PROTOKOLL

zur Laborübung

PLL

Gruppe / Klasse	Protokollführer	Unterschrift
7 / **5BHELS**	HOFSTÄTTER A.	
Abgabedatum 1. April 2016	Mitarbeiter	Unterschrift
Lehrer BOCH		Unterschrift
Note	Mitarbeiter	Unterschrift

PLL

Verwendete Geräte

Nr.	Gerätebezeichnung	Hersteller	Typ	Platznummer
	Oszilloscope	Tektronix	TDS2012B	Oszilloscope
	Function Generator	HP Packard	33120A	Function Generator
	Power supply	TTi	EL301	Power supply

1 Inhaltsverzeichnis

2 Task

- Build up a divide by 10 Counter with an 4059
- Connect the divider with the 4029 Up/Down Counter

3 EF4059B

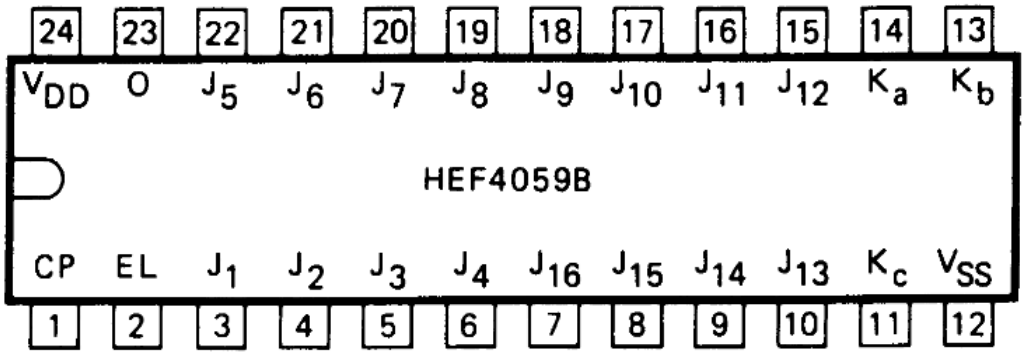

Figure 1 - Pin content from the HEF4059-module

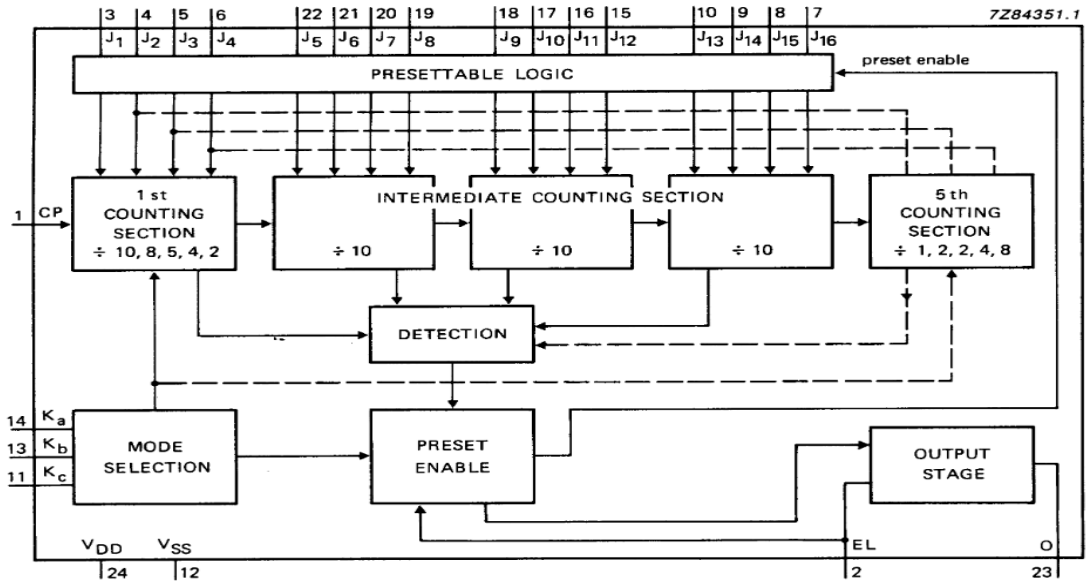

Figure 2 - Functional-Block-Diagram from the divide-by-n Counter

4 MC14029B

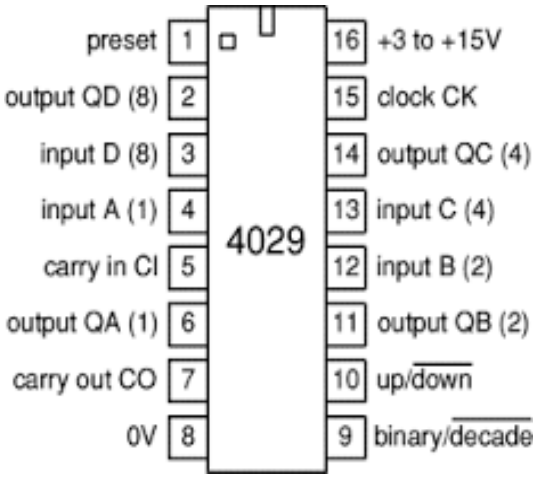

Figure 3 - Pin content form the Up/Down-Counter

5 Calculation

The calculation is to find out which pin was set to which state to divide by 10. For this calculation you have to take the table from the Datasheet and the following formula.

