

UDS1

Development board
for UMS1 (USB to UART module)

User's manual

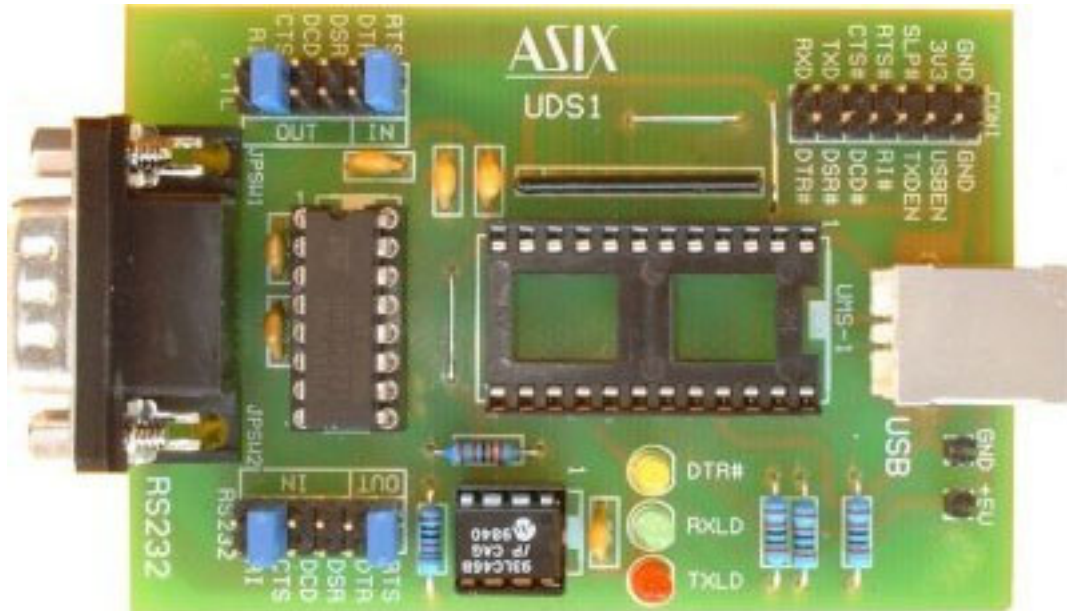
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CONTENTS

1. UDS1	3
2. USAGE	3
3. FEATURES	3
4. TECHNICAL REFERENCE	4
4.1. SCHEMATICS	5
4.2. COMPONENT PLACEMENT	6
4.3. COMPONENT REFERENCE	6
4.4. PCB LAYOUT	7
5. TECHNICAL SPECIFICATION	8
5.1. ABSOLUTE RATINGS	8
5.2. TYPICAL RATINGS – V.24	8
5.3. TYPICAL RATINGS – RS232	8
6. CONTACT	9

1. UDS1

UDS1 is a development board for UMS1 module, which allows to connect V.24 or RS232 application to PC using USB without any need of additional knowledge about USB itself.



2. USAGE

The UDS1 development board allows for easy connection of application communicating over V.24 (for example microcontroller with UART) or RS232 to PC through USB. The communication core underlies on UMS1 module which takes care of the USB communication. There is a DIP24 socket for this module on the board. 9-pin SubD male connector wired according to RS232 for connecting user application is available. Moreover, the user may change the wiring of RTS, CTS, DTR, DSR, DCD and RI using jumpers. V.24 application connects to connector CON1 which in addition provides signals USBEN, TXDEN, SLP#, 3V3OUT.

The user has full comfort to debug the communication between application and UMS1 (or FT8U232AM which the module is based on) and USB communication between UMS1 and PC. The state of the communication is indicated by 3 LEDs.

The board also supports debugging of applications with custom VID and PID stored in EEPROM which is included in the package.

