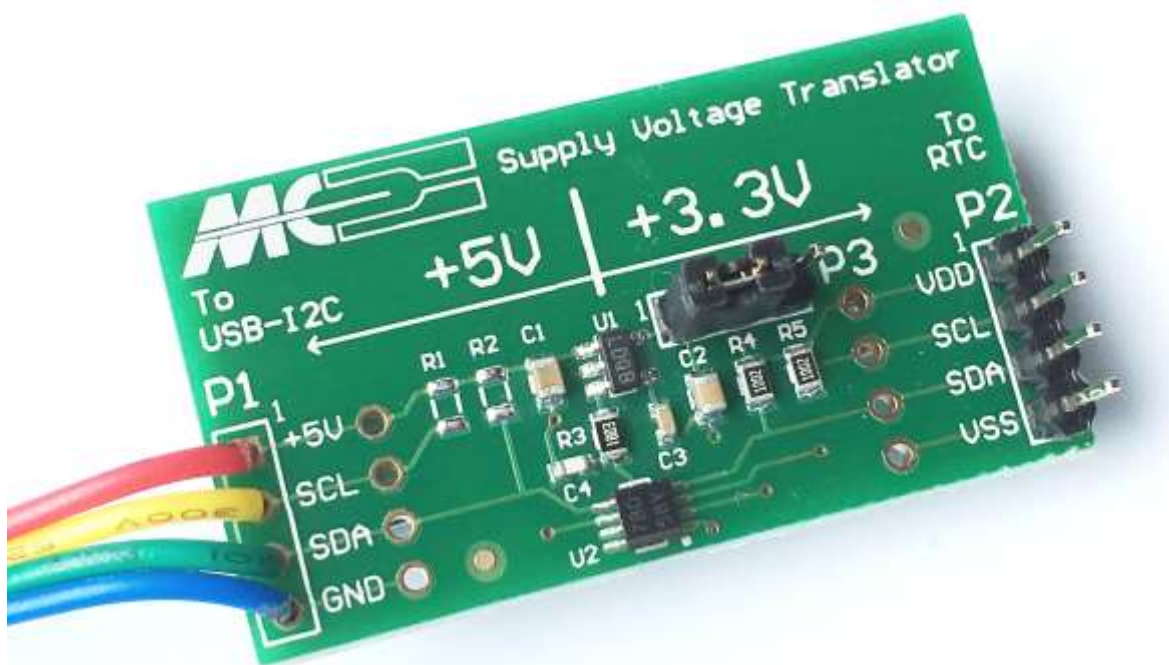


TRANSLATOR BOARD



VDD 5 V to 3.3V regulator;
Bidirectional I2C-bus signal translator

Supply Voltage Translator Board

Purpose

The Supply Voltage Translator Board enables interfacing low voltage RTC-Modules with the USB to I²C-bus dongle operating at 5.0V.

This board needs to be used when evaluating the RTC Modules RV-4162-C7 and RV-1805-C3.

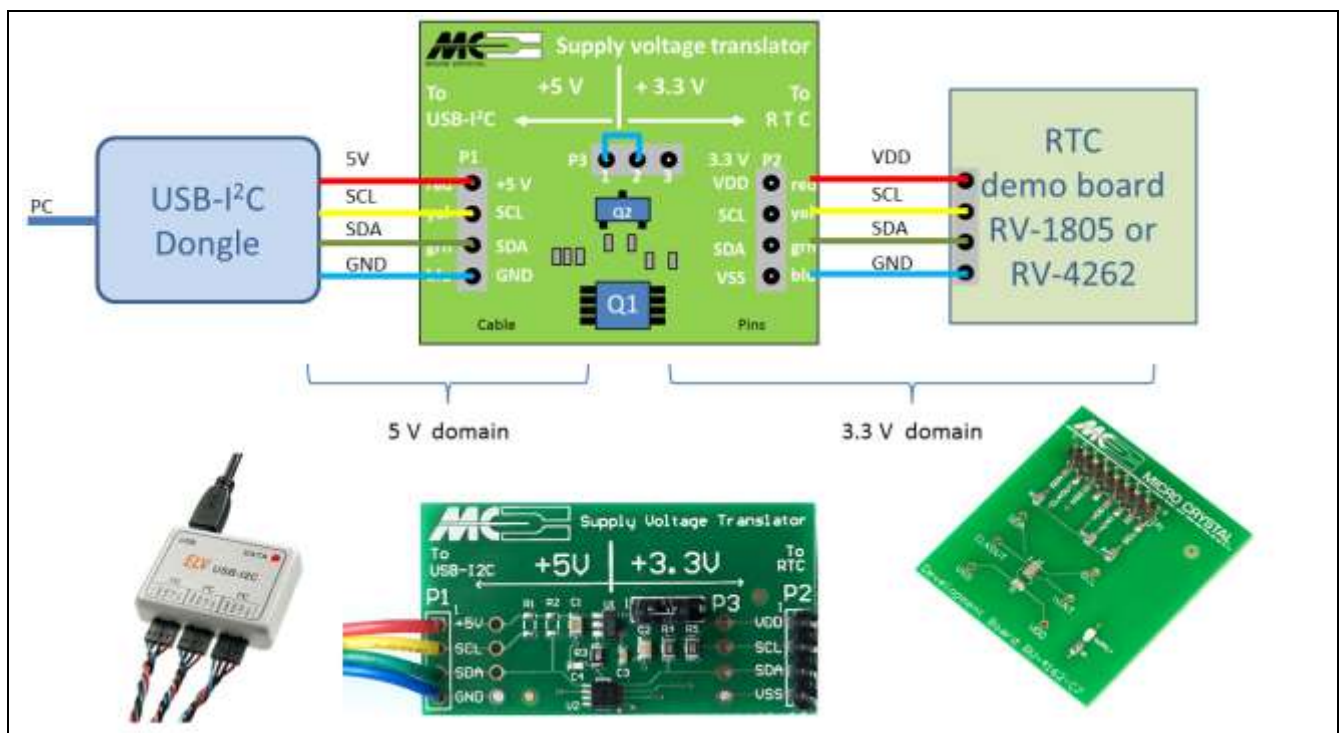
Function description

This board maintains 2 functions:

