

TB265

Frequency=0.5-2MHz

Pout=200W

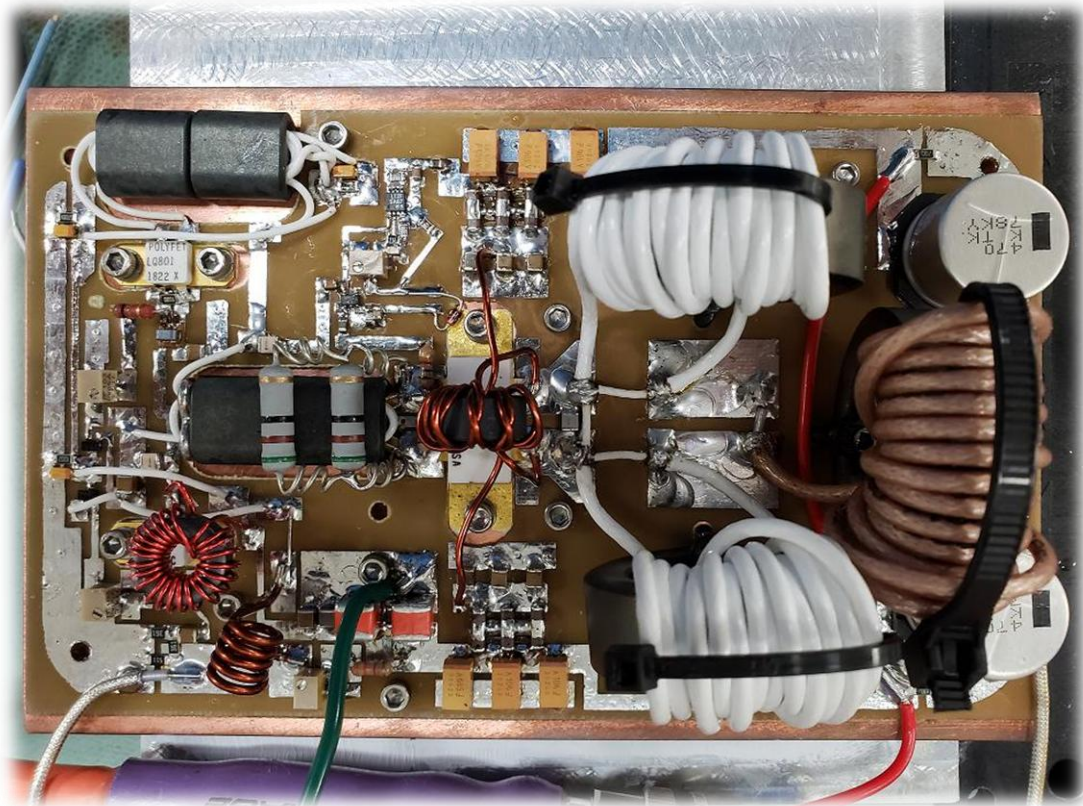
Gain=62-64dB

Vds=28Vdc

Idq=2A

Efficiency=51-52%