3. FEATURES

- Support for applications communicating over RS232
- Standard 9-pin SubD male connector for RS232
- Support for V.24 applications

- Possibility to change wiring of RTS, CTS, DTR, DSR, DCD and RI signals to 9-pin SubD male connector
- User defined pair of handshaking signals RTS/CTS, DTR/DSR/DCD/RI
- VID and PID number stored in EEPROM
- Receive and transmit status LEDs
- User controlled DTR LED
- Additional signals USBEN, TXDEN, SLP#, 3V3OUT
- Powered from USB
- Connector with +5V power supply for user circuitry (max. 50 mA)
- Supports USB 1.1 protocol, USB 2.0 compatible
- Drivers for Windows 98/2K/ME/XP, Mac OS8/OS9/OS X and Linux available for free on FTDI website (www.ftdichip.com)

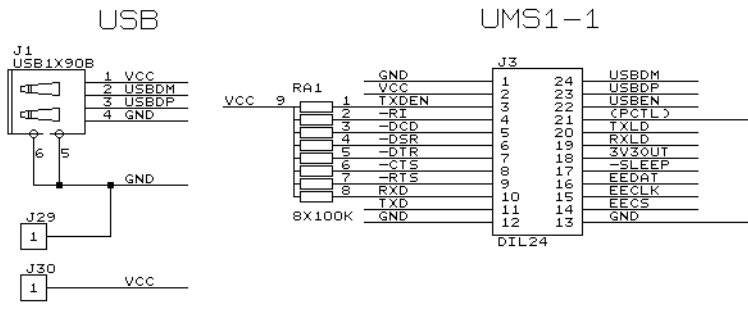
Note: It is not possible to use RS232 and V.24 communication at the same time because of possible signal collisions. Remove the RS232 level converter from the socket before using V.24 connection.

4. TECHNICAL REFERENCE

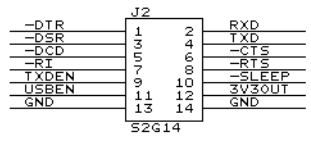
The development board contains USB 'B' type connector (J1), UMS1 socket (J3), connector for V.24 application (J2), RS232 connector (P1), EEPROM socket (J4), RS232 voltage level converter (U1), connection matrix for RS232 signals (JPSW1, JPSW2), 3 status LEDs (D1, D2, D3) and power supply connector (J29, J30).

4.1. SCHEMATICS

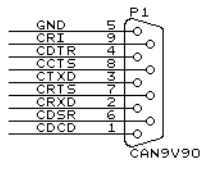
UDS1-3 USB DEVELOPMENT SERIAL 1 - VERSION2



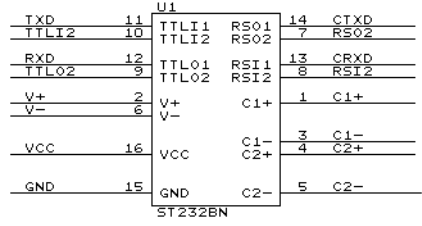
CONNECTOR TTL



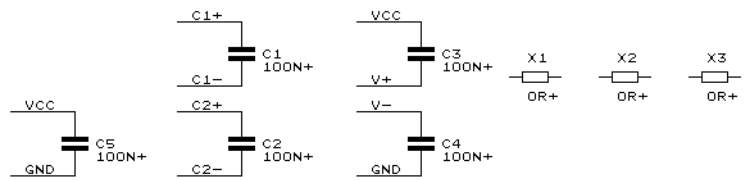
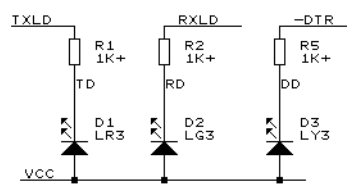
CONNECTOR RS232



