Zakładam:
I_{WYMAX} = 1 [A]
U_{WY0} = 5 [V]
R0 = 5 [Ω]

zasilanie $U_Z = 2*U_{WY} = 2*5 = 10$ [V]

Dioda Zenera BZX79-C3V0,113 3V
Uz = 3V, Pd=0.4/0.5[W], Ir=10[uA] Ifmax=250[mA]
Tranzystor NPN 2N2222A

TME Electronic Components

NEXPERIA Zener Diodes

Symbol	Manufacturer's part number	Manufacturer	Type of diode	Structure	U_Z [V]	Tol. [%]	P_d [W]	Mounting	Case	Package	I_r [µA]	I_{fmax} [mA]	I_Z [mA]	$U_{f_{max}}$ [V]	Application
BZX79-C3V0,143	BZX79-C3V0,143	NEXPERIA	Zener	single diode	3	±5	0.4/0.5	THT	DO35	Ammo Pack	10	250	-	-	-
BZX79-C3V3,113	BZX79-C3V3,113	NEXPERIA	Zener	single diode	3.3	±5	0.4/0.5	THT	DO35	reel, tape	-	250	-	0.9	-
BZX79-C3V3,133	BZX79-C3V3,133	NEXPERIA	Zener	single diode	3.3	±5	0.4/0.5	THT	DO35	Ammo Pack	-	250	-	0.9	-
BZX79-C3V6,113	BZX79-C3V6,113	NEXPERIA	Zener	single diode	3.6	±5	0.4/0.5	THT	DO35	reel, tape	-	250	-	0.9	-
BZX79-C3V6,133	BZX79-C3V6,133	NEXPERIA	Zener	single diode	3.6	±5	0.4/0.5	THT	DO35	Ammo Pack	-	250	-	0.9	-
BZX79-C3V9,113	BZX79-C3V9,113	NEXPERIA	Zener	single diode	3.9	±5	0.4/0.5	THT	DO35	reel, tape	-	250	-	0.9	-
BZX79-C3V9,133	BZX79-C3V9,133	NEXPERIA	Zener	single diode	3.9	±5	0.4/0.5	THT	DO35	Ammo Pack	-	250	-	0.9	-

Obliczam Idmax:
Pd=0.4[W],
Uzo =3[V]

Maksymalny prąd diody:
Idmax = Pd/Uzo = 0.4/3 = 0.1333[A]

wartość prądu dobrano tak by prąd osiągnął 50% wartości maksymalnej,
Id=0.133/2 = 0.066[A]

Rezystancje:
Id= Uwy-Uzo / R1 -> R1=Uwy-Uzo/Id = (5-3)/0.066 -> R1=30,03 [Ω]

R0=Uwy/Iwy = 5/1 = 5 [Ω]

wyznaczam R2, R3

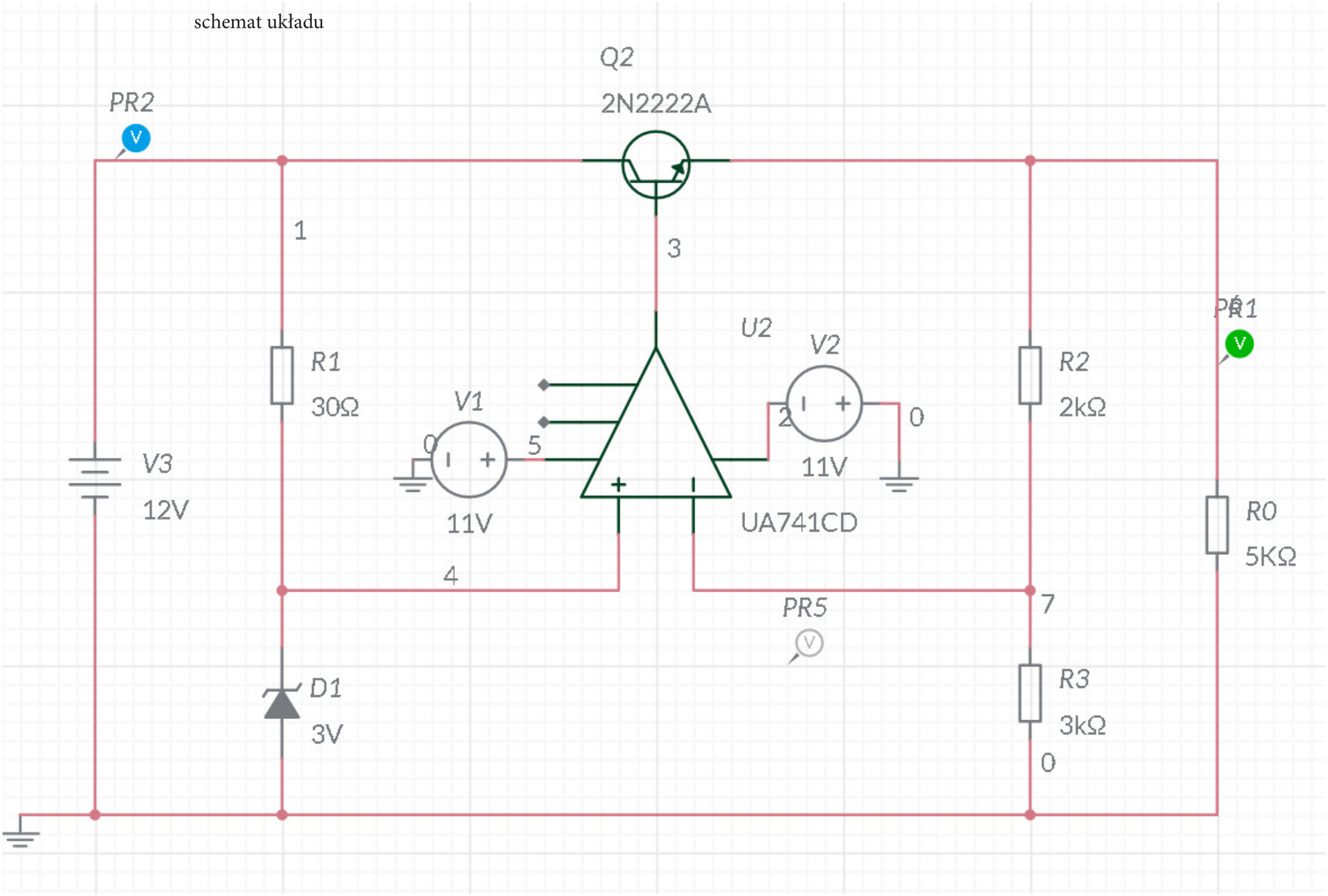
Uwy=Uzo(R2/R3 +1) -> R2/R3+1 = Uwy/Uzo -> R2/R3 = (Uwy-Uzo) / Uzo