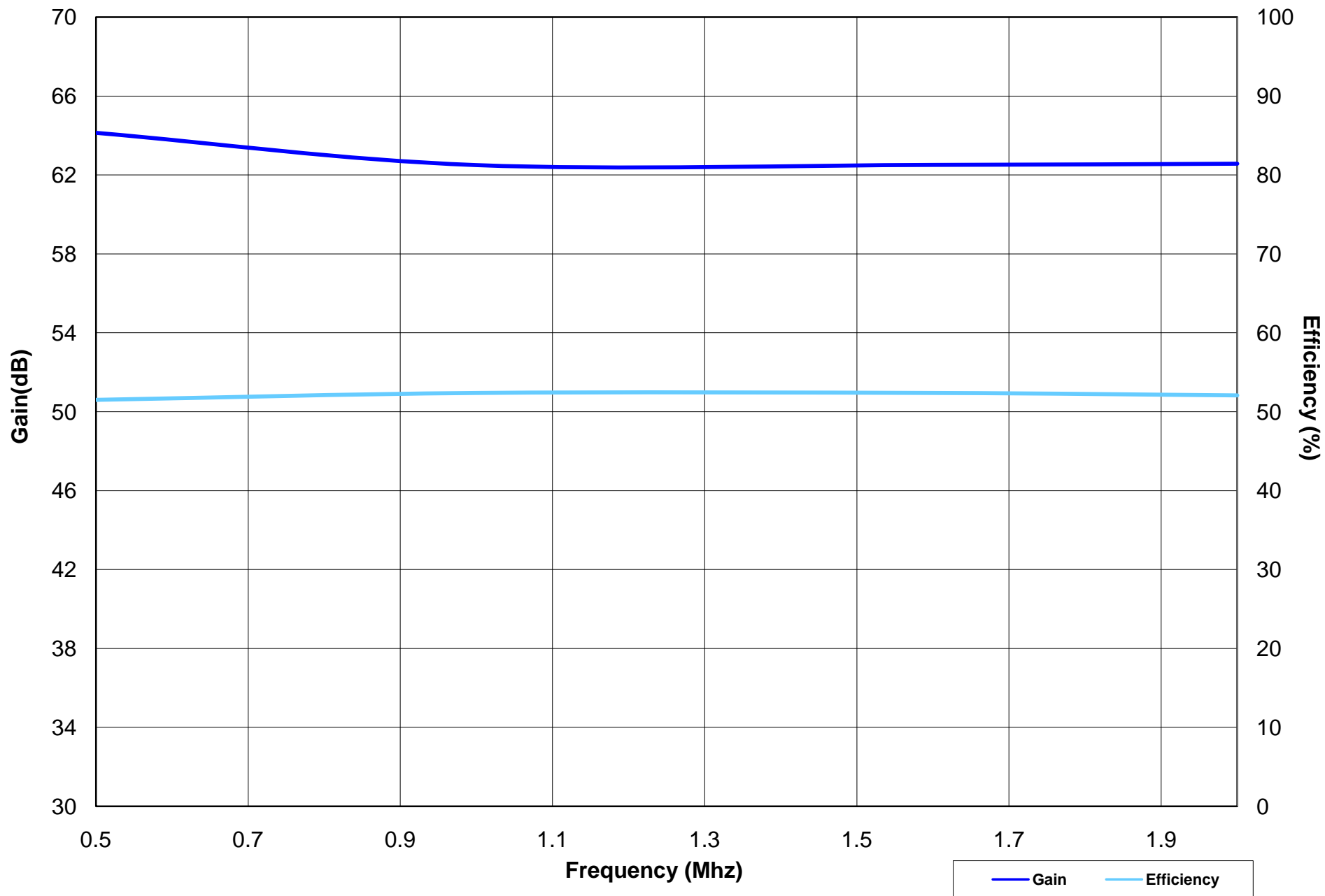
LS2541HF

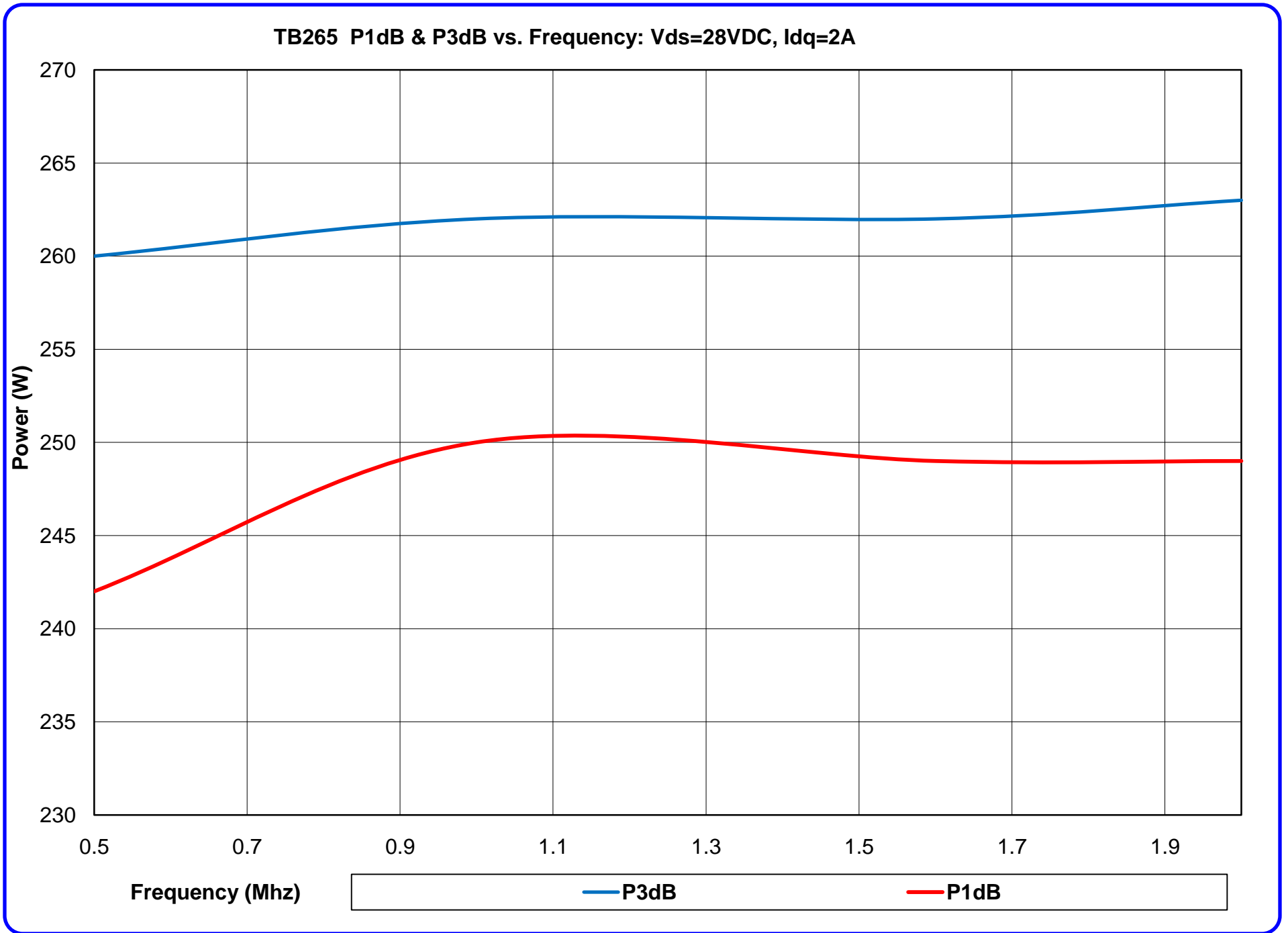


Order of Operations:

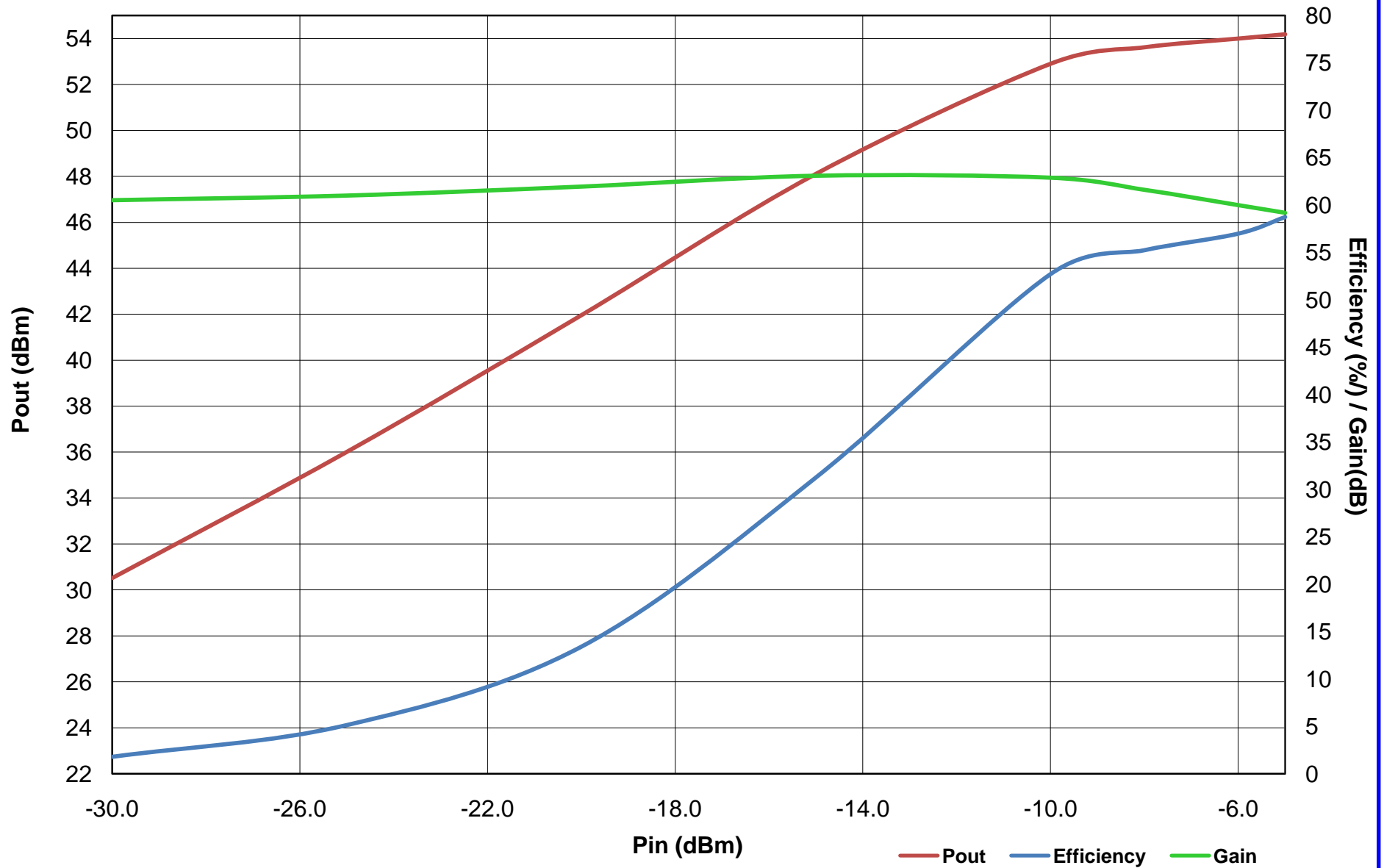
1. Review amplifier's performance curves in the data package to learn its RF power limitations.
2. Terminate the RF In/Out connectors to 50 ohm source and load impedance.
3. Connect Ground and Vds power supply to DC power supply.
4. Apply 28VDC to Vds in terminal.
5. Verify Idq= 2A
6. Apply RF drive signal (refer to curves in data package to avoid overdrive).
7. Avoid allowing the base plate to reach 85 deg C by using proper cooling techniques (aluminum heat sink and min 22CFM fan).

