

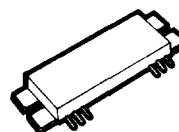
The RF Line UHF Power Amplifiers

... 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*

MX20-1
MX20-2

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, $T_A = 25^\circ\text{C}$, 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, $T_C = 25^\circ\text{C}$ Ref.) –30°C to +70°C	—	—	—	1	dB
Load Mismatch ($V_{CC} = 15.6$ V, $P_O \leq 30$ W, $P_{in} \leq 200$ 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 $P_O \leq 20$ W)	—	All spurious outputs more than 70 dB below desired signal			
Gain Control Range	—	30	—	—	dB

MX20-1, MX20-2

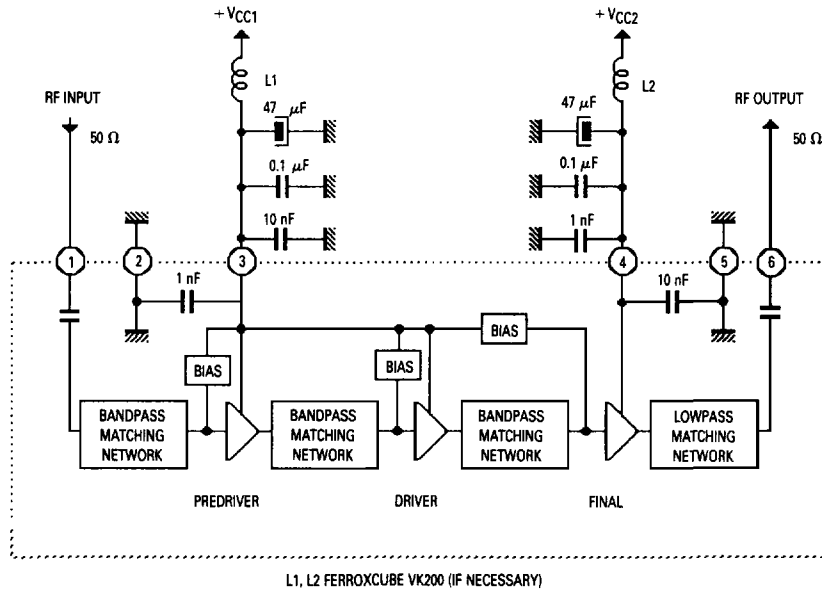


Figure 1. UHF Module Test Setup

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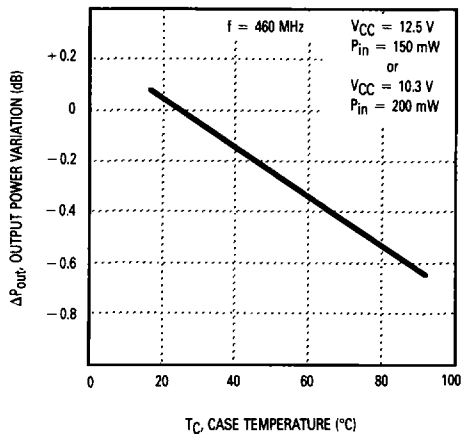


Figure 2. Output Power Variation versus Temperature

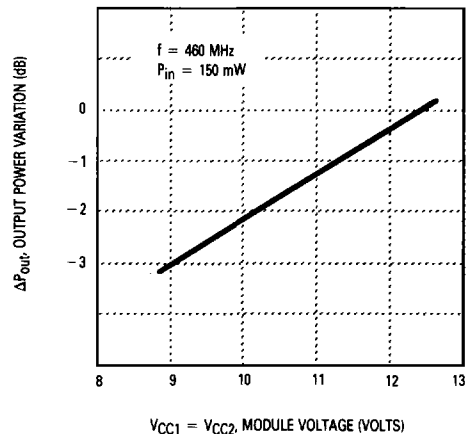


Figure 3. Output Power Variation versus Voltage

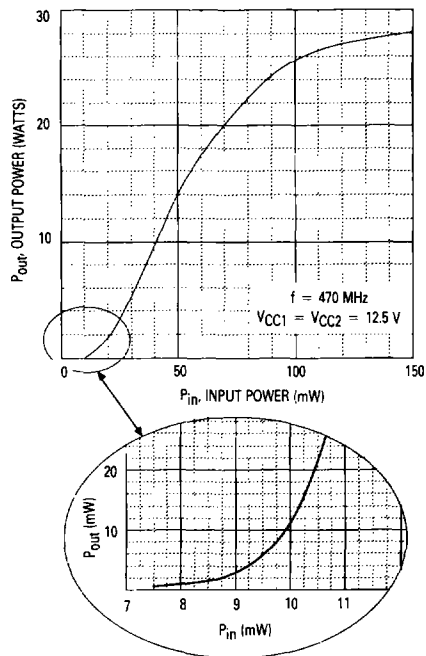


Figure 4. Output Power versus Input Power

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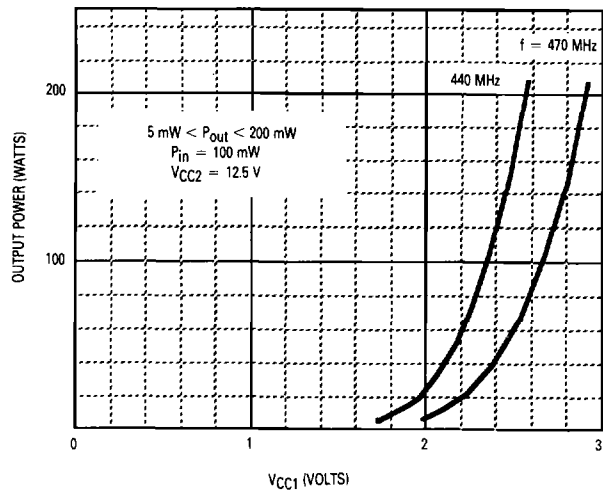


Figure 5. Output Power versus Control Voltage