TRW SEMICONDUCTORS

MX 7.5
MX 12
MX 15

RF Power Modules

TRW's MX modules are rugged power amplifier functions designed for 12 volt broadband UHF applications. The modules feature 50 Ω input and output impedances, broadband gain, and can withstand infinite VSWR at 14 volts. They are stable under all operating conditions and provide excellent harmonic rejection. Using simple and inexpensive external circuitry, the modules also feature gain control capability, providing insensitivity to severe overdrive, surge voltages, and excessive currents induced by high VSWR levels.

Compared to discrete components, these modules offer significant savings in size as well as in design, production, and repair costs.

POWER OUTPUT
16 W ∞ VSWR

MXM

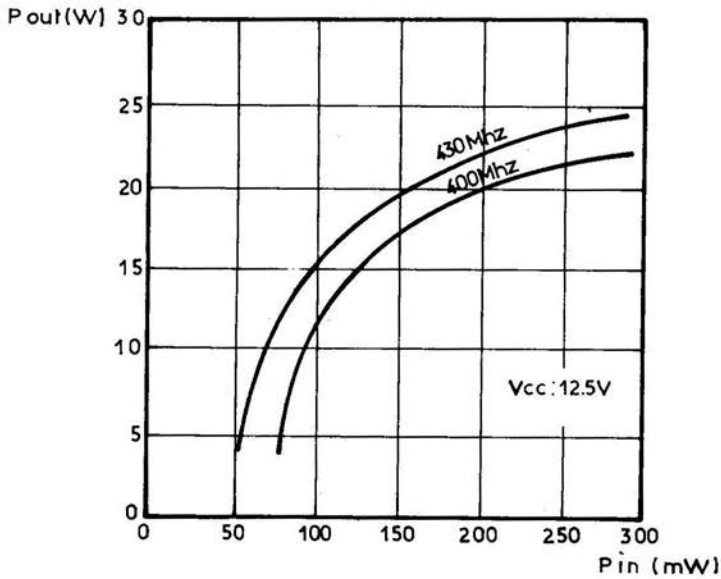
Electrical Characteristics (T_{flange} = 25 °C)

Characteristics	Test Conditions	MX 7.5	MX 12	MX 15	Unit
Frequency Ranges	-1 -3 -4	400-430 430-470 470-512	400-430 430-470 470-512	400-430 430-470 —	MHz
Supply Voltage		12.5	12.5	12.5	Vdc nominal
Power Gain	$P_{in} \leqslant$ 125 mW $P_{in} \leqslant$ 150 mW $P_{in} \leqslant$ 200 mW	7.5	12	15	W
Efficiency	Rated P_0	33	35	35	% min.
Harmonic Content	Rated P_0	— 30	— 30	— 30	dB min.
Load VSWR	14 V, 10 W, low frequency 14 V, 14 W, low frequency 14 V, 16 W, low frequency	∞ : 1	∞ : 1	∞ : 1	
Power Derating	— 30 °C to + 70 °C	2	2	2	dB max.
Stability	Any frequency	0-16 0-200 10	0-16 0-250 14	0-16 0-300 16	Vdc mW W max.
Input Impedance Return Loss		50 — 10	50 — 10	50 — 10	Ω nominal dB max.
Output Impedance		50	50	50	Ω nominal
φ JF		4	4	4	°C/W Typical
Operating Mode		C	C	C	Class
Temperature Range	Operating	— 30 + 100	— 30 + 100	— 30 + 100	°C min. °C max.
Gain Control Range	Operating	10	10	10	dB min.