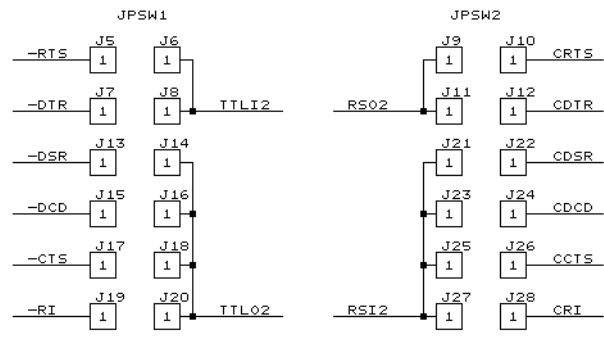
232 CONVERTOR



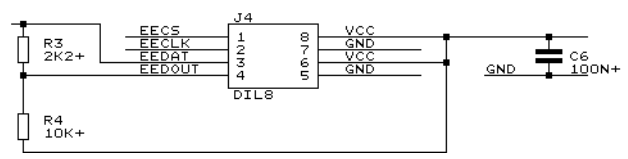
LED CONTROL



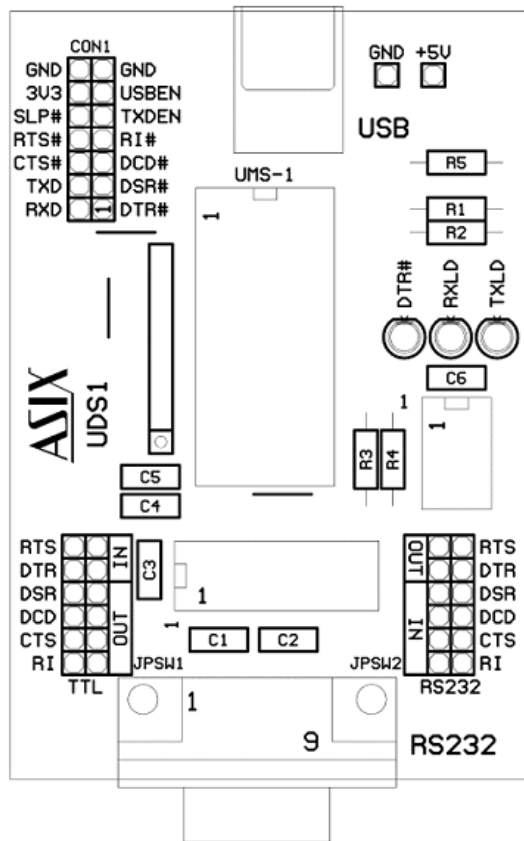
CONNECT MATRIX



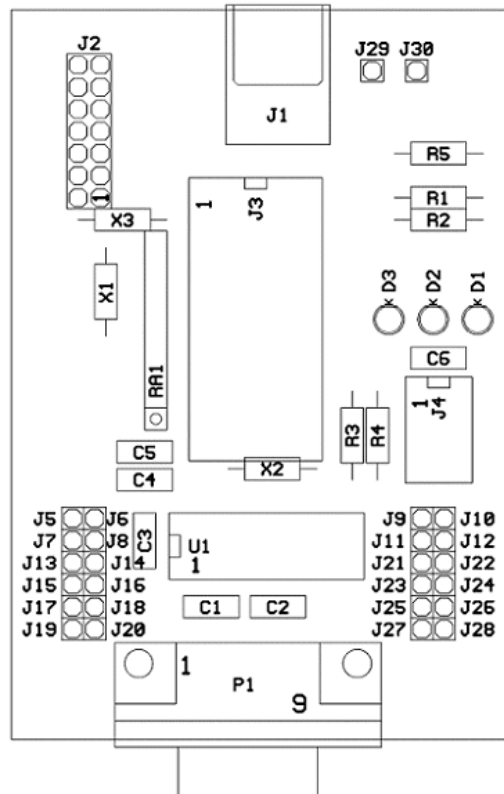
EEPROM



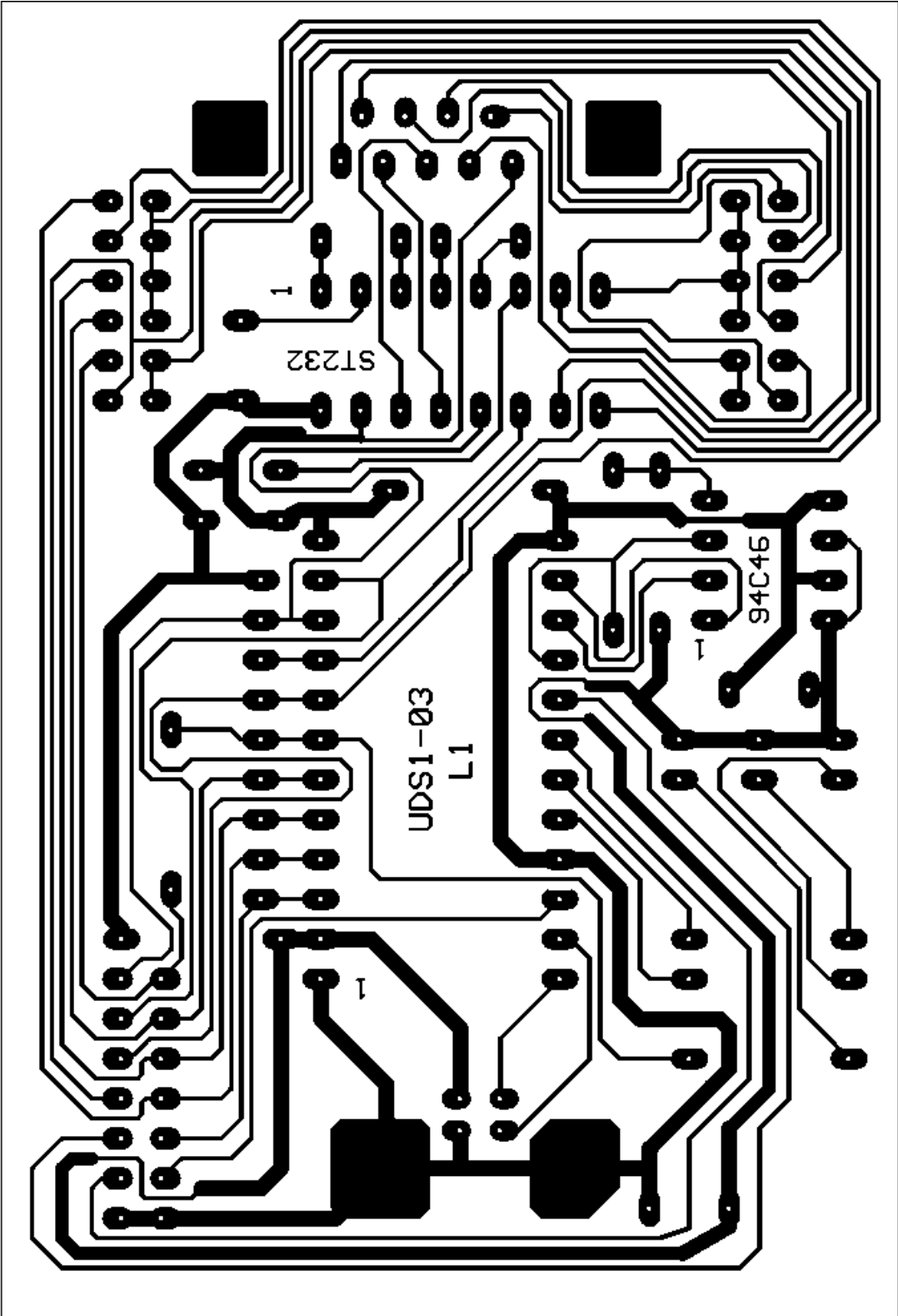
4.2. COMPONENT PLACEMENT



4.3. COMPONENT REFERENCE



4.4. PCB LAYOUT



5. TECHNICAL SPECIFICATION

5.1. ABSOLUTE RATINGS

Operating temperature	T_{PWR}	min. 0 °C	max. 70 °C
Power supply voltage	$V_{CC_{MAX}}$	min. -0.3 V	max. 6 V
Power	W_{PWR}		max. 500 mW

5.2. TYPICAL RATINGS – V.24

Input voltage log.1	V_{IH}	min. 2.7 V	
Input voltage log.0	V_{IL}		max. 0.6 V
Output voltage log.1	V_{OH}	min. 2.8 V, $R_i=1.5\text{ k}\Omega$	
Output voltage log.0	V_{OL}		max. 0.3 V, $R_i=1.5\text{ k}\Omega$
Output current log.1	I_{OH}	4 mA, $V_{OH}=V_{CC}-0.5\text{ V}$	
Output current log.0	I_{OL}	4 mA, $V_{OL}=0.5\text{ V}$	max. 0.3 V, $R_i=1.5\text{ k}\Omega$
Max. input voltage	V_{IN1}	min. -0.5 V	
Max. output current	I_{O1}		max. $\pm 60\text{ mA}$

5.3. TYPICAL RATINGS – RS232

Input voltage	V_{RIN}		max. $\pm 30\text{ V}$
Input voltage log.0	V_{RIL}		max. 0.8 V
Input voltage log.1	V_{RIH}	min. 2.4 V	
Data rate	D_R		max. 120 kBd
Output voltage	V_{OUT}	min. $\pm 5\text{ V}$	
Output current	I_{SC}		max. 60 mA

6. CONTACT

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MANUDS1

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