

KCL

$$(5-0.7-V_A)/R+(V_C-0.7-V_A)/2R=V_A/R$$

$$(10-1.4-2V_A)+(V_C-0.7-V_A)=2V_A$$

$$5V_A=10+V_C-2.1$$

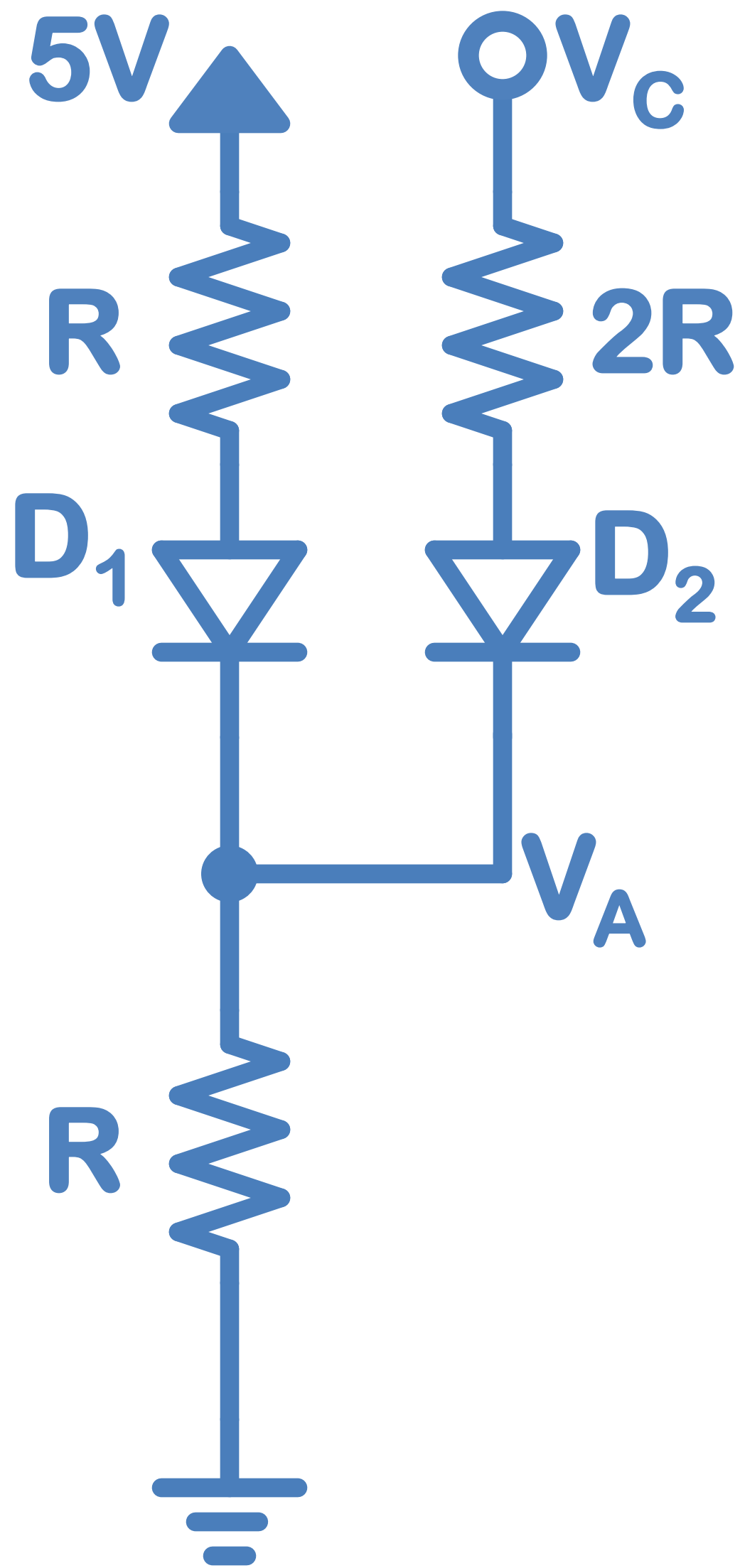
$$V_A=(7.9+V_C)/5$$

$$I_{D1}=(4.3-V_A)/R=(4.3-(7.9+V_C)/5)/R$$