TB265, Gain/Efficiency vs. Frequency: Vds = 28VDC, Idq = 2A, Pout = 200W

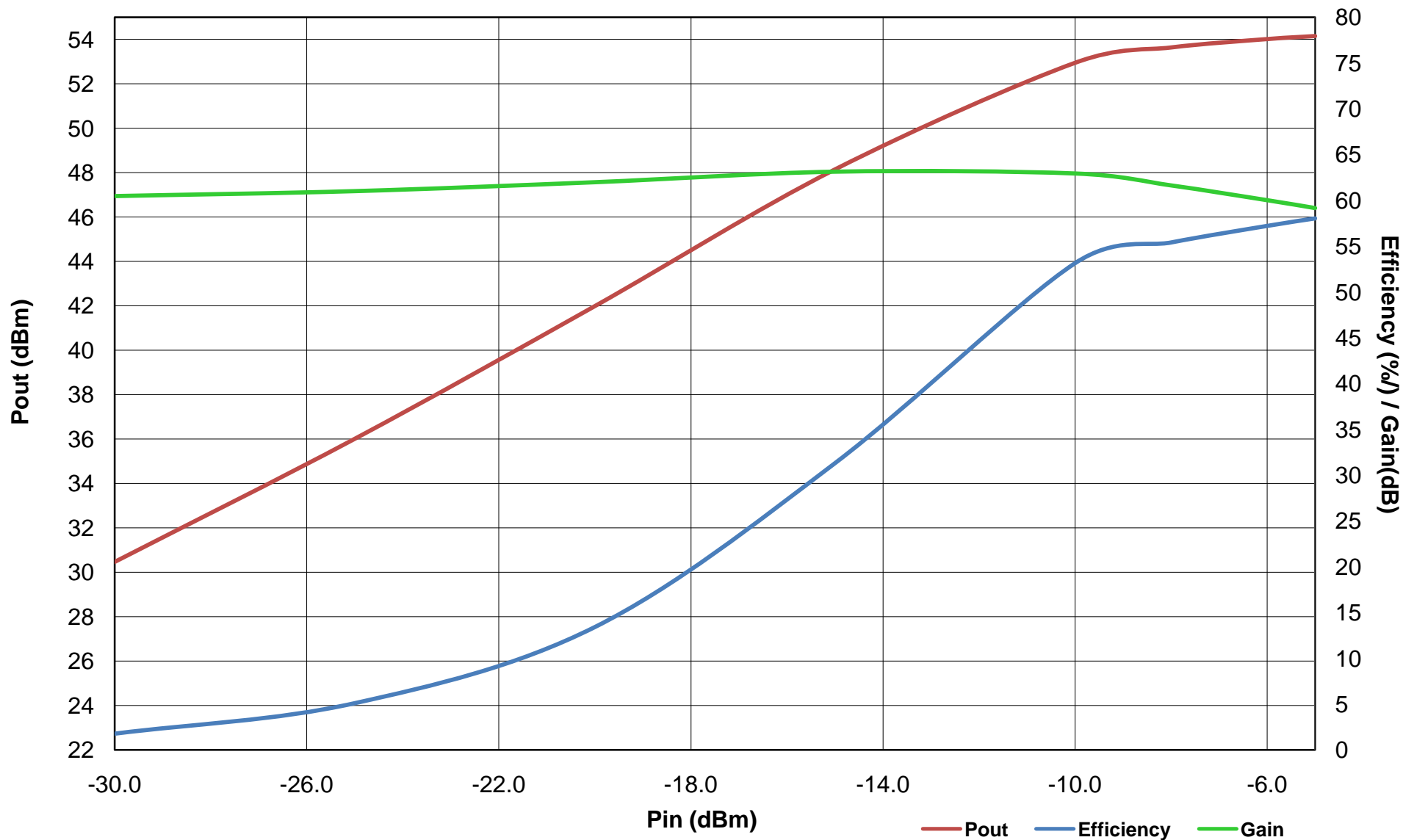




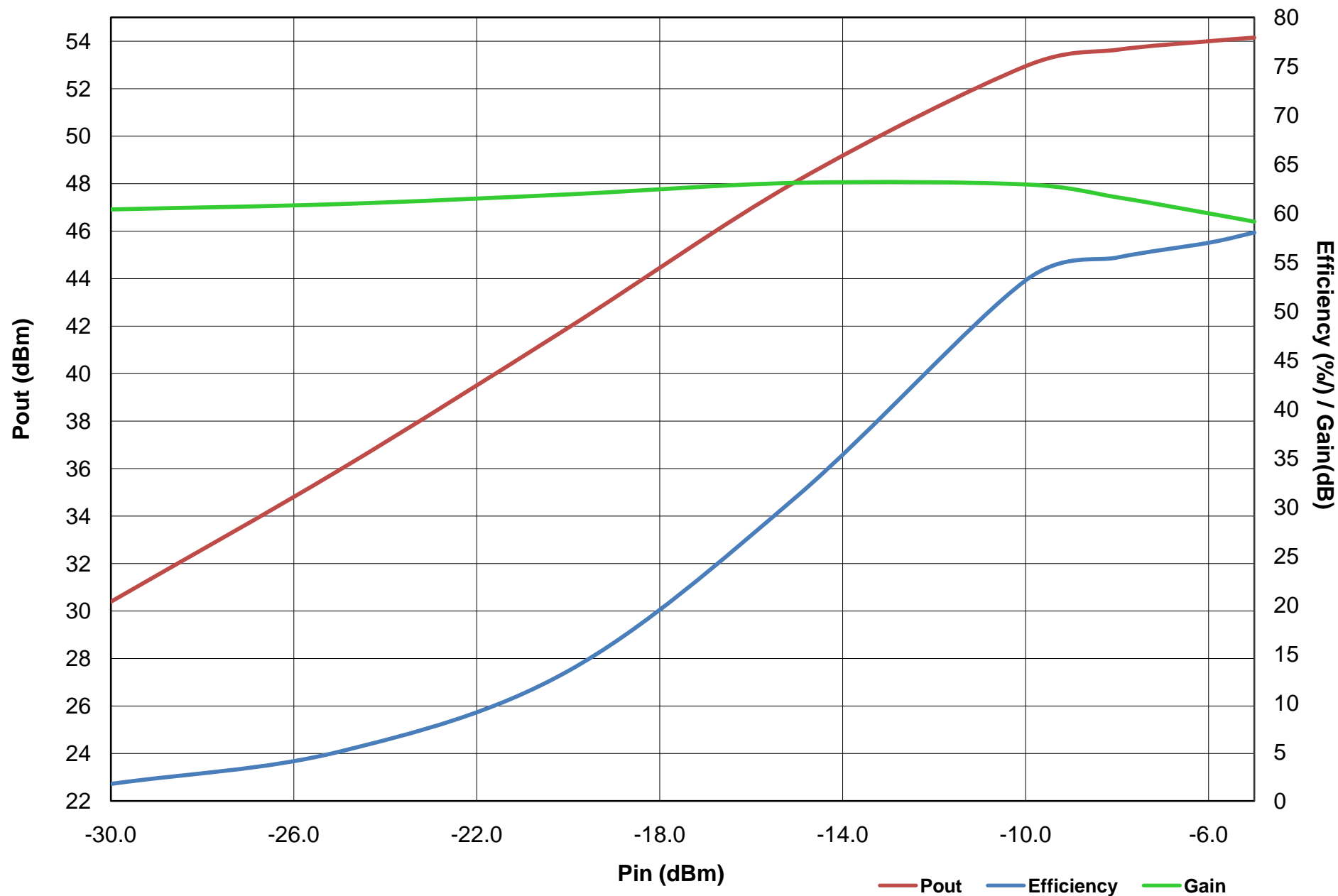
TB265, Pout/Gain/Efficiency vs. Pin : Vds = 28VDC, Idq = 2A, Freq = 0.5Mhz



