Lista 19 projektów z MOSS

1	* projekt 1: wzmacniacz roznicowy npn (SR EZ, predykcja liniowa) Vin 7 0 5 AC 1 sine 5 0.1 10k rb 7 6 5k rc1 1 3 8k re 5 0 4.3k rc2 1 4 8k q1 3 6 5 mq1 q2 4 2 5 mq1 r1 1 2 10k r2 2 0 10k vcc 1 0 10 .Model mq1 npn is=1e-15 bf=100 br=10 nf=1 nr=1 rb=50 tf=0.1n tr=10n cjc=2p cje=.2p vjc=0.5 vje=0.6 mjc=0.5 mje=0.5 .OP .AC DEC 100 10 1G *.TRAN 1u 1m .end
2	* projekt 2: wtornik darlingtona npn (SR EZ, predykcja liniowa) Vin 1 0 3 AC 1 sine 3 10 100k rb 1 5 1k q1 2 5 3 mq1 q2 2 3 4 mq1 re 4 0 100k vcc 2 0 12 .Model mq1 npn is=1e-15 bf=100 br=10 nf=1 nr=1 rb=50 tf=0.1n tr=10n cjc=2p cje=.2p vjc=0.5 vje=0.6 mjc=0.5 mje=0.5 .OP .AC DEC 100 10 1G *.TRAN 1u 0.1m .end
3	* projekt 3: wzmacniacz npn, npn, predykcja liniowa Vin 1 0 1.7 AC 1 q1 3 1 2 mq1 q2 4 3 5 mq1 re1 2 0 1k rc 4 3 10k re2 5 0 4k vcc 4 0 15 .Model mq1 npn is=1e-15 bf=100 br=10 nf=1 nr=1 rb=50 tf=0.1n tr=10n cjc=2p cje=.2p vjc=0.5 vje=0.6 mjc=0.5 mje=0.5 .OP .AC dec 100 10 1g *.TRAN 1u 0.1m .end
4	* projekt 4: wzmacniacz npn, npn (SR EZ, predykcja kwadratowa) Vin 1 0 sine 1.7 0.5 100k q1 3 1 2 mq1 q2 4 3 5 mq1

	re1 2 0 1k rc 4 3 10k re2 5 0 4k vcc 4 0 15 .Model mq1 npn is=1e-15 bf=100 br=10 nf=1 nr=1 rb=50 tf=0.1n tr=10n cjc=2p cje=.2p vjc=0.5 vje=0.6 mjc=0.5 mje=0.5 .OP .AC dec 100 10 1g *.TRAN 1u 0.1m .end
5	* projekt 5: wzmacniacz npn, pnp Vin 1 0 1.7 AC 1 q1 2 1 6 mq1 q2 0 2 4 mq2 re1 6 0 1k rc1 3 2 10k re2 3 4 9k vcc 3 0 15 .Model mq1 npn is=1e-15 bf=100 br=10 nf=1 nr=1 rb=50 tf=0.1n tr=10n cjc=2p cje=.2p vjc=0.5 vje=0.6 mjc=0.5 mje=0.5 .Model mq2 pnp is=1e-15 bf=100 br=10 nf=1 nr=1 rb=50 tf=0.1n tr=10n cjc=2p cje=.2p vjc=0.5 vje=0.6 mjc=0.5 mje=0.5 .OP .AC dec 100 10 1g *.TRAN 1u 0.1m .end
6	* projekt 6: wtornik npn, pnp Vin 1 0 3 AC 1 q1 3 1 2 mq1 q2 0 2 4 mq2 re2 3 4 1.3k re1 2 0 2.1k vcc 3 0 4 .Model mq1 npn is=1e-15 bf=100 br=10 nf=1 nr=1 rb=50 tf=0.1n tr=10n cjc=2p cje=.2p vjc=0.5 vje=0.6 mjc=0.5 mje=0.5 .Model mq2 pnp is=1e-15 bf=100 br=10 nf=1 nr=1 rb=50 tf=0.1n tr=10n cjc=2p cje=.2p vjc=0.5 vje=0.6 mjc=0.5 mje=0.5 .OP .AC dec 100 10 1e9 *.TRAN 1u 0.1m .end
7	* projekt 7: lustro pradowe pnp Iin 1 0 1m AC 0.1m q1 1 1 3 mq1 q2 2 1 3 mq1 rL 2 0 1k vcc 3 0 5 .Model mq1 pnp is=1e-15 bf=100 br=10 nf=1 nr=1 rb=50 tf=0.1n tr=10n cjc=2p cje=.2p vjc=0.5 vje=0.6 mjc=0.5 mje=0.5 .OP