$$I_{D1}=(13.6-V_C)/2k$$

$$I_{D2}=(V_C-0.7-V_A)/2R=(V_C-0.7-(7.9+V_C)/5)/2R$$

$$I_{D2}=(4V_C-11.4)/4k$$



$$I_{D1} = (13.6 - V_C) / 2k$$

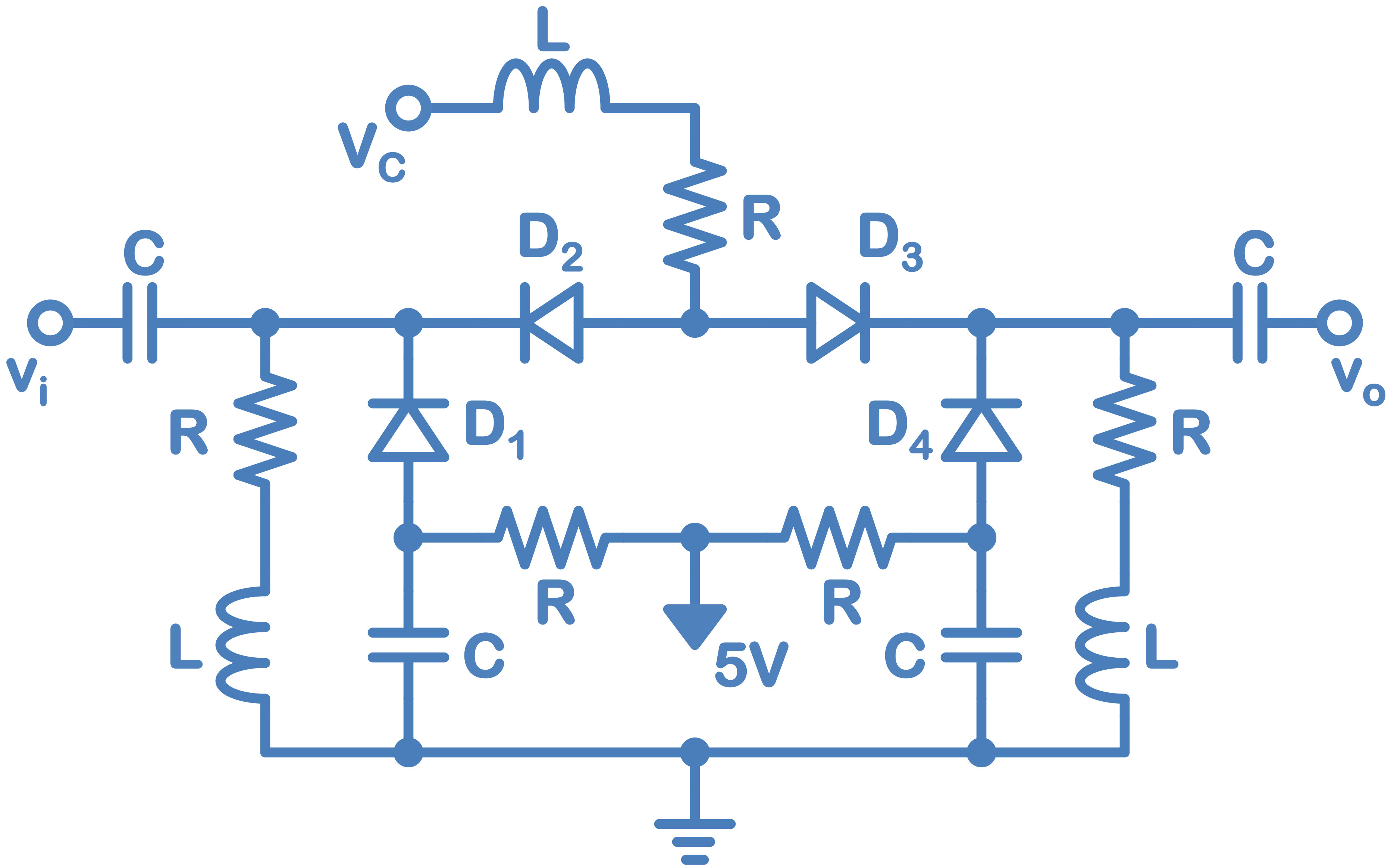
$$r_{d1} = 2.32 * 2k * 0.025 / (13.6 - V_C)$$

