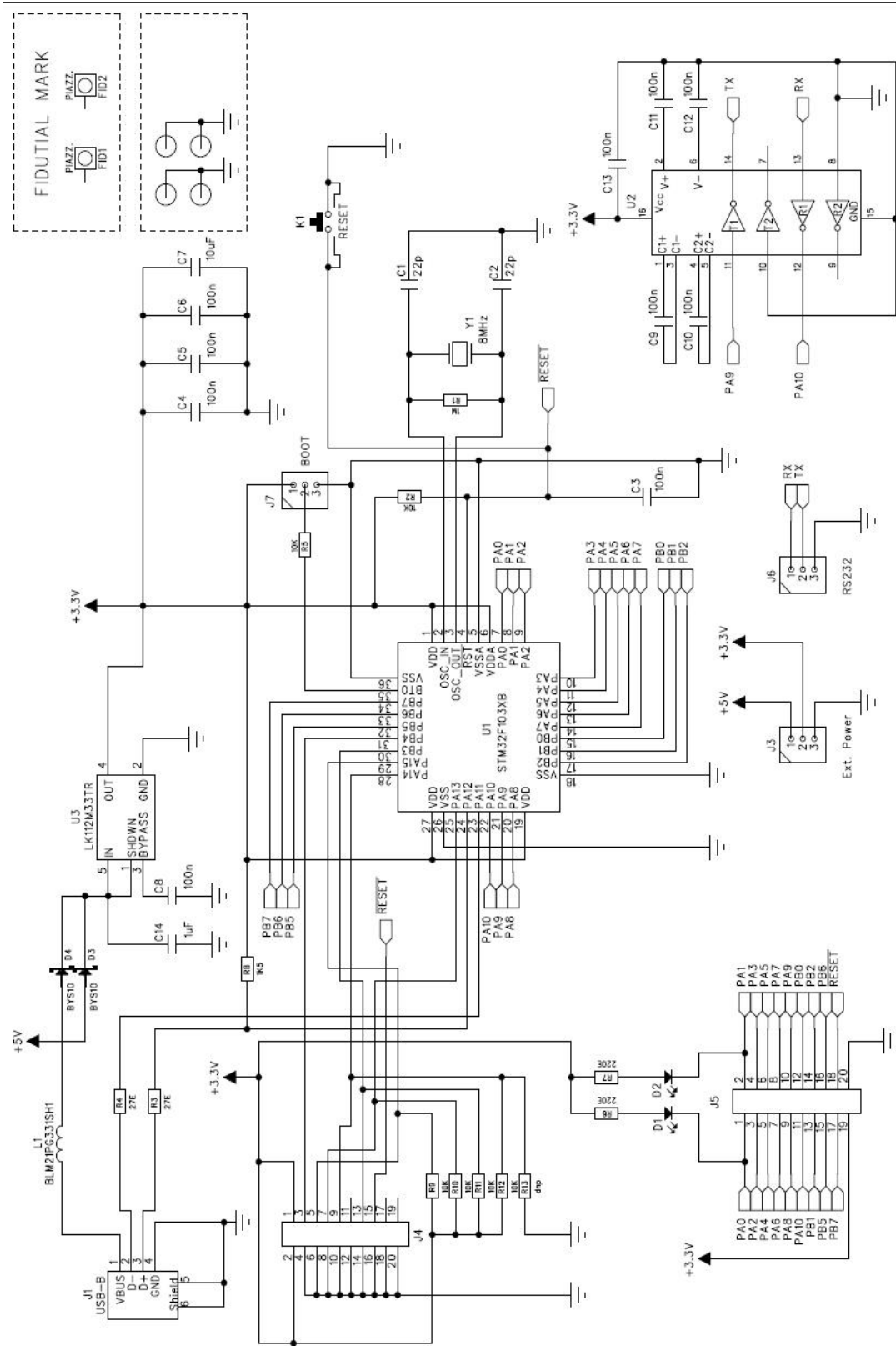
Symbol	Parameter	Value	Unit
Vcc	Power supply applied to USB connector or external power	5	V



Bill of Materials

Ref. Des.	Part number	Value	Tolerance	Decal	Manufacturer
C1	ANY	22pF	10%	0603	ANY
C2	ANY	22pF	10%	0603	ANY
C3	ANY	100nF	20%	0603	ANY
C4	ANY	100nF	20%	0603	ANY
C5	ANY	100nF	20%	0603	ANY
C6	ANY	100nF	20%	0603	ANY
C7	ANY	10uF	20%	0805	ANY
C8	ANY	100nF	20%	0603	ANY
C9	ANY	100nF	20%	0603	ANY
C10	ANY	100nF	20%	0603	ANY
C11	ANY	100nF	20%	0603	ANY
C12	ANY	100nF	20%	0603	ANY
C13	ANY	100nF	20%	0603	ANY
C14	ANY	1uF	20%	0603	ANY
D1	ANY	RED LED		1206	ANY
D2	ANY	RED LED		1206	ANY
D3	BYS10-25-E3/TR	Schottky diode	25V	SMA	VISHAY
D4	BYS10-25-E3/TR	Schottky diode	25V	SMA	VISHAY
J1	IYU00300-R	USB B-Type			ADIMPEX
J3	ANY	Power out		P/2.54	ANY
J4	ANY	JTAG		P/2.54	AMTEK
J5	ANY	USER I/O		P/2.54	AMTEK
J6	ANY	RS232		P/2.54	ANY
J7	ANY	BOOT Sel.		P/2.54	ANY
K1	ANY	RESET KEY		5x5mm	ANY
L1	BLM21PG331SH1	330E	25%	0805	MURATA
R1	ANY	1M	5%	0603	ANY
R2	ANY	10K	5%	0603	ANY
R3	ANY	27E	5%	0603	ANY
R4	ANY	27E	5%	0603	ANY
R5	ANY	10K	5%	0603	ANY
R6	ANY	220E	5%	0603	ANY
R7	ANY	220E	5%	0603	ANY
R8	ANY	1K5	5%	0603	ANY
R9	ANY	10K	5%	0603	ANY
R10	ANY	10K	5%	0603	ANY
R11	ANY	10K	5%	0603	ANY
R12	ANY	10K	5%	0603	ANY
R13	ANY	DNP	5%	0603	ANY
U1	STM32F103T8U6	Cortex M3 MCU	-40 +85 C	QFN36	ST Microelectronics
U2	ST3232CTR	RS232 driver	0 +60 C	TSSOP16	ST Microelectronics
U3	LK112M33TR	Reg. LDO 3.3V	-40 +125 C	SOT23-5	ST Microelectronics
Y1	ABMM-8.000MHZ-B2-T	8MHz quartz	20 PPM	7x5mm	ABRACOM

Electrical Diagram





Notes