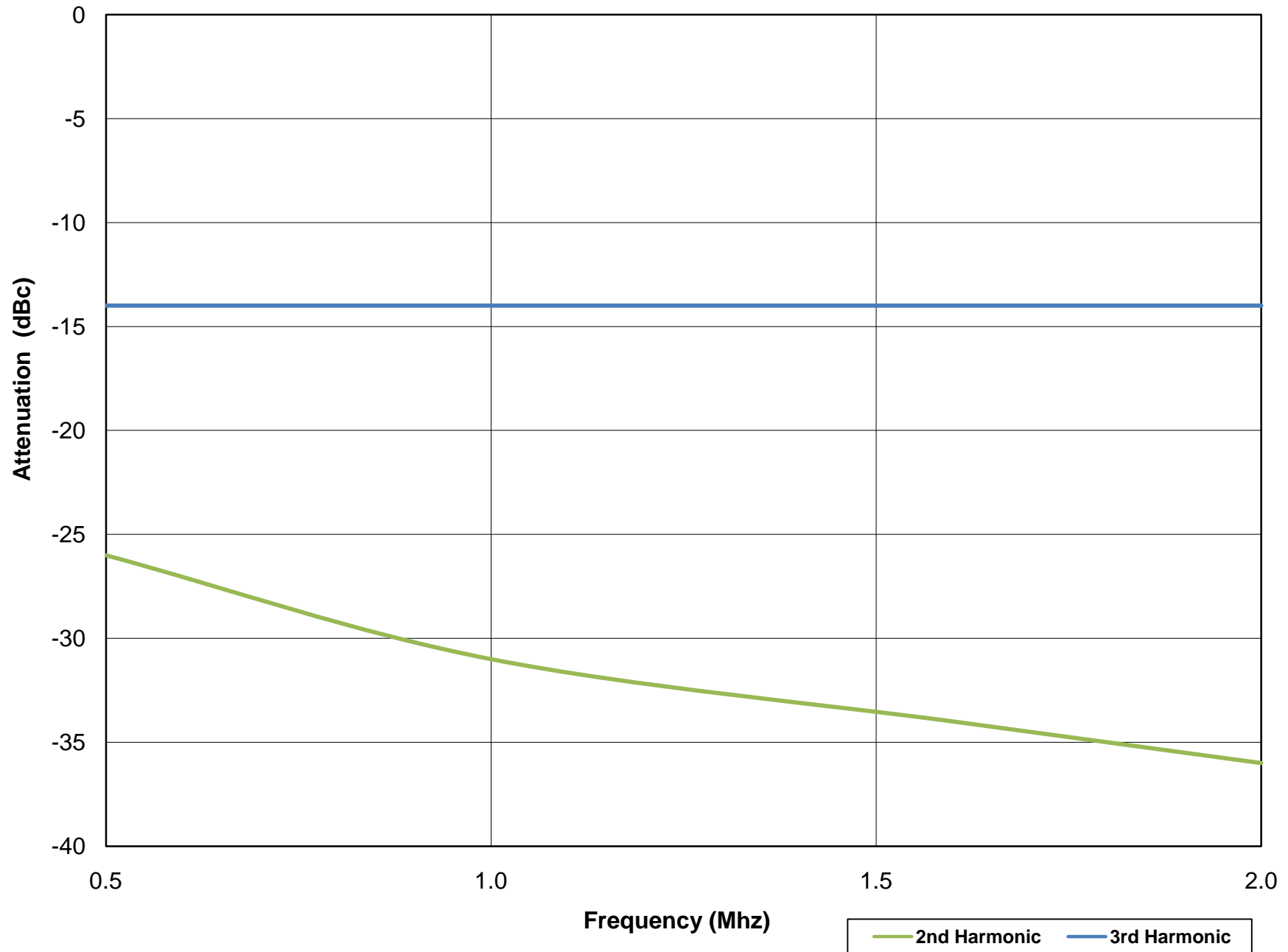
TB265, Pout/Gain/Efficiency vs. Pin : Vds = 28VDC, Idq = 2A, Freq = 1Mhz



