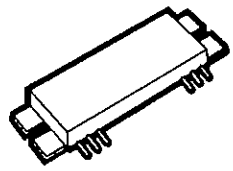
MX20-1
MX20-2

The RF Line
UHF Power Amplifiers

... designed for wide power range control as encountered in UHF cellular radio applications.

- MX20-1 400–440 MHz
  MX20-2 440–470 MHz
- Specified 12.5 V, UHF Characteristics —
  Output Power — 20 W
  Minimum Gain — 21 dB
  Harmonics — −40 dBc Max
- 50 Ohm Input/Output Impedances
- Guaranteed Stability and Ruggedness

20 WATTS
400–470 MHz
RF POWER AMPLIFIERS



CASE 830-01, STYLE 1
(MVM)

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
DC Supply Voltages	V_{CC1},V_{CC2}	15.6	Vdc
Operating Case Temperature Range	T_C	−30 to +100	°C
Storage Temperature Range	T_{stg}	−40 to +100	°C

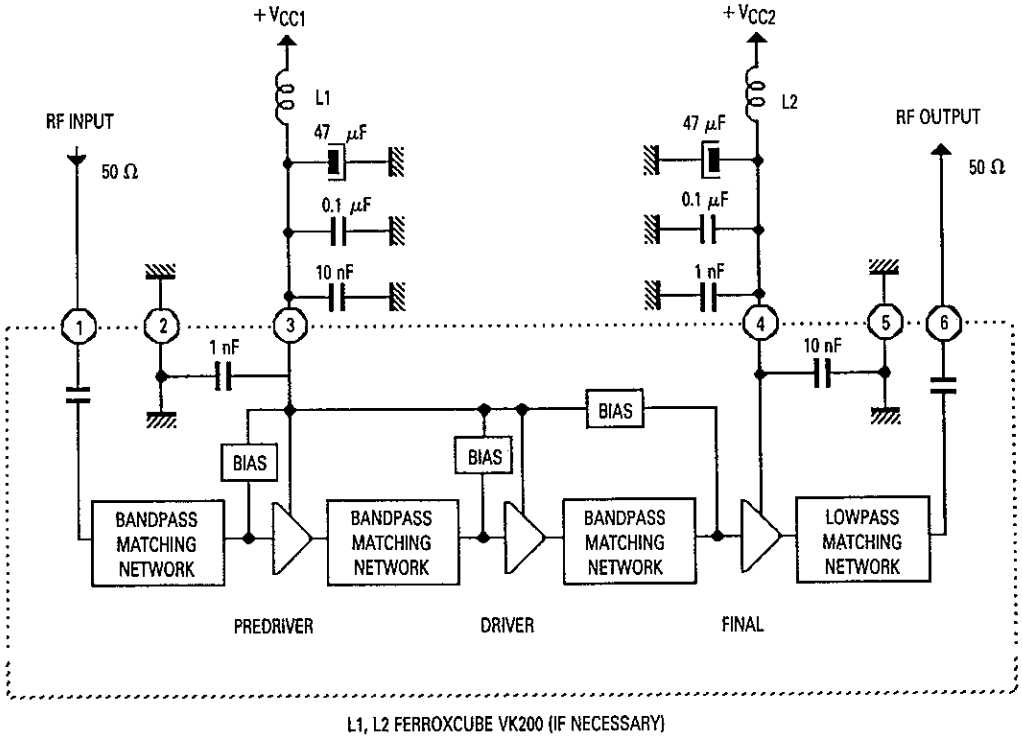
THERMAL CHARACTERISTICS

Characteristic	Symbol	Typ	Unit
Thermal Resistance, Junction to Flange	$R_{\theta JF}$	4	°C/W

ELECTRICAL CHARACTERISTICS (V_{CC1} and V_{CC2} set at 12.5 Vdc, T_A = 25°C, 50 Ω system unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
Frequency Range MX20-1 MX20-2	—	400 440	— —	440 470	MHz
Input Power (P_o = 20 W)	P_{in}	—	—	150	mW
Power Gain (P_o = 20 W)	G_P	21	—	—	dB
Efficiency (P_o = 20 W)	η	35	40	—	%
Harmonics (P_o = 20 W, Reference)	—	—	—	−40	dBc
Input Return Loss	Γ_{IN}	10	—	—	dB
Power Derating (P_o = 20 W, T_C = 25°C Ref.) −30°C to +70°C	—	—	—	1	dB
Load Mismatch (V_{CC} = 15.6 V, P_o ≤ 30 W, P_{in} ≤ 200 mW, Load VSWR 20:1, All Phase Angles)	ψ	No change in P_{out} Before and After Test			
Stability (P_{in} — 0 to 200 mW; Load Mismatch 4:1; V_{CC2} = 0 to 15.6 Vdc; V_{CC1} adjusted to keep P_o ≤ 20 W)	—	All spurious outputs more than 70 dB below desired signal			
Gain Control Range	—	30	—	—	dB

5



L1, L2 FERROXCUBE VK200 (IF NECESSARY)

