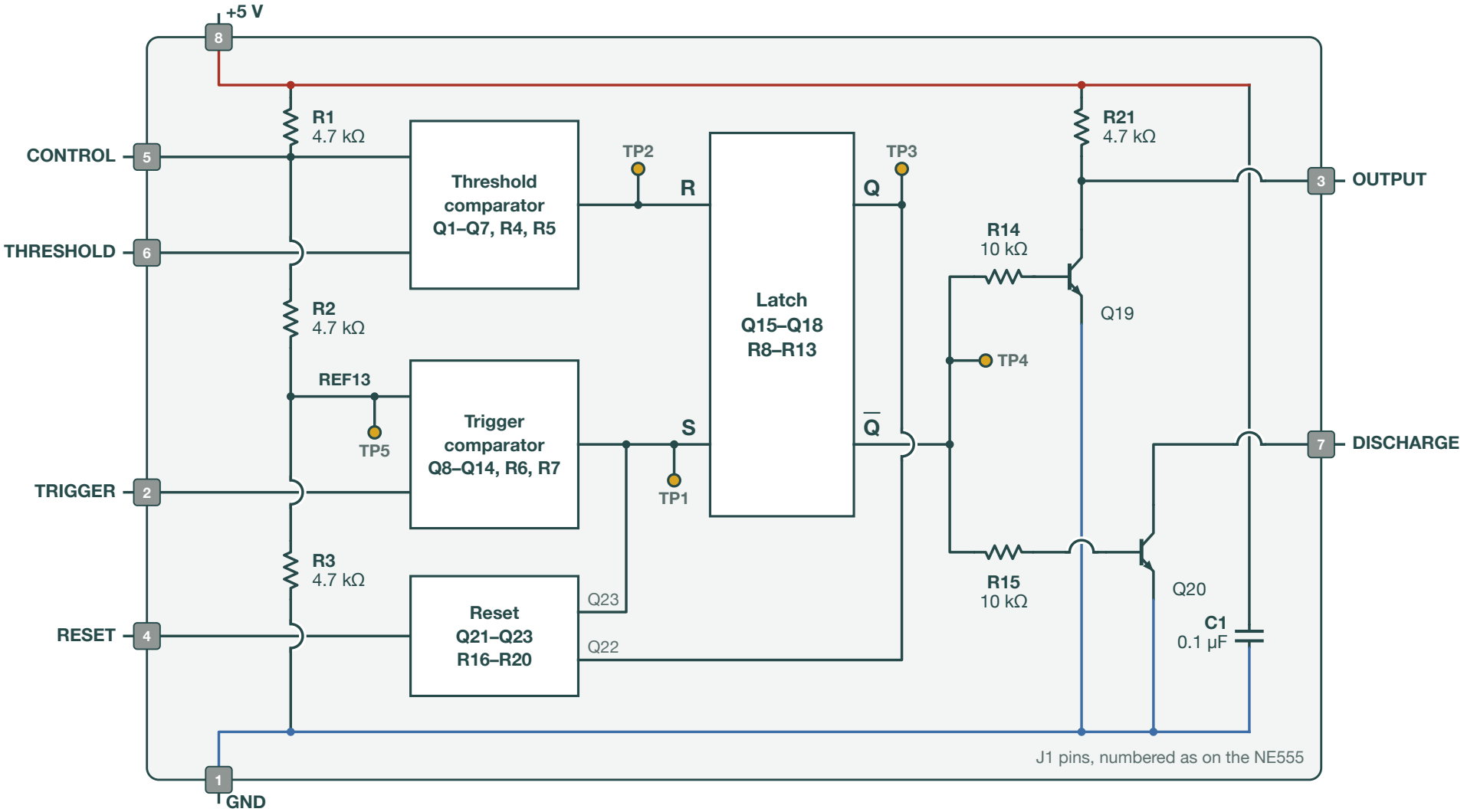
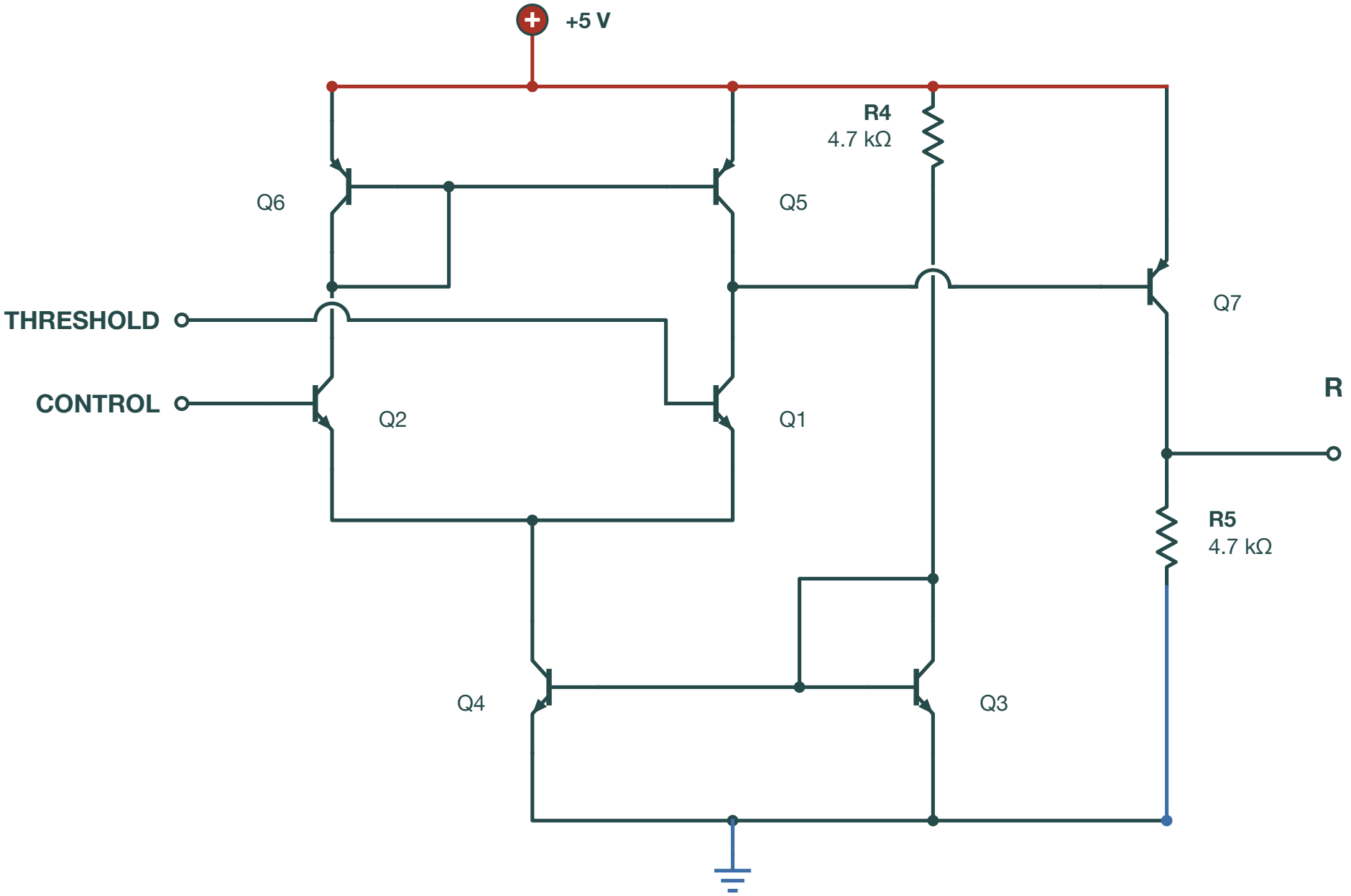
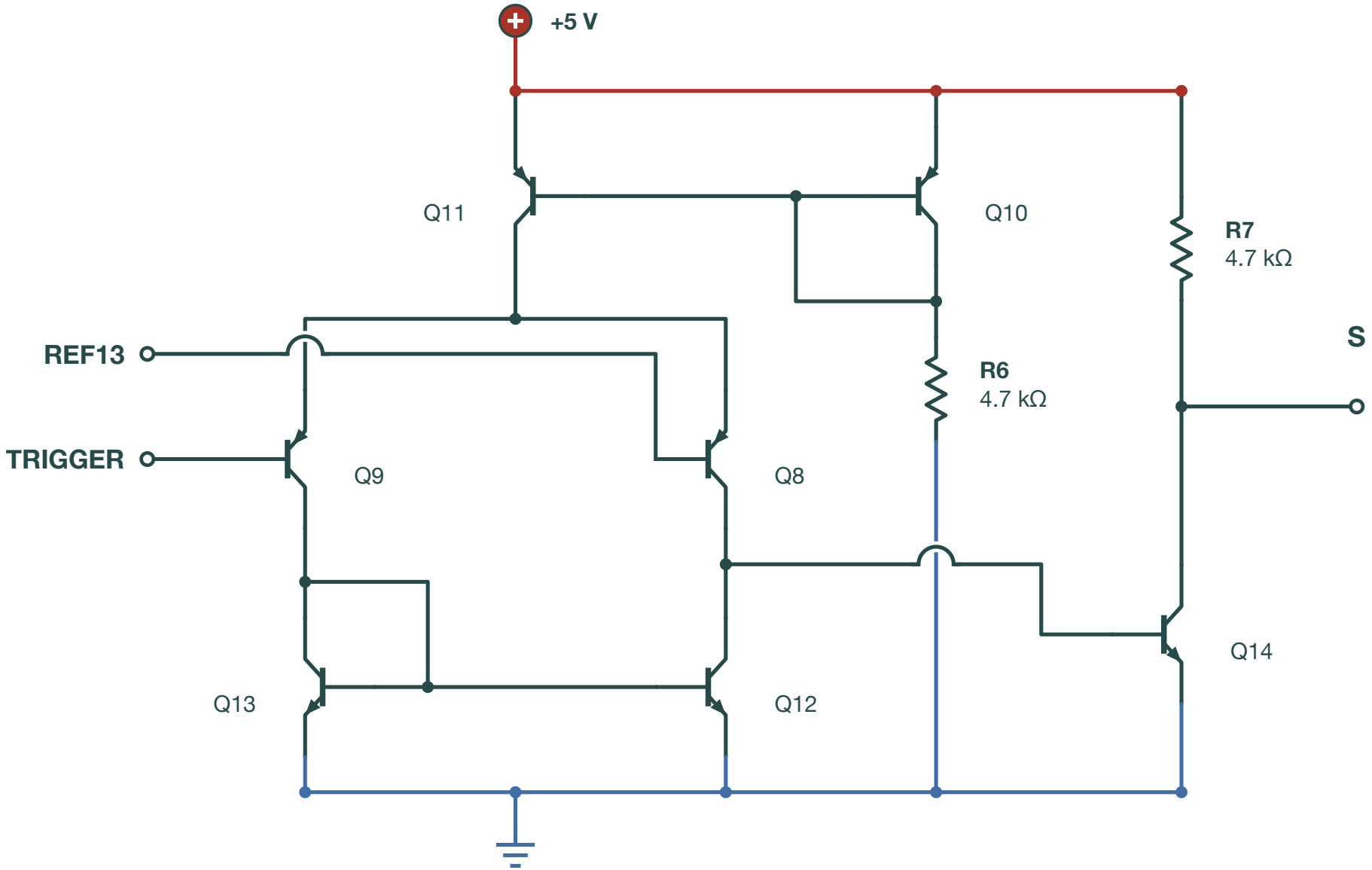
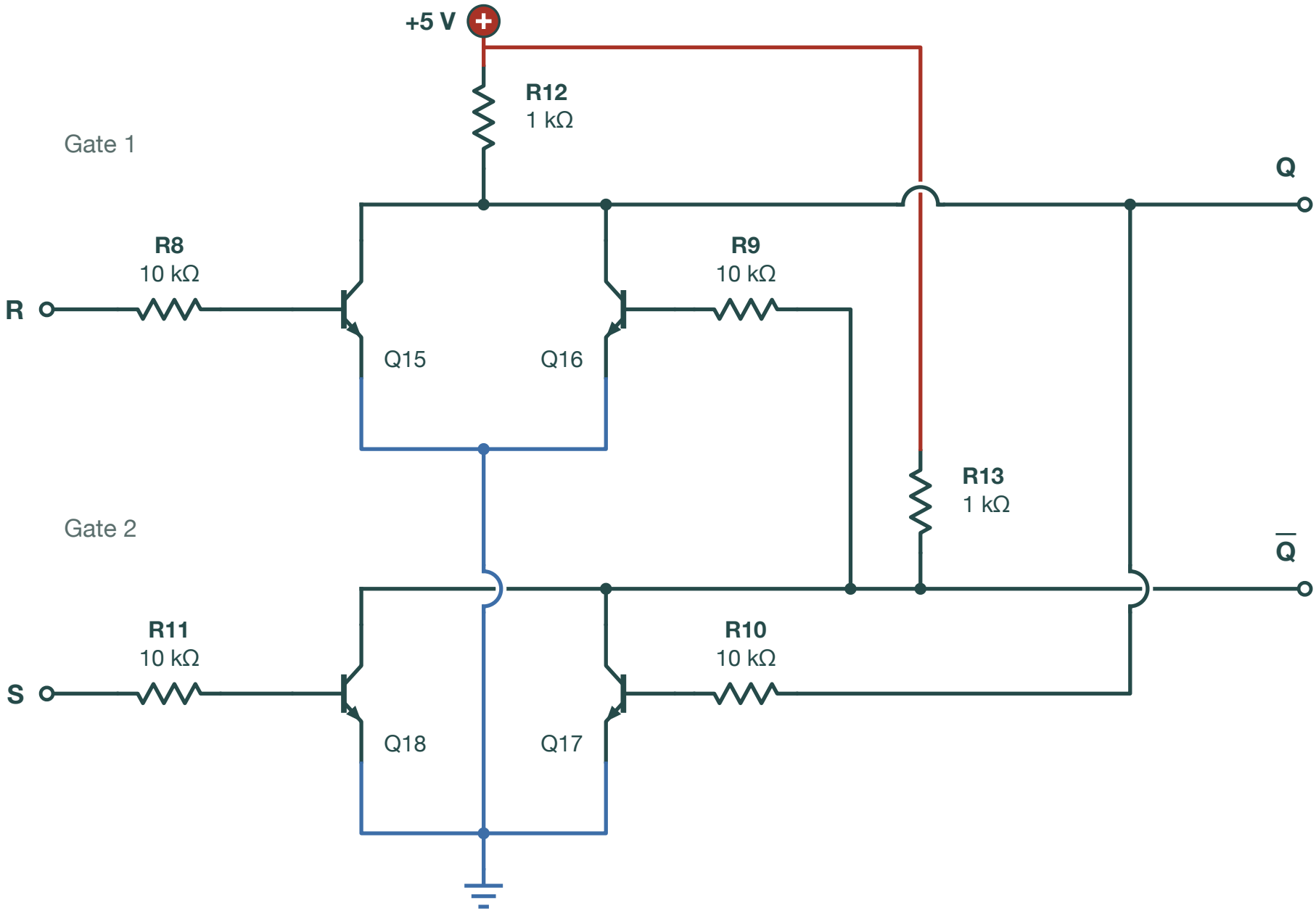
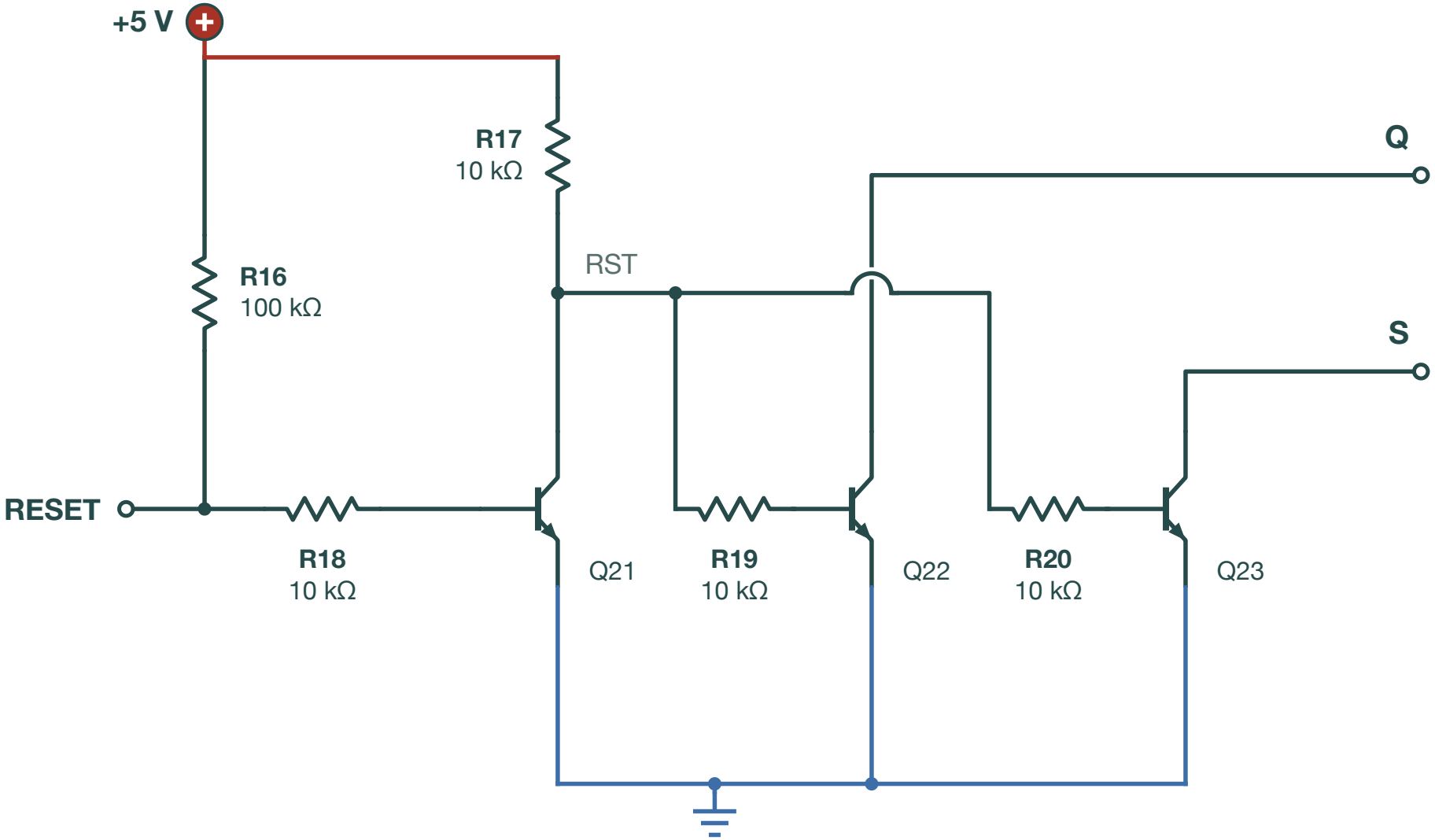

+5 V
8
R1
4.7 kΩ
CONTROL
5
THRESHOLD
6
R2
4.7 kΩ
REF13
TP5
TRIGGER
2
R3
4.7 kΩ
RESET
4
1
GND
Threshold comparator Q1–Q7, R4, R5
Trigger comparator Q8–Q14, R6, R7
Reset Q21–Q23 R16–R20
TP2
R
S
TP1
Q23
Q22