N=Mode*(1000* decade 5 Preset + 100* decade 4 Preset + 10* decade 3 preset + 1* decade 2 Preset) + decade 1 Preset

N= 10*(1000*0 + 100*0 + 10*0 + 1*0) + (J1...J4)

TRUTH TABLE

MODE SELECT INPUT			FIRST COUNTING SECTION			LAST COUNTING SECTION			COUNTER RANGE	
									DESIGN	EXTENDED
K_a	K_b	K_c	MODE DIVIDES-BY	CAN BE PRESET TO A MAX OF:	(NOTE 1) JAM INPUTS USED:	MODE DIVIDES-BY	CAN BE PRESET TO A MAX OF:	(NOTE 1) JAM INPUTS USED:	MAX	MAX
H	H	H	2	1	J1	8	7	J2, J3, J4	15,999	17,331
L	H	H	4	3	J1, J2	4	3	J3, J4	15,999	18,663
H	L	H	5 (Note 2)	4	J1, J2, J3	2	1	J4	9,999	13,329
L	L	H	8	7	J1, J2, J3	2	1	J4	15,999	21,327
H	H	L	10	9	J1, J2, J3, J4	1	0	-	9,999	16,659
X	L	L	Master Preset			Master Preset			-	-

6 Circuit

After the calculation the pins from the 4059 have been set to VCC = 5V or to GND and now it divide by 10. Then the Outputs from the 4029 were connected with the Inputs J1 to J4 from the divide-by-n-counter.

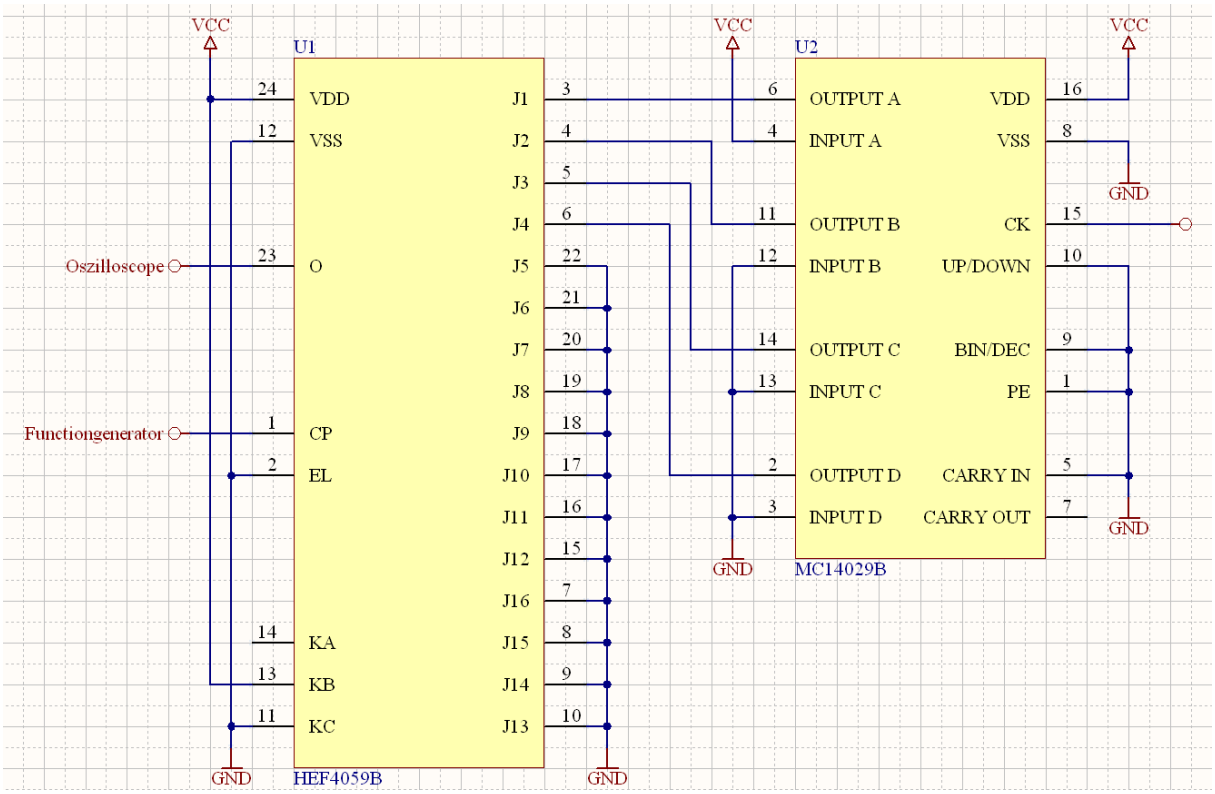

Figure 4 - Schematic from the circuit

7 Figures