Simple sequencer experiment in LTspice -- ON: 1-2-3-4-5 / OFF: 5-4-3-2-1

D1-D5:
MBRS1100 = as relay protection diode
or 1N4001, etc.

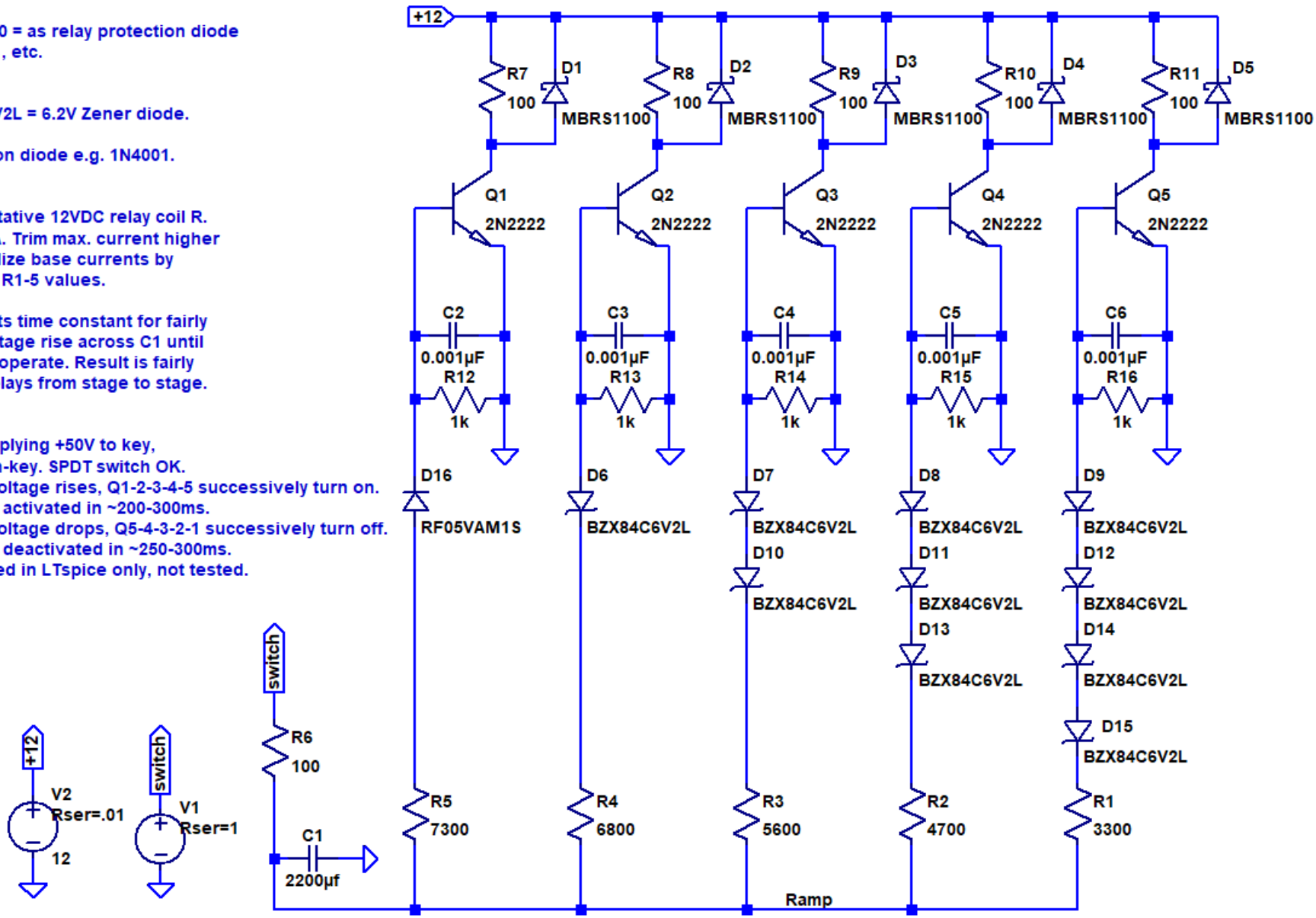
D6-15:
BZX84C6V2L = 6.2V Zener diode.

D16: silicon diode e.g. 1N4001.

R7-11:
representative 12VDC relay coil R.
for 120mA. Trim max. current higher
and equalize base currents by
adjusting R1-5 values.

