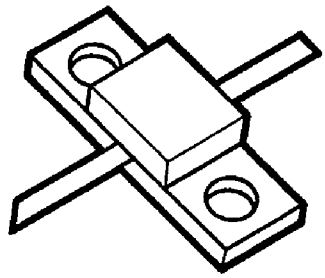
MICROAMP® P-Band Class C Power Transistors

- 3 to 40 Watts
- Broadband 600-1000 MHz
- Internally Compensated*
- Gold Metalized
- Diffused Ballast Resistors
- MTTF Data
- Common Base



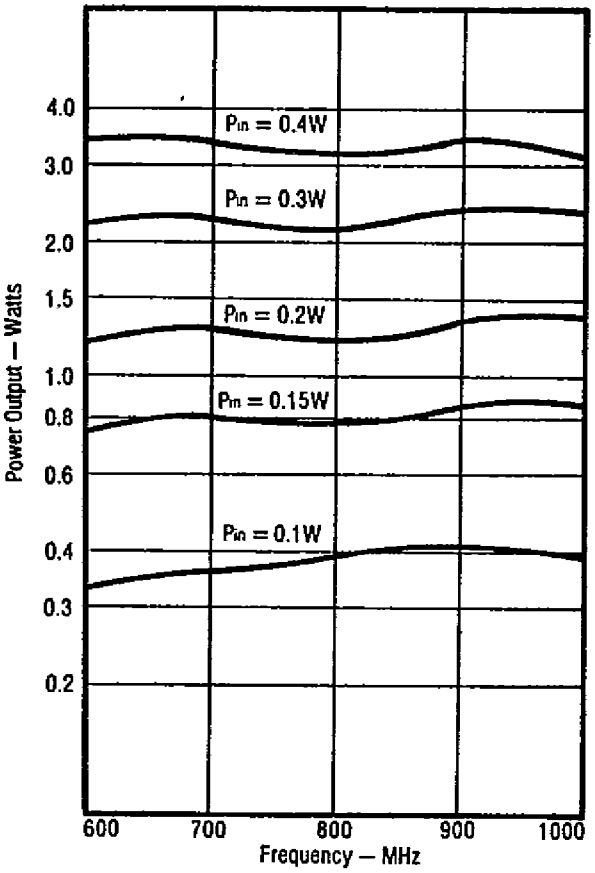
MRA .25

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

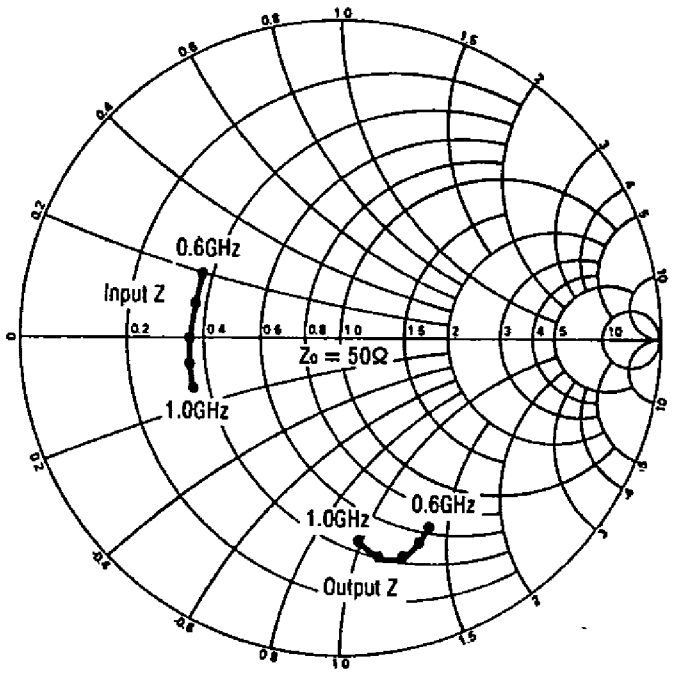
Symbol	Characteristic	MRA0610-3	MRA0610-9	MRA0610-18A	MRA0610-40A
BV_{CES}	Collector-Base Breakdown Voltage	I_C = 20 mA 50 V Min	I_C = 60 mA 50 V Min	I_C = 100 mA 50 V Min	I_C = 200 mA 50 V Min
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = 0.25 mA 3.5 V Min	I_B = 0.75 mA 3.5 V Min	I_B = 1.25 mA 3.5 V Min	I_E = 2.5 mA 3.5 V Min
I_{CBO}	Collector Cutoff Current I_E = 0	V_{CB} = 28 V 0.5 mA	V_{CB} = 28 V 1.5 mA	V_{CB} = 28 V 2.5 mA	V_{CB} = 28 V 5.0 mA
I_C	Max Continuous Collector Current V_{CE} = 4 V	0.5 A	1.5 A	2.5A	5A
h_{FE}	Forward Current Transfer Ratio V_{CE} = 5 V	I_C = 0.1 A 10-100	I_C = 0.3 A 10-100	I_C = 0.5 A 10-100	I_C = 1.0 A 10-100
θ_{jF}	Thermal Resistance Junction to Flange (at rated RF output)	15 °C/W	6 °C/W	4 °C/W	2.5 °C.W
P_o	Min Broadband Power Output	3.0 W	9.0 W	18.0 W	40.0 W
C_{ob}	Max Collector-Base Capacitance V_{CB} = 28 V, f = 1 MHz	4.5 pF	10 pF	14 pF	28 pF
$P_{G(dB)}$	Min Power Gain in dB V_{CB} = 28 V	P_o = 3.0 W 7.8 dB	P_o = 9.0 W 7.8 dB	P_o = 18.0 W 7.8 dB	P_o = 40.0 W 7.0 dB
η_c	Min Broadband Collector Efficiency	P_o = 3.0 W 50 %	P_o = 9.0 W 55 %	P_o = 18.0 W 50 %	P_o = 40.0 W 50 %
T_J	-65 to +200°C				
T_{STG}	-65 to +150°C				