	.AC dec 100 10 1e9 *.TRAN 1u 0.1m .end
8	* projekt 8: lustro pradowe Iin 3 1 1m AC 1m q1 1 1 0 mq1 Q2 2 1 0 mq1 rL 3 2 1k vcc 3 0 5 .Model mq1 npn is=1e-15 bf=100 br=10 nf=1 nr=1 rb=50 tf=0.1n tr=10n cjc=2p cje=.2p vjc=0.5 vje=0.6 mjc=0.5 mje=0.5 .OP .AC dec 100 1 1meg *.TRAN 1u 0.1m .end
9	*p9: lustro pradowe nmos vcc 2 0 3 Iin 2 1 0.1u AC 1 rl 2 3 1k m1 1 1 0 0 mdmos L=10u W=10u m2 3 1 0 0 mdmos L=10u W=10u .model mdmos nmos vto=1 phi=0.65 gamma=0.3 Kp=3e-5 lambda=0.02 cgso=200f cgdo=200f cgbo=10p .OP .ac dec 100 1k 100g *.tran 1u 0.1m .end
10	*p10: lustro pradowe pmos vdd 1 0 3 Iin 2 0 1u AC 1 rl 3 0 1k m1 2 2 1 1 mdmos L=10u W=10u m2 3 2 1 1 mdmos L=10u W=10u .model mdmos pmos vto=-1 phi=0.65 gamma=0.3 Kp=3e-5 lambda=-0.005 cgso=200f cgdo=200f cgbo=10p .OP .ac dec 100 10 10g *.tran 1u 0.1m .end
11	* projekt 11: powielacz (SR EZ, predykcja liniowa) Vin 1 0 sine 0 10 1k C1 1 2 .1u D1 0 2 md1 D2 2 4 md1 C3 0 4 .1u C2 2 3 .1u D3 4 3 md1 RL 3 0 100k .Model md1 d is=1e-14 n=1 Tt=0.1n cj0=2p vj=0.6 m=0.5 .OP

	.AC dec 100 10 10g *.TRAN 1u 20m .end
12	*p12: wzmacniacz roznicowy nmos vcc 6 0 3 Vin 1 0 AC 1 rd1 6 4 3.2meg rd2 6 5 3.2meg m1 4 1 2 2 mdmos L=10u W=10u m2 5 0 2 2 mdmos L=10u W=10u Iss 2 3 2u vss 3 0 -3 .model mdmos nmos vto=1 phi=0.65 gamma=0.3 Kp=3e-5 lambda=0.02 cgso=200f cgdo=200f cgbo=10p .op .ac dec 100 1k 100g .tran 1u 20m .end
13	*p13: inwerter cmos vss 1 0 3 Vin 3 0 1.5 AC 1 m1 2 3 0 0 mdmos L=10u W=10u m2 2 3 1 1 md1mos L=10u W=10u rL 2 0 100meg .model mdmos nmos vto=1 phi=0.65 gamma=0.3 Kp=3e-5 lambda=0.02 cgso=200f cgdo=200f cgbo=10p .model md1mos pmos vto=-1 phi=0.65 gamma=0.3 Kp=3e-5 lambda=-0.005 cgso=200f cgdo=200f cgbo=10p .op .AC dec 100 10 10t *.TRAN 1u 20m .end
14	*p14: wzmacniacz na lustrze pradowym vdd 3 0 3 Iin 3 1 2u AC 1 m1 1 1 0 0 mdmos L=10u W=10u m2 2 1 0 0 mdmos L=10u W=10u I2 3 2 2u rL 2 0 100meg .model mdmos nmos vto=1 phi=0.65 gamma=0.3 Kp=3e-5 lambda=0.02 cgso=200f cgdo=200f cgbo=10p .op .AC dec 100 10 100g *.TRAN 1u 20m .end
15	*p15: wzmacniacz nmos, nmos vcc 1 0 20 Vin 5 0 4 AC 1 r2 5 6 1meg m1 2 6 4 4 mdmos L=10u W=10u