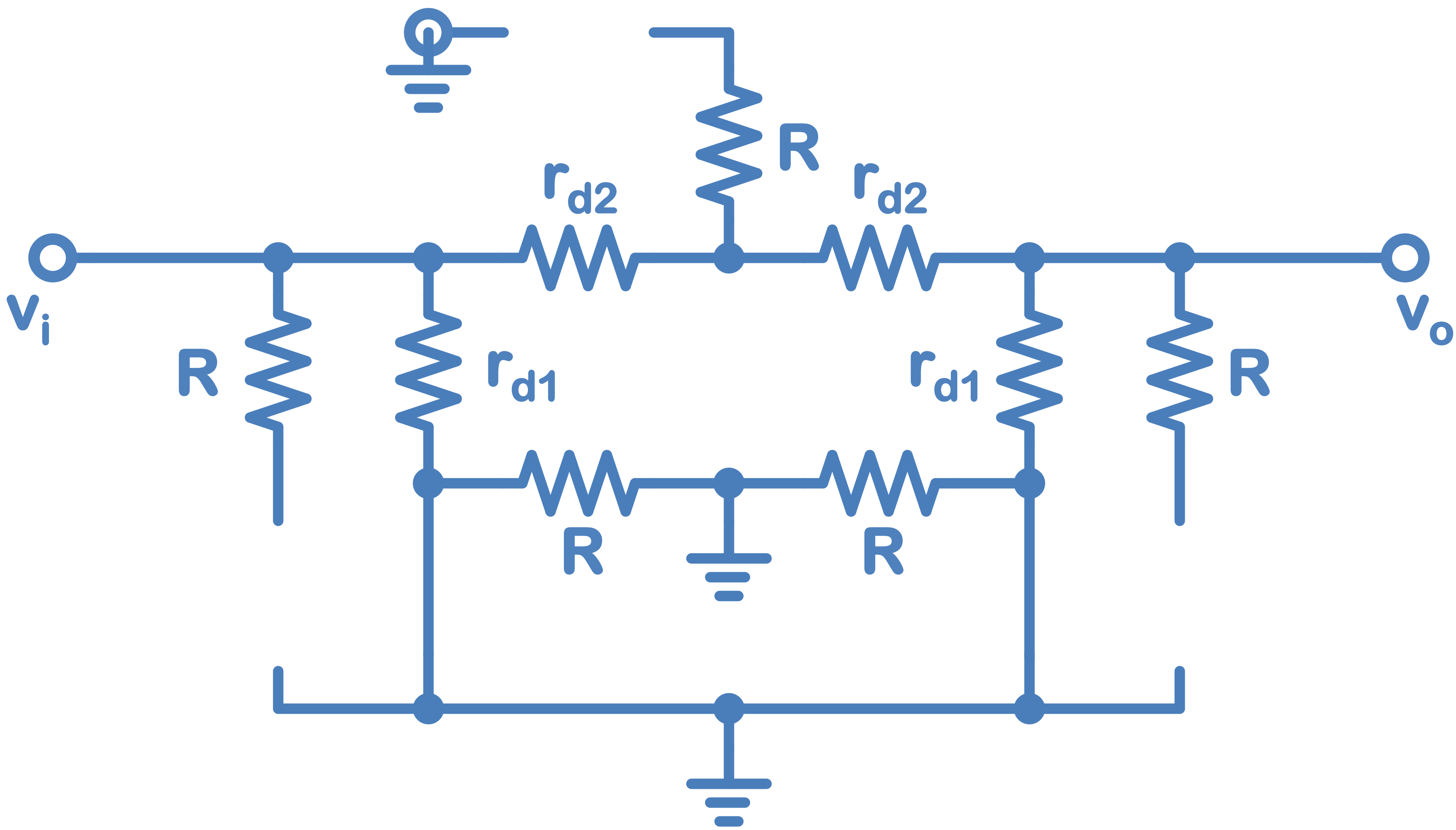
$$r_{d1} = 116 / (13.6 - V_C)$$

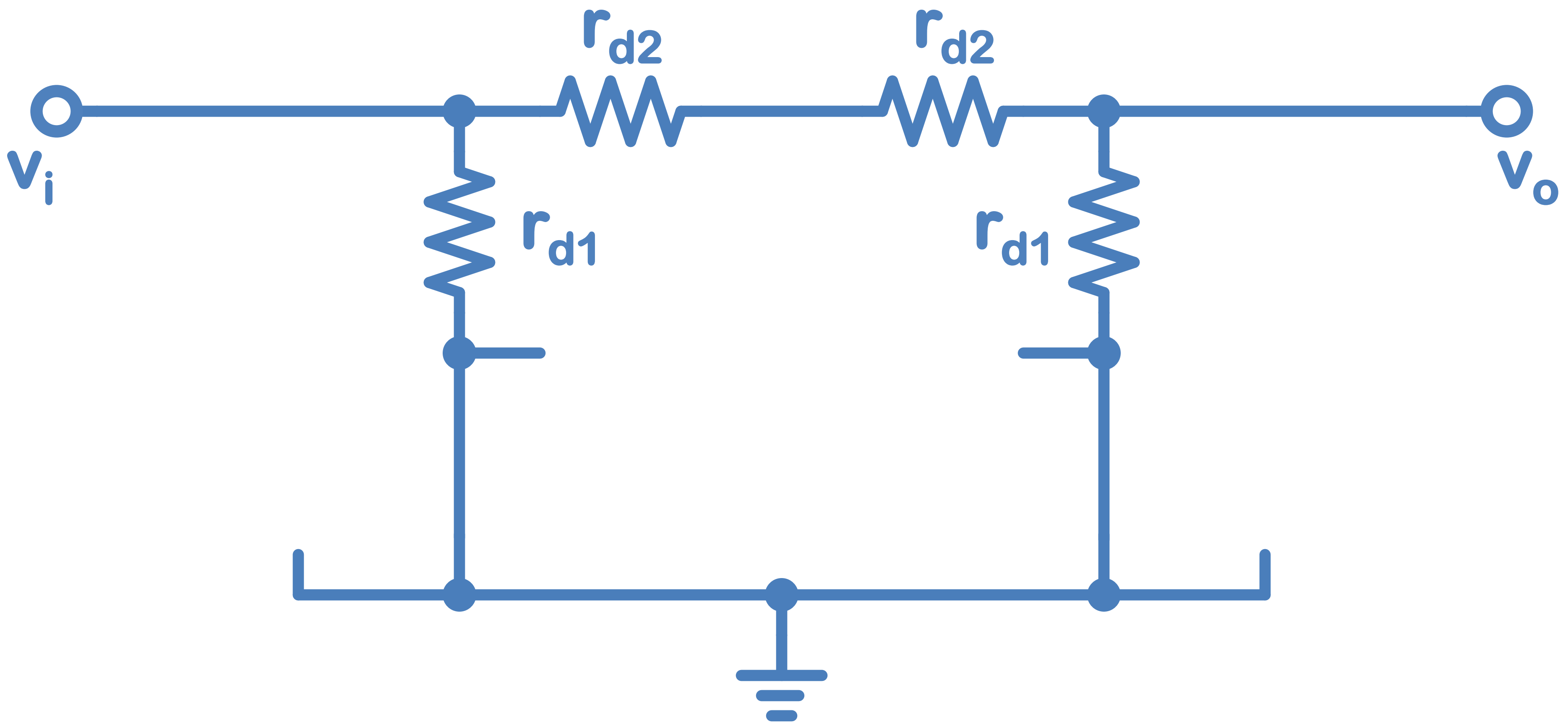