R2/R3 = 5-3/3 = 0.666 -> R2=0.666*R3

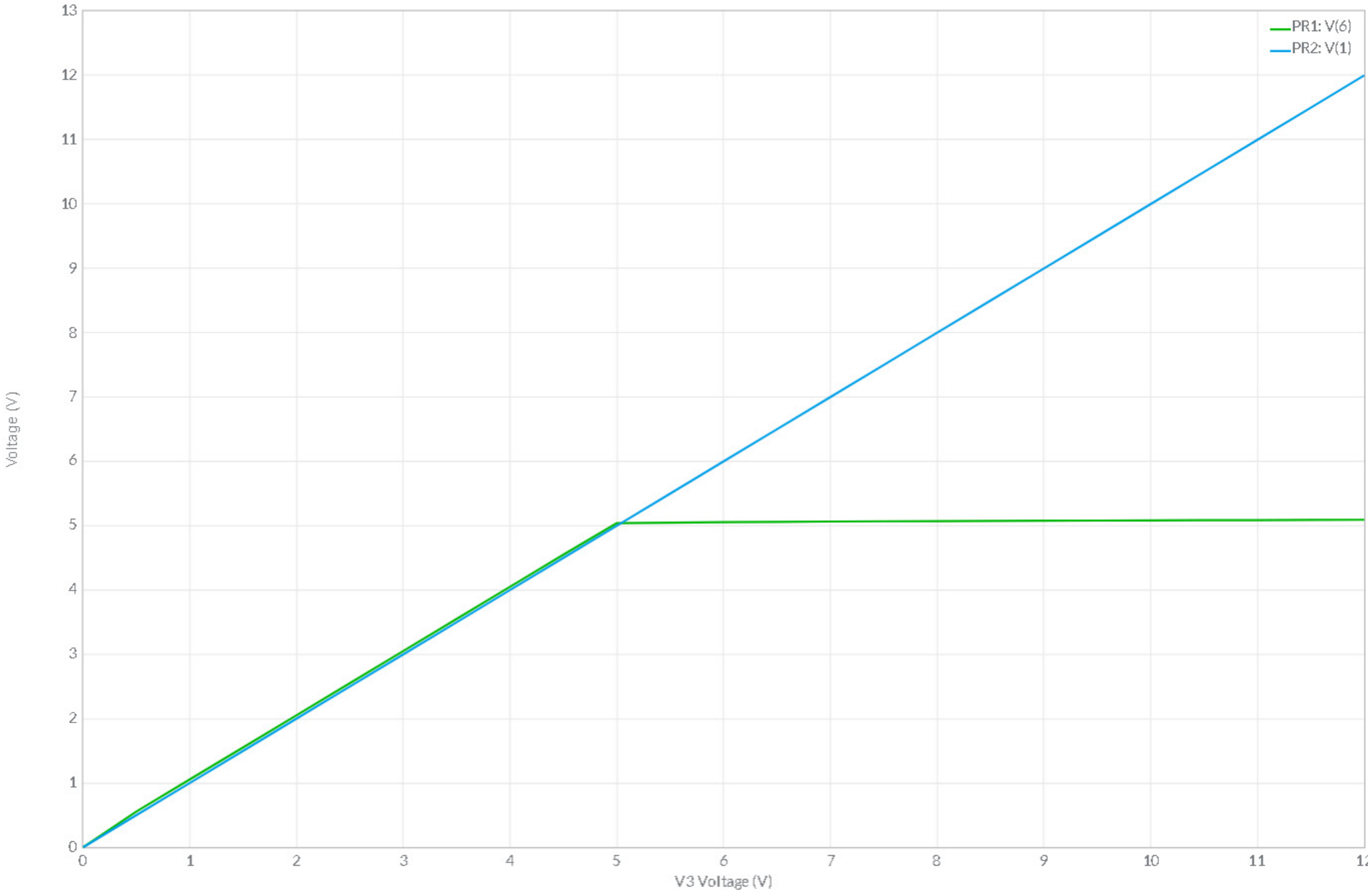
R2=3 [Ω] R3=0.666*3 = 2 [Ω]
R3=2 [Ω]