	m2 1 2 3 3 mdmos L=10u W=10u r3 4 0 100 r5 3 0 20k r4 1 2 110k c6 4 0 1n .model mdmos nmos vto=1 phi=0.65 gamma=0.3 Kp=3e-5 lambda=0.02 cgso=200f cgdo=200f cgbo=10p .op .AC dec 100 100 100g *.TRAN 1u 20m .end
16	* projekt 16 Vin 2 0 AC 1 C1 2 3 .1u Rb 3 5 2.4meg Q1 4 3 0 mod1 Rc 4 5 13k Q2 5 4 6 mod1 Re 6 0 14k Ce 6 0 .1u Vcc 5 0 15 .Model mod1 npn is=1e-15 bf=100 br=10 nf=1 nr=1 rb=50 tf=0.1n tr=10n cjc=2p cje=.2p vjc=0.5 vje=0.6 mjc=0.5 mje=0.5 .OP .AC dec 100 1 1e6 *.TRAN 1u 20m .end
17	* projekt 17 Vin 1 0 AC 1 Rin 1 2 100 C1 2 3 1u R1 3 0 5meg R2 9 3 10meg Q1 5 3 4 mod1 Rc1 9 5 8k Re1 4 0 4k Ce1 4 0 1u Vcc 9 0 15 CL 5 6 1u RL 6 0 10k Rf 2 6 5k .Model mod1 npn is=1e-15 bf=100 br=10 nf=1 nr=1 rb=50 tf=0.1n tr=10n cjc=2p cje=.2p vjc=0.5 vje=0.6 mjc=0.5 mje=0.5 .OP .AC dec 100 1 10e9 *.TRAN 1u 20m .end
18	* projekt 18: stabilizator z dioda zenera Vin 4 0 10 AC 1 din 4 1 md2

	cin 1 0 1u rin 1 0 5k r 1 2 2.5K D1 0 2 md1 q1 1 2 3 mq1 RL 3 0 5k .Model md1 d is=1e-14 n=1 Tt=0.1n cj0=2p vj=0.6 m=0.5 vrev=5.6 rrev=10 .Model md2 d is=1e-14 n=1 Tt=0.1n cj0=2p vj=0.6 m=0.5 .Model mq1 npn is=1e-15 bf=100 br=10 nf=1 nr=1 rb=50 tf=0.1n tr=10n cjc=2p cje=.2p vjc=0.5 vje=0.6 mjc=0.5 mje=0.5 .OP .AC dec 100 1 100k *.TRAN 1u 20m .end
19	* projekt 19: wzmacniacz darlington npn Vin 1 0 2.4 AC 1 rb 1 5 1k rc 2 6 8k q1 6 5 3 mq1 q2 6 3 4 mq1 re 4 0 1k ce 4 0 10u vcc 2 0 12 .Model mq1 npn is=1e-15 bf=100 br=10 nf=1 nr=1 rb=50 tf=0.1n tr=10n cjc=2p cje=.2p vjc=0.5 vje=0.6 mjc=0.5 mje=0.5 .OP .AC dec 100 10 1g *.TRAN 1u 20m .end
20	* projekt 20: wzmacniacz roznicowy pnp Vin 7 0 5 AC 1 rb 7 6 5k rc1 0 3 8k re 5 1 4.3k rc2 0 4 8k q1 3 6 5 mq2 q2 4 2 5 mq2 r1 1 2 10k r2 2 0 10k vcc 1 0 10 .Model mq2 pnp is=1e-15 bf=100 br=10 nf=1 nr=1 rb=50 tf=0.1n tr=10n cjc=2p cje=.2p vjc=0.5 vje=0.6 mjc=0.5 mje=0.5 .OP .AC dec 100 10 1g *.TRAN 1u 20m .end