Latch Q15–Q18 R8–R13
TP3
Q
$\overline{Q}$
R21
4.7 kΩ
R14
10 kΩ
Q19
TP4
R15
10 kΩ
Q20
C1
0.1 µF
3
OUTPUT
7
DISCHARGE
J1 pins, numbered as on the NE555


+5 V
R4
4.7 kΩ
Q6
Q5
Q7
THRESHOLD
CONTROL
Q2
Q1
R
R5
4.7 kΩ
Q4
Q3


+5 V
Q11
Q10
R7
4.7 kΩ
S
REF13
R6
4.7 kΩ
TRIGGER
Q9
Q8
Q14
Q13
Q12


+5 V
R12
1 kΩ
Gate 1
Q
R8
10 kΩ
R9
10 kΩ
R
Q15
Q16
R13
1 kΩ
Gate 2
Q̄
R11
10 kΩ
R10
10 kΩ
S
Q18
Q17


+5 V
R17
10 kΩ
Q
R16
100 kΩ
RST
S
RESET
R18
10 kΩ
Q21
R19
10 kΩ
Q22
R20
10 kΩ
Q23

Net	Terminals on the net	Pin
+5V	J1 pin 8, the emitters of the PNP transistors Q5, Q6, Q7, Q10 and Q11, the resistors R1, R4, R7, R12, R13, R16, R17 and R21, C1	8
GND	J1 pin 1, R3, R5, R6, the emitters of all sixteen NPN transistors, C1	1
THRESHOLD	J1 pin 6, Q1's base	6
TRIGGER	J1 pin 2, Q9's base	2
CONTROL	J1 pin 5, the 2/3 tap between R1 and R2, Q2's base	5