$$I_{D2} = (4V_C - 11.4) / 4k$$

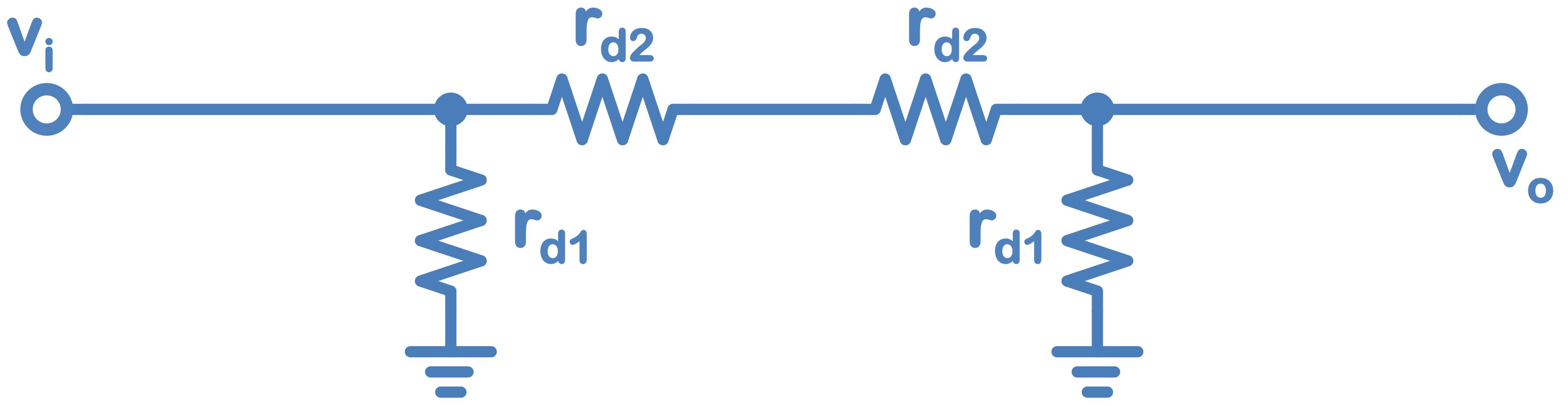
$$r_{d2} = 2.32 * 4k * 0.025 / (4V_C - 11.4)$$