* The concept of input and/or output matching using MOS capacitors, wire bonds and other techniques is patented by TRW, inc. (US # 3,713,006).

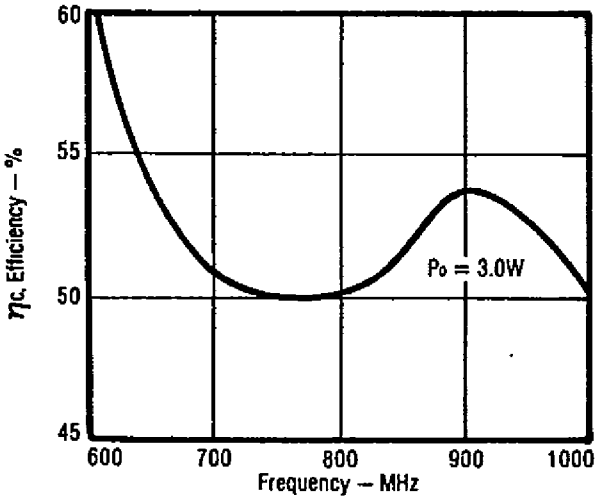
Typical Power Output vs Frequency



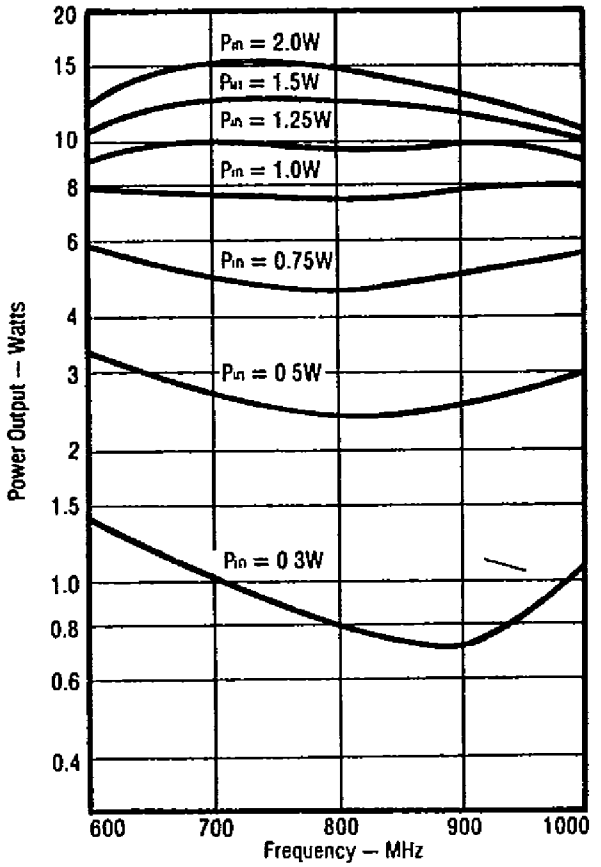