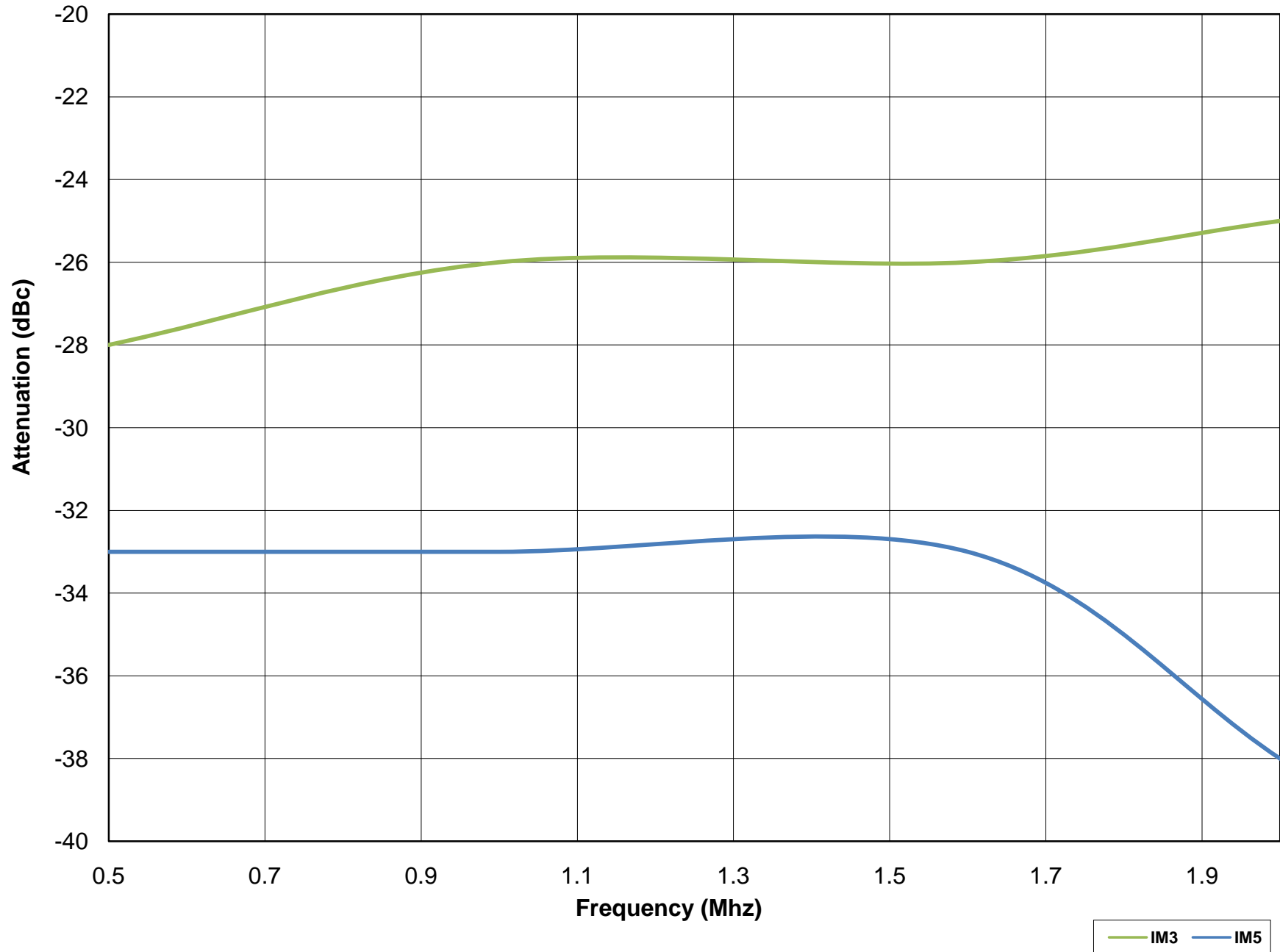
TB265, Pout/Gain/Efficiency vs. Pin : Vds = 28VDC, Idq = 2A, Freq = 2Mhz