- The linear voltage regulator lowers the 5.0 V from the Dongle to 3.3 V for the RTC module. The jumper connects P31 with P32.
In case an alternative supply voltage is needed: remove the jumper and supply needed voltage between P32 and P33, P33 = GND
The voltage on P32 must not exceed +3.6V.
- Translating the I²C-bus signals SDA and SCL by level shifting to comply with the RTC supply scheme. It is done by the PCA9306 from NXP Semiconductors

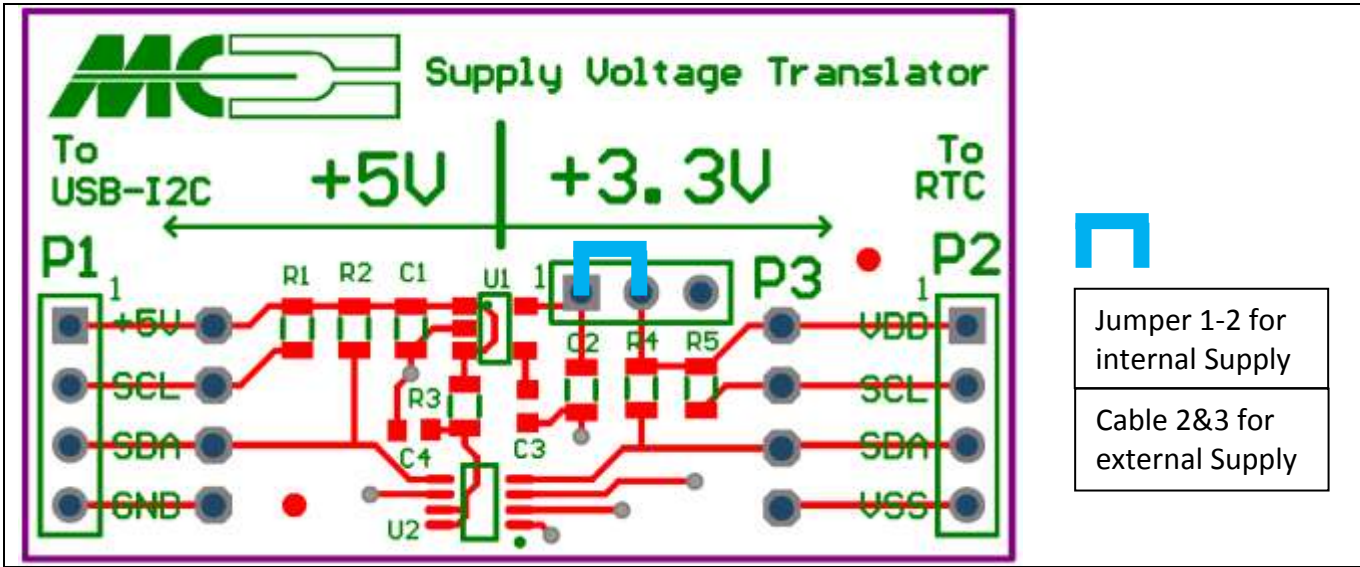
This board is required when evaluating RV-4162-C7 and RV-1805-C3

Application set up



Supply Voltage Translator Board

Translator board



PIN DESCRIPTION

Symbol	Pin #	Description
+5V	P1 1	5 V power supplied by the USB to I ² C-Bus dongle
SCL	P1 2	I ² C-Bus clock line from dongle
SDA	P1 3	I ² C-Bus data line from dongle
GND	P1 4	Ground
VDD	P2 1	Supply voltage to RTC demo board (3.3V when jumper set to 1-2)
SCL	P2 2	I ² C-Bus clock line to demo board
SDA	P2 3	I ² C-Bus data line to demo board
GND	P2 4	Ground
3.3 V	P3 1	3.3 V output from voltage regulator
VDD	P3 2	Supply voltage to demo board (same as P2 1)
GND	P3 3	Ground

Part	Value	Description
C1	1.0 μ F	Decoupling capacitor between V_{SS} and +5V
C2	1.0 μ F	Decoupling capacitor between V_{SS} and +3.3V
C3	10 nF	Bypass capacitor
C4	100 pF	Decoupling capacitor on level translator
P1	Cable	Connection to the USB / I ² C-bus dongle
P2	Pins	Connection to RTC demo board
P3	Pins	- Place Jumper pin 1-2 for supplying internal 3.3V to the RTC demo board - Option to connect external supply voltage* to pin 2, pin 3 to GND * 1.0 to 3.6V
R1	na	option to lower the I ² C SCL pull-up resistance, U2 has internal one
R2	na	option to lower the I ² C SDA pull-up resistance, U2 has internal one
R3	180 k Ω	enable connection
R4	1.8 k Ω	I ² C SCL pull-up resistor on 3.3 V domain
R5	1.8 k Ω	I ² C SDA pull-up resistor on 3.3 V domain
U1	LP3985IM5-3.3	Linear voltage regulator
U2	PCA9306DCTR	I ² C-bus Level translator / shifter NXP Semiconductors