https://www.multisim.com/content/XHFkdaGfQNHVGRY9tHxqje/wzmop-v2-1-1-1-1/open/

schemat układu

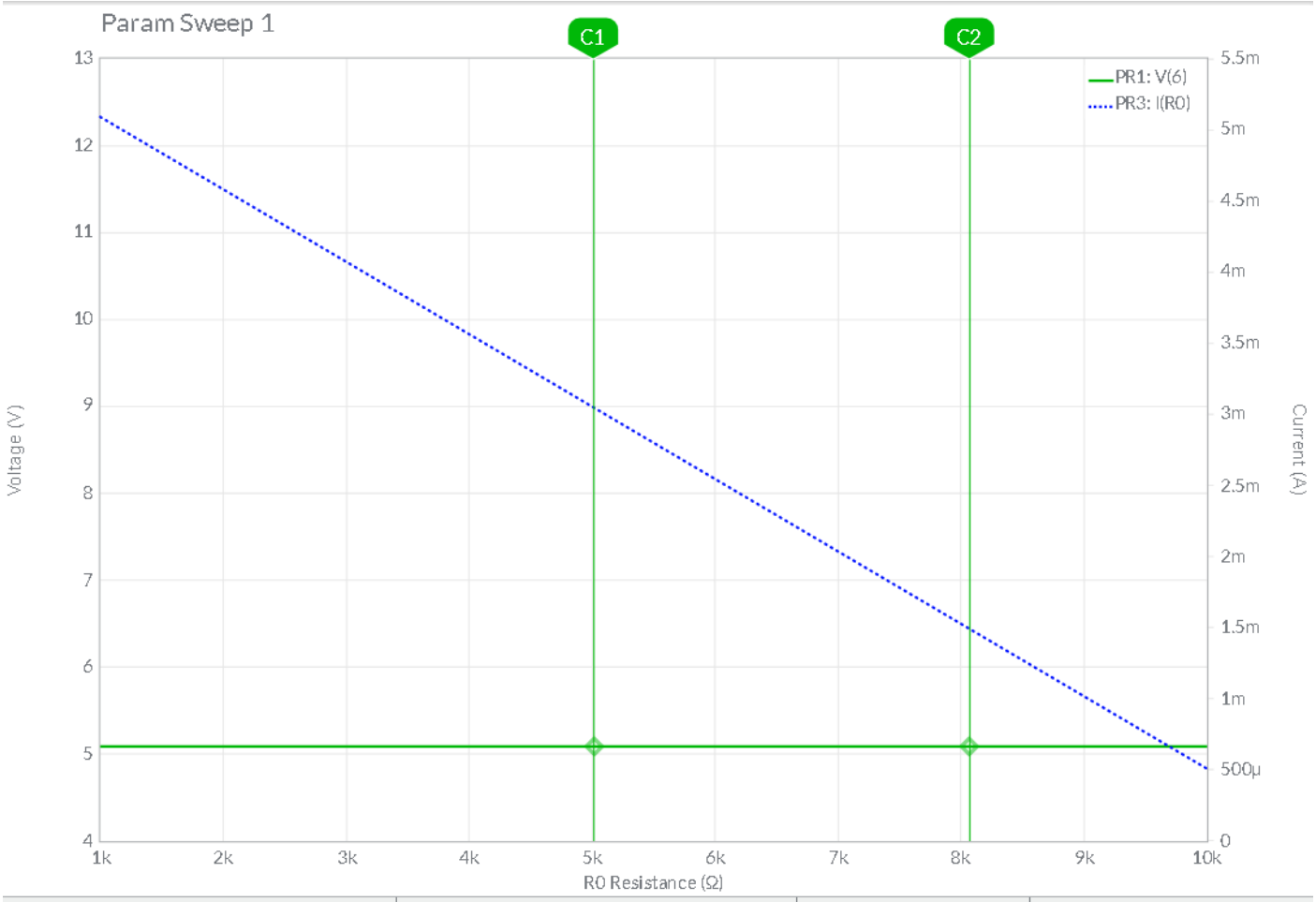


wykres napięcia wyjściowego od napięcia wejściowego



na wykresie widać stabilizację napięcia na poziomie 5V

poniżej zależność napięcia od oporu R0 i prądu Iwy



Cursor 1	Cursor 2	ΔX	1/ΔX
5.0165 kΩ, 5.0901 V	8.0659 kΩ, 5.0901 V	3.0494 kΩ	327.94 µ(Ω)⁻¹