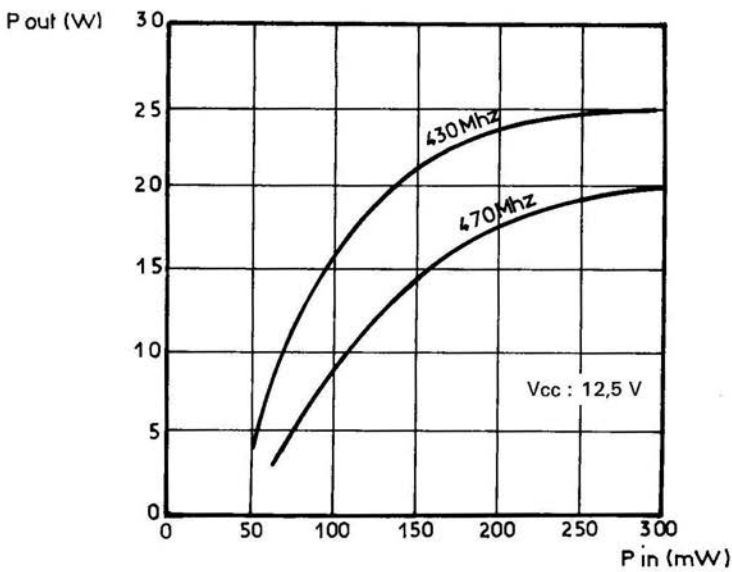
TYPICAL CHARACTERISTICS

Output Power vs Input Power

MX 15-1

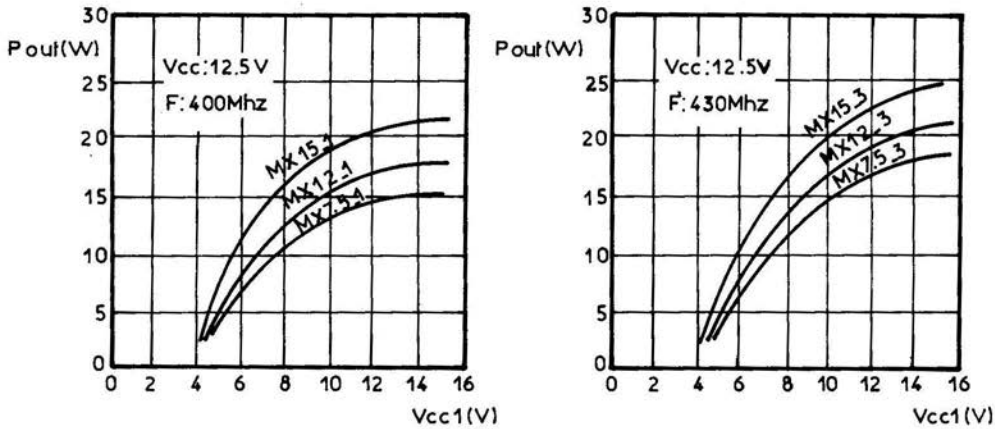


MX 15-3

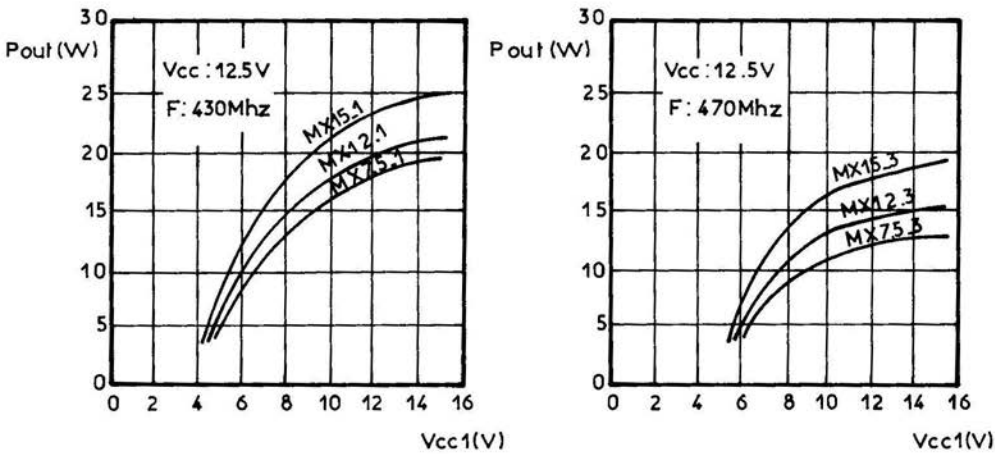


TYPICAL CHARACTERISTICS

Output Power vs Gain voltage



Output Power vs Gain voltage

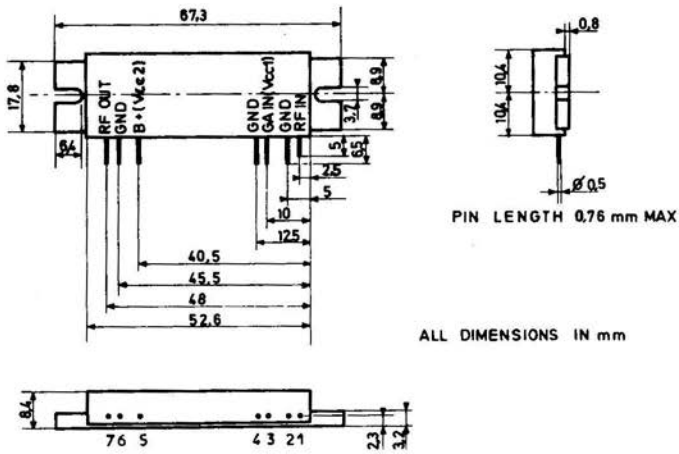


Pin = 200 mW (**MX 15**)
Pin = 150 mW (**MX 12**)
Pin = 125 mW (**MX 7.5**)

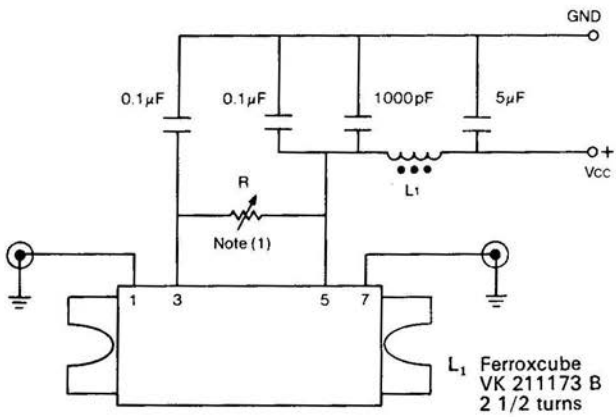
Absolute Maximum Rating (T_{flange} = 25 °C)

Characteristics	MX 7.5	MX 12	MX 15
Power Output	10 W	14 W	16 W
Power Input	200 mW	250 mW	300 mW
Supply Voltage	16 V	16 V	16 V
Total Current	3 A	4 A	4.5 A
Storage Temperature	—30° C to + 100 °C	—30 °C to + 100 °C	—30 °C to + 100 °C

MX MODULES PACKAGES



APPLICATION OF TRW AMPLIFIER MODULES



L_1 Ferroxcube
VK 211173 B
2 1/2 turns

Notes

1. Adjust R for rated P_0 at V_{CC} = 12.5 V R value will be 0-100 ohms. P_{in} should be set at rated value.
2. When adjusted as in Note 1, the MX series can be operated at up to 16 volts when the output is terminated in a nominal load of 50 ohms (3 : 1 max. VSWR) or up to 14 volts when the output is terminated in an " infinite " VSWR, any phase angle.