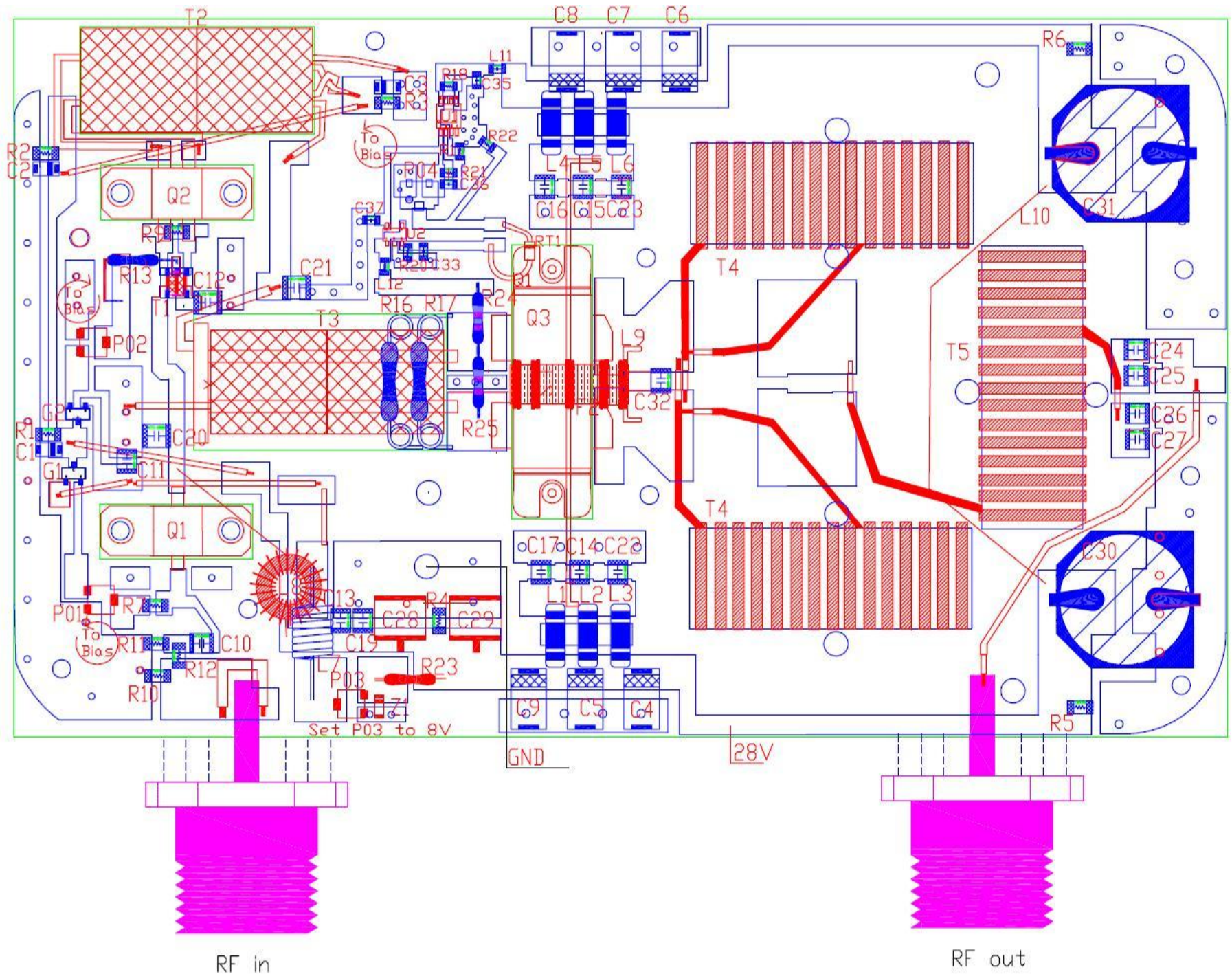


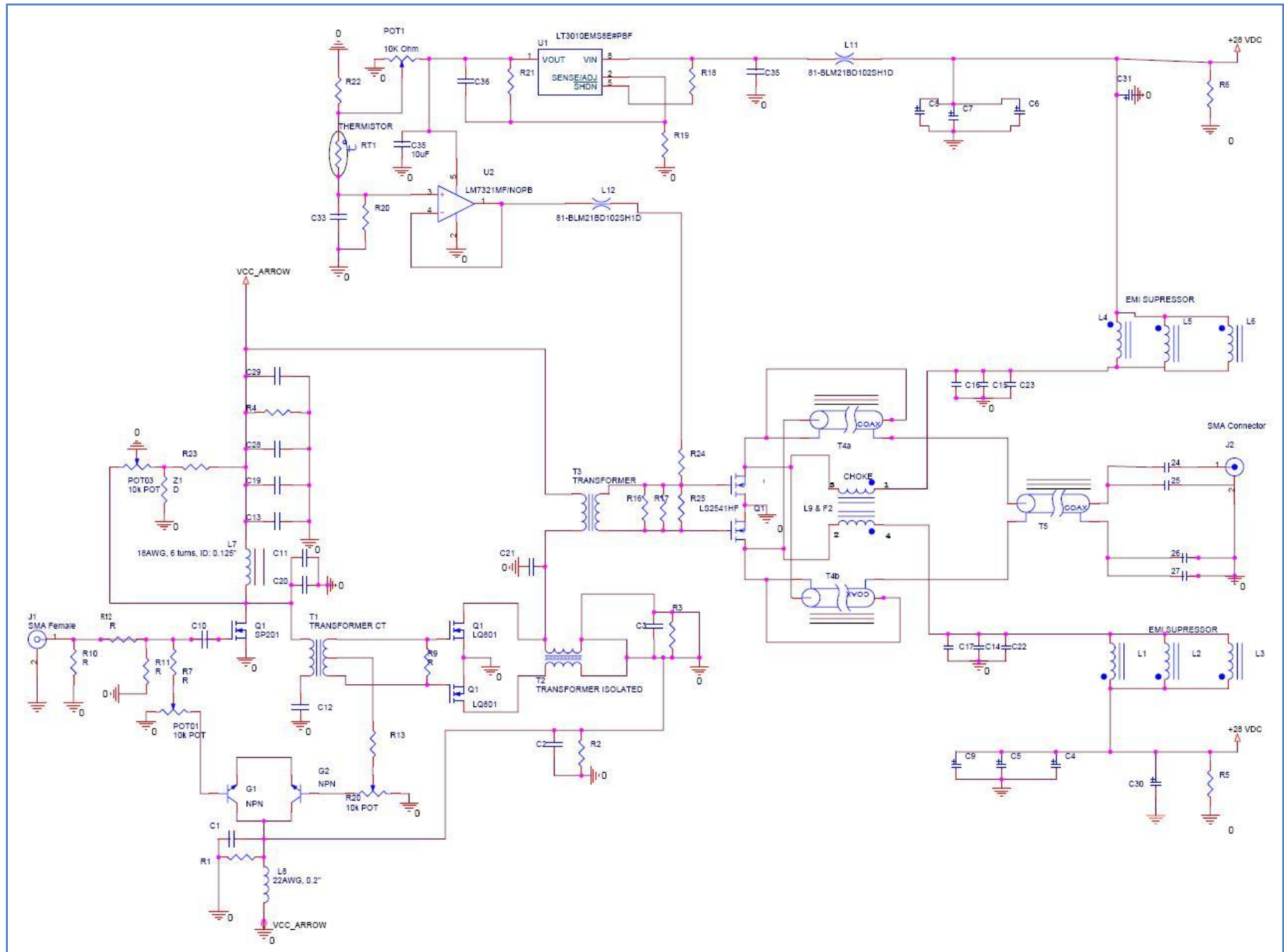
TB265, 2nd/3rd Harmonics vs. Frequency: Pout = 200W, Vds = 28VDC, Idq = 2A



TB265, IMDs vs. Frequency: $V_{ds} = 28VDC$, $I_{dq} = 2A$, PEP = 200W, Separation = 100kHz