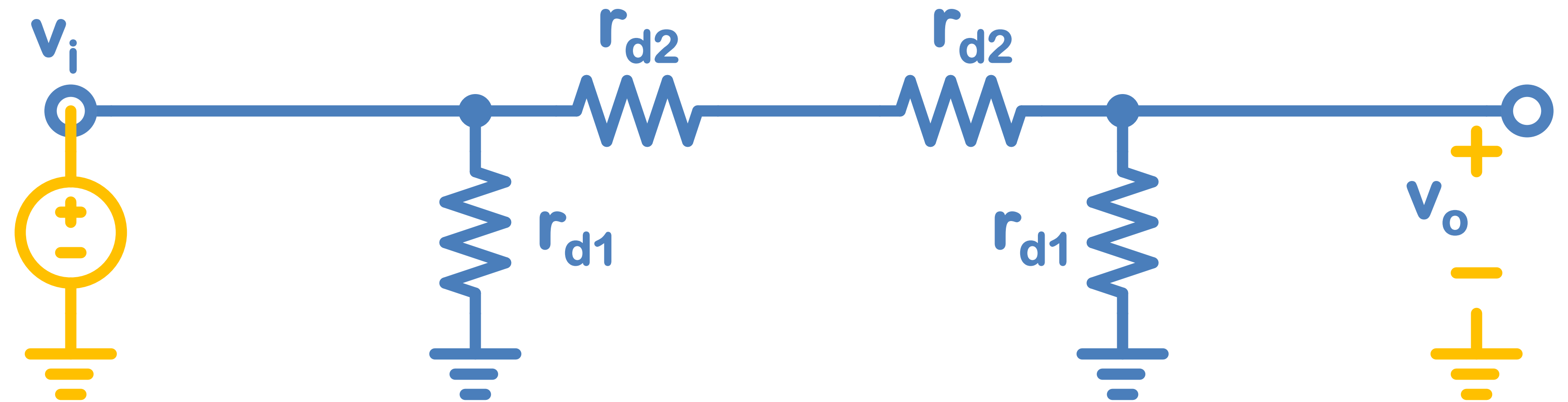
$$r_{d2} = 232 / (4V_C - 11.4)$$











$$v_o/v_i = r_{d1}/(2r_{d2}+r_{d1})$$

$$v_o/v_i = 116/(13.6-V_C)/(464/(4V_C-11.4)+116/(13.6-V_C))$$

$$v_o/v_i = 116(4V_C-11.4) / (464(13.6-V_C)+116(4V_C-11.4))$$

$$v_o/v_i = (464V_C-1322.4) / (6310.4-464V_C+464V_C-1322.4)$$

$$v_o/v_i = (464V_C-1322.4) / (4988)$$

$$v_o/v_i = 0.093V_C - 0.2651$$

$$I_{D1} = (13.6 - V_C) / 2.5k$$

$$r_{d1} = 62.5 / (13.6 - V_C)$$

$$I_{D2} = (4V_C - 11.4) / 5k$$

$$r_{d2} = 125 / (4V_C - 11.4)$$

$$v_o / v_i = 0.093V_C - 0.2651$$

VC	ID1	ID2	rd1	rd2	vo/vi
3	0.0053	0.00015	10.9433962	386.666667	0.01395349
5	0.0043	0.00215	13.4883721	26.9767442	0.2
7	0.0033	0.00415	17.5757576	13.9759036	0.38604651
9	0.0023	0.00615	25.2173913	9.43089431	0.57209302
11	0.0013	0.00815	44.6153846	7.11656442	0.75813953
13	0.0003	0.01015	193.3333333	5.71428571	0.94418605