R6+C1 sets time constant for fairly
linear voltage rise across C1 until
all relays operate. Result is fairly
similar delays from stage to stage.

Notes:
- V1 is applying +50V to key,
- 0V to un-key. SPDT switch OK.
- As C1 voltage rises, Q1-2-3-4-5 successively turn on.
- all coils activated in ~200-300ms.
- As C1 voltage drops, Q5-4-3-2-1 successively turn off.
- all coils deactivated in ~250-300ms.
- simulated in LTspice only, not tested.



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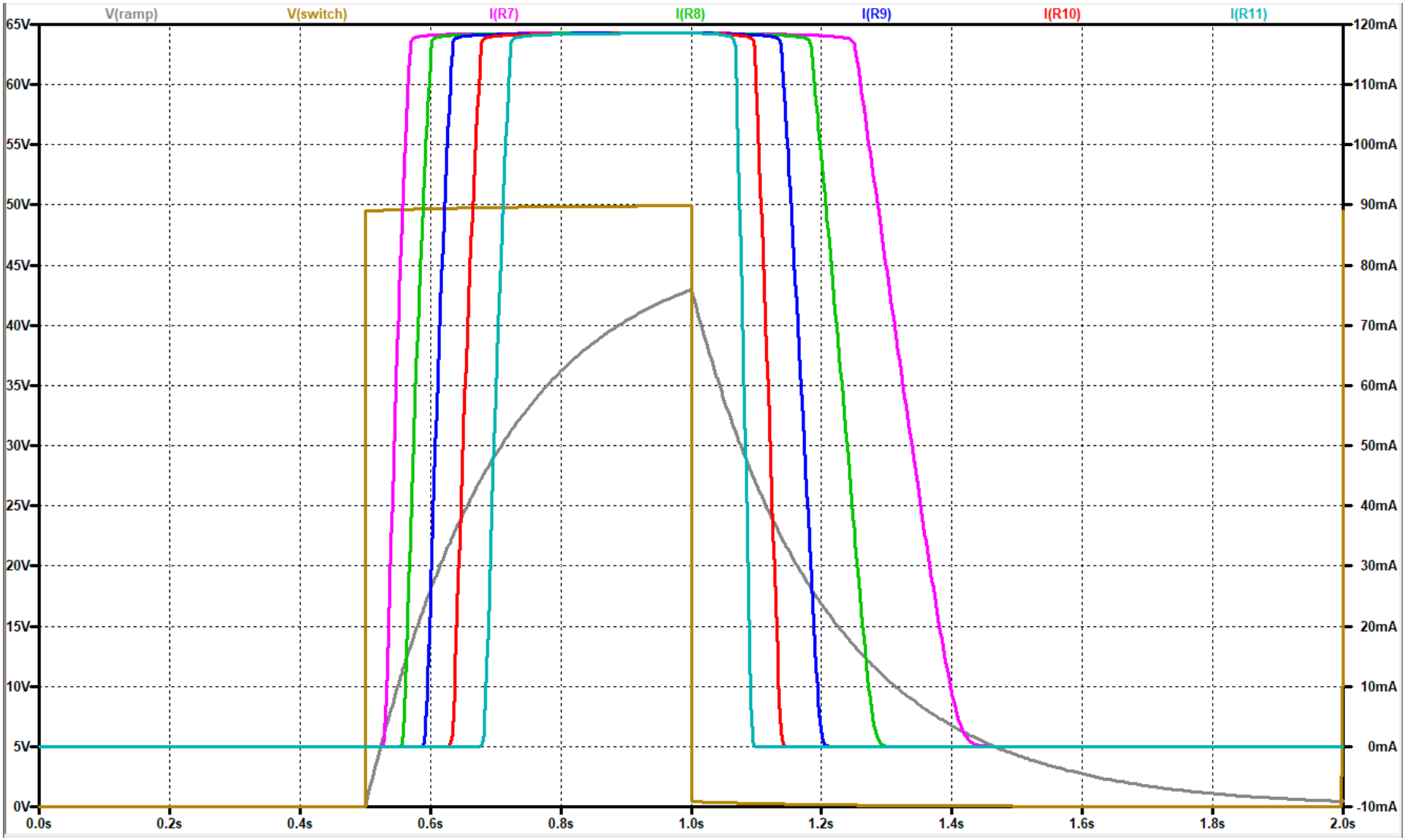
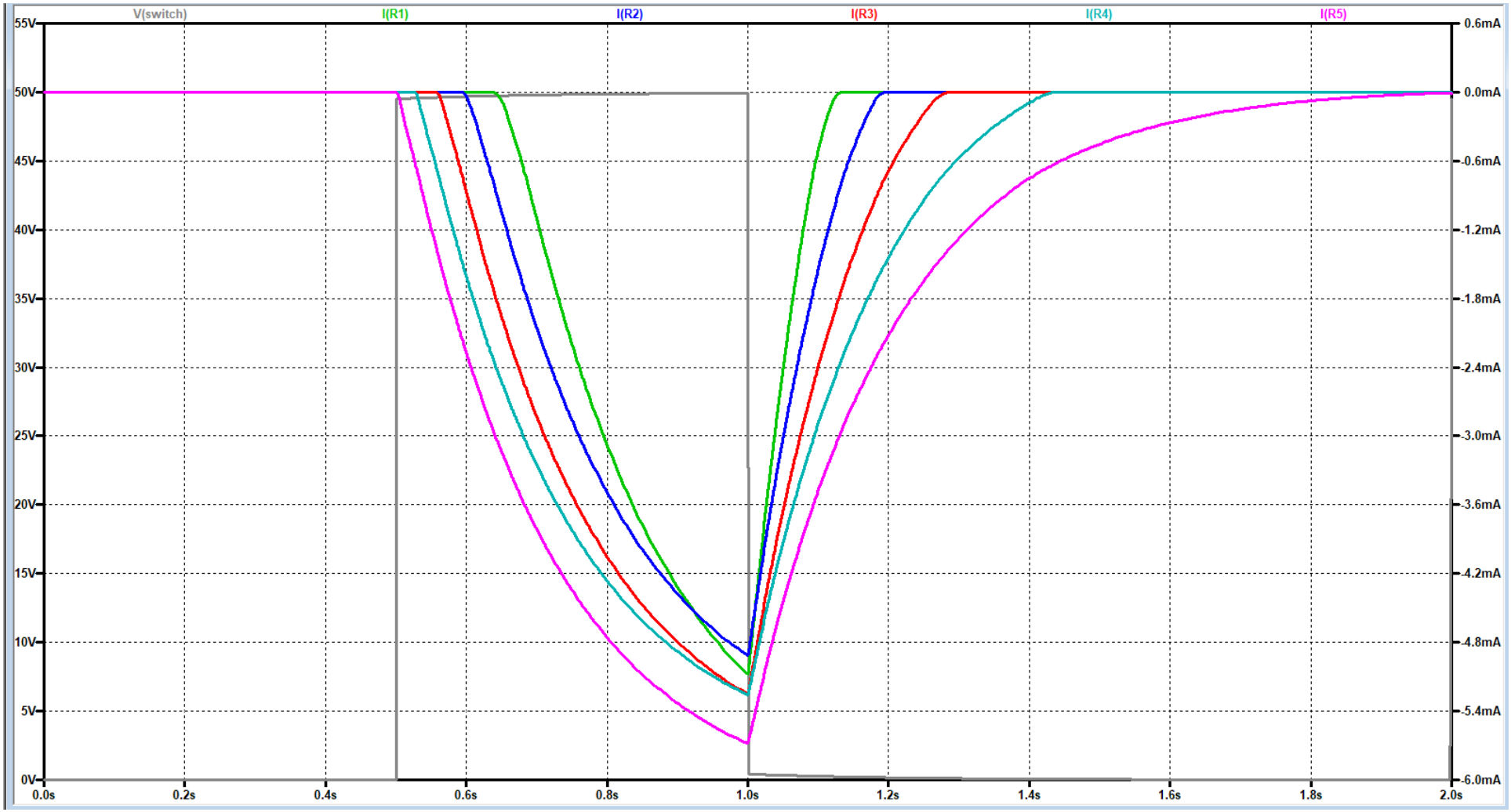

V(ramp)
V(switch)
I(R7)
I(R8)
I(R9)
I(R10)
I(R11)
65V
60V
55V
50V
45V
40V
35V
30V
25V
20V
15V
10V
5V
0V
120mA
110mA
100mA
90mA
80mA
70mA
60mA
50mA
40mA
30mA
20mA
10mA
0mA
-10mA
0.0s
0.2s
0.4s
0.6s
0.8s
1.0s
1.2s
1.4s
1.6s
1.8s
2.0s



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