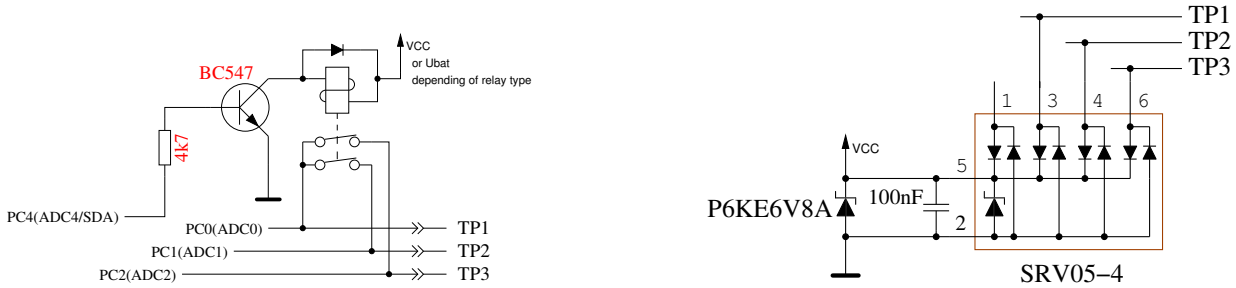
Port	char. LCD =1	ST7565 LCD =1	ST7565 LCD STRIP_GRID	additional function
PD0	pushbutton			
PD1	LCD-D7	LCD-SI	LCD-A0 (RS)	rotary encoder 2
PD2	LCD-D6	LCD-SCLK	LCD-REST	
PD3	LCD-D5	LCD-A0 (RS)	LCD-SCLK	rotary encoder 1
PD4	LCD-D4	LCD-REST	LCD-SI	frequency counter
PD5	LCD-E			
PD7	LCD-RS	pushbutton	pushbutton	

Table 2.2. port assignments with option STRIP_GRID_BOARD

2.2 Extensions for the TransistorTester

2.2.1 Protection of the ATmega inputs

For better protection of the ATmega inputs one of the additional circuits 2.2 can be integrated. The de-energized contacts of the relay protect the ATmega without power. The contacts will be opened by software only for measurement. Also with the additional diode protection the chance of the ATmega will be better to survive the connection of a capacitor with higher residual voltage. A complete protection is not possible. Therefore capacitors should always be discharged before measuring.



(a) with Relay (b) with Diodes

Figure 2.2. Additional protection of the ATmega inputs

2.2.2 Measurement of zener voltage above 4 Volt

If the serial output of text is not required, the Pin PC3 of the ATmega can be used as analog input for measuring a external voltage. The voltage can be up to 50V with the optional 10:1 resistor divider and can be used for measuring the breakdown voltage of a zener diode. A current limiting power supply with up to 50V can be switched on with low signal at PD7 pin of the ATmega to deliver current for testing the break down voltage of a zener diode. Figure 2.3 shows a suggestion for this expansion. The tester shows the external voltage as long as you hold the key pressed. About 40mA more battery current is used by this expansion during key pressing.