NOMENCLATURE	DESCRIPTION	VENDER	VENDER PART #
Q1	4W VDMOS Flanged S-E transistor	Polyfet	SP201
Q2	30W LDMOS Flanged P-P transistor	Polyfet	LQ801
Q3	200W LDMOS Flanged P-P transistor	Polyfet	LS2541HF
R1-R6	10K 1/4W 5% 1206 SMD	Rohm Semiconductor	MCR18EZPJ103
R7-R9	100 OHM 1/4W 1206 SMD	DIGI-KEY	P100FCT-ND
R10	62 OHM 1/4W 1206 SMD	DIGI-KEY	P62FCT-ND
R11	430 OHM 1/4W 1206 SMD	DIGI-KEY	P430FCT-ND
R12	360 OHM 1/4W 1206 SMD	DIGI-KEY	P360FCT-ND
R13-R15	100 OHM AXIAL 1W 5%	DIGI-KEY	PPC100W-1CT-ND
R16, R17	RESISTOR 51 OHM 2W 5% METAL OXIDE	DIGI-KEY	51W-2-ND
R24, R25	5.6K axial resistor 1/2 W	Mouser	281-5.6K-RC
C1-C3	1 UF SMD TANTALUM CAP 35V	DIGI-KEY	478-1651-2-ND
C4-C7	10uF 63V 20% ERS=100Ohms Tantalum Capacitors SMD	AVX	TCJE106M063R0100
C8, C9	6.8uF 63V 20% ERS=100Ohms Tantalum Capacitors SMD	AVX	TCJE685M063R0100
C10-C15	10,000pF +/-10% RF By-Pass Capacitors,1111X	Passive Plus, Inc	111X103KW500
C16-C19	1000pF +/-2% Ultra-low ESR, Microw ave Cap., 1111N	Passive Plus, Inc	1111N102GW500
C22-C27	100,000pF +/-10% RF By-Pass Capacitors,1111X	Passive Plus, Inc	111X104KW500
C20	15 PF	AMERICAN TECH	700B150JW 500X
C21	47 PF	AMERICAN TECH	100B470JW 500X
C28, C29	47 UF KEMET SMD TANTALUM CHIP CAP, 50V 10%	Mouser	71-597D476X0050Z2T
C30, C31	470uF 80V Panasonic Aluminum Electrolytic Cap. SMD	Panasonic Electronic Components	EEE-TK1K471AM
C32	470pF +/-2% Ultra-low ESR, Microw ave Cap., 1111N	Passive Plus, Inc	1111N471BW501
L1-L6	EMV/RFI Suppressors & Ferrites 1000pF 100Volts@125C	Tusonix	4700-005LF
L7	16AWG 5 TURN		
L8	22AWG 23 TURNS FT50-43 (850mu)	AMIDON	FT50-43
L9	Magnetic Wire"W2",Twisted, 6-turns around "F2"		
L10	VDS JUMPER WIRE		
G1, G2	FAST SWITCH NPN	DIGI-KEY	2SC37570RLCT-ND
P01-P04	10k 3MM MULTI TURN POT	DIGI-KEY	490-2661-1-ND
T1	TRANSISTOR PULSE SERIES C203	MOUSER	673-CX2047L
T2	3:2 (2) 5000mu 12-365-BG Primary 3x center tap, Secondary 2x 24AWG	FERRONIC	12-365-BG
T3	4:1 (2) 5000mu 12-365-BG Primary 2 turns 24AWG	FERRONIC	12-365-BG
T4a, T4b	2x 77material Toroid	mouser	623-5977002701
T4 coax	21 ohm BELDEN 83304 2 Feet x2	AWC	stj24/1
T4 & 5 Ferrite	77material Toroid	mouser	623-5977002701
T5 coax	M17/113 Teflon Mil Spec 2 feet	AWC	RG316
F2	Toroid Ferrite 61 Material	Mouser Electronics	5961001101
Pin1	50 OHM FEMALE PANEL MOUNT.590 DIELEC	PASTERNAK	PE4328
Pin2	50 OHM FEMALE PANEL MOUNT.590 DIELEC	PASTERNAK	
Copper pallet	6.2" x 4" x 1/4"	Mcmaster Carr	
RT1	1000 OHM TEMP SENSOR AXIAL	NXP Semiconductors	KTY83/110,113
C33	1uF 10%TAMCERAM HIGH CAP. SMD 603	Johanson Dielectrics	250r14x105kv4t
C35	3.3uF TANCERAM HIGH CAP. SMD 1206	Johanson Dielectrics	100r18x335KV4E
C36	1nF 10% Hi-Q/Low ESR	Passive Plus, Inc	0505x102KW500
C37	10uF 10%TAMCERAM HIGH CAP. SMD 805	Johanson Dielectrics	100r15x106kv4e
L11,L12	0805 1kohms HiSpeed EMI Filter Beads,Chokes & Arrays	Murata Electronics North America	81-BLM21BD102SH1D
R18,R19,R20	10K 1/4W 0805 SMD	Rohm Semiconductor	MCR10EZHJ103
R21	56K 1/4W 0805 SMD	Rohm Semiconductor	MCR10EZFJ563
R22	4.7K 1/4W 0805 SMD	Rohm Semiconductor	MCR10EZFJ4701
R23	3.3K OHM AXIAL 1/2 W 5%	DIGI-KEY	PPC33W-1CT-ND
U1	IC REG LDO ADJ 50mA 8-MSOP	Linear Technology	LT3010EMS8#PBF
U2	IC OP AMP R-R I/O SOT23-5	National Semiconductor	LM7321MF/NOPB
Z1	8.2V zener diode	Mouser	78-1N5237B