REF13	The 1/3 tap between R2 and R3, Q8's base, TP5	–
R	Q7's collector, R5, R8, TP2	–
S	Q14's collector, R7, R11, Q23's collector, TP1	–
Q	The collectors of Q15, Q16 and Q22, R12, R10, TP3	–
$\bar{Q}$ (QB in KiCad)	The collectors of Q17 and Q18, R13, R9, R14, R15, TP4	–
OUTPUT	J1 pin 3, Q19's collector, R21	3
DISCHARGE	J1 pin 7, Q20's collector	7
RESET	J1 pin 4, R16, R18	4
RST	Q21's collector, R17, R19, R20. KiCad does not name it.	–

Part	Qty	Designators	Package
MMBT3904, NPN	16	Q1–Q4, Q12–Q23	SOT-23
MMBT3906, PNP	7	Q5–Q11	SOT-23
4.7 kΩ resistor	8	R1–R7, R21	0805
10 kΩ resistor	10	R8–R11, R14, R15, R17–R20	0805
1 kΩ resistor	2	R12, R13	0805
100 kΩ resistor	1	R16	0805
0.1 µF ceramic capacitor	1	C1	0805
Pin header, 1×8, 2.54 mm pitch	1	J1	Through-hole
Test pad, 1.0 mm	5	TP1–TP5	Copper on the board