Figure 1. UHF Module Test Setup

5

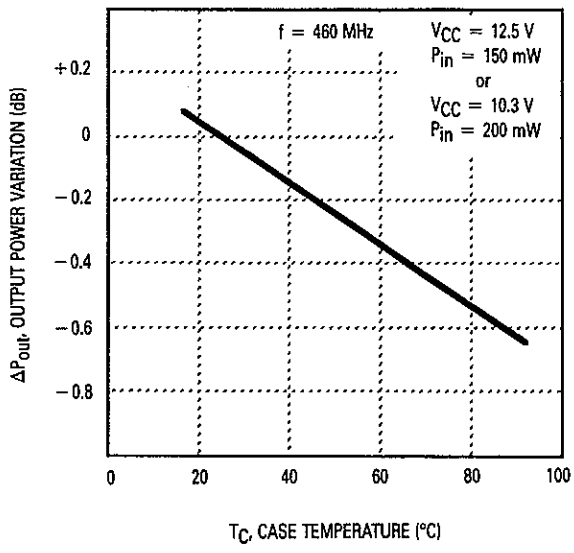


Figure 2. Output Power Variation versus Temperature

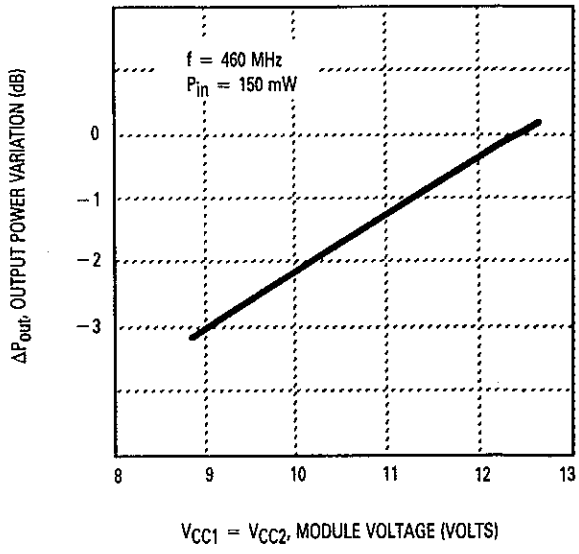


Figure 3. Output Power Variation versus Voltage

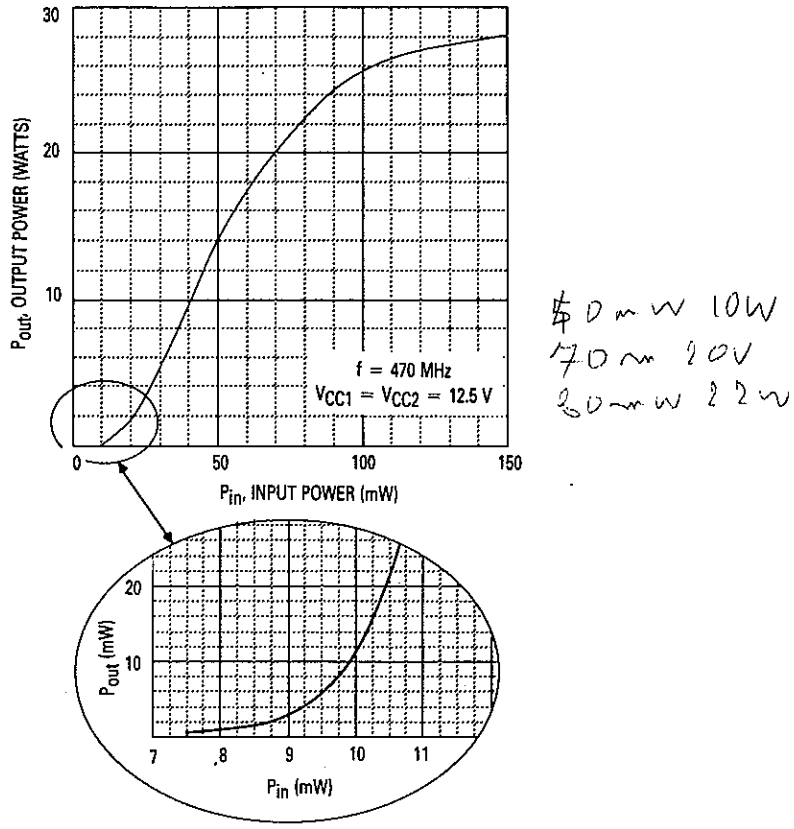


Figure 4. Output Power versus Input Power

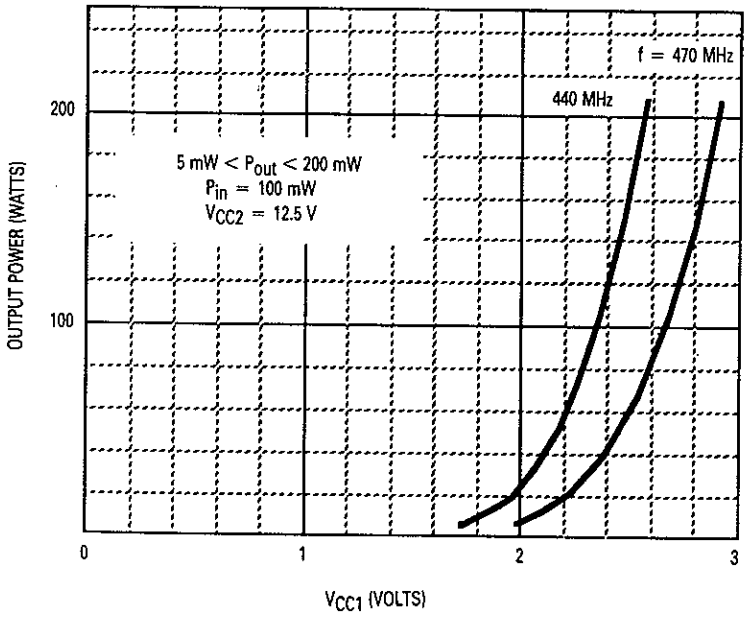


Figure 5. Output Power versus Control Voltage