Impedance Data
Vcc = 28V



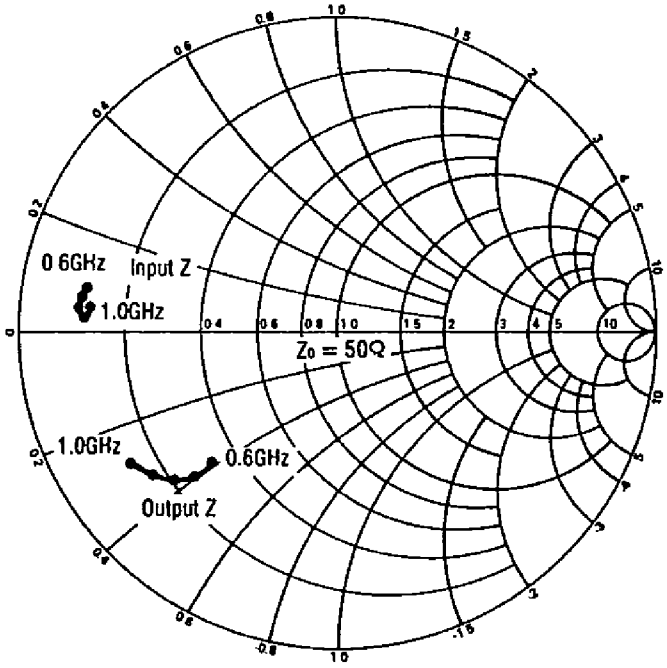
Typical Efficiency vs Frequency



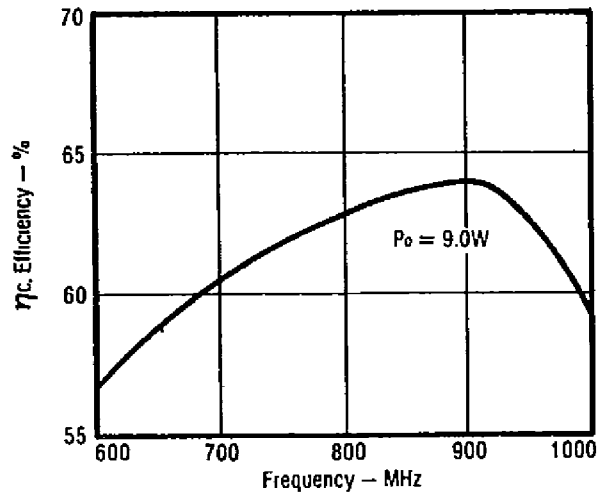
Typical Power Output vs Frequency



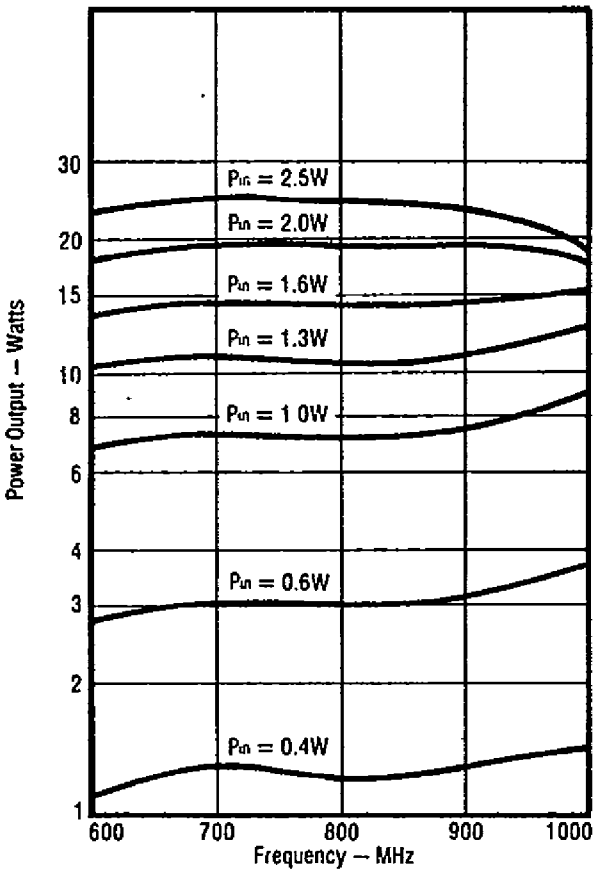
Impedance Data
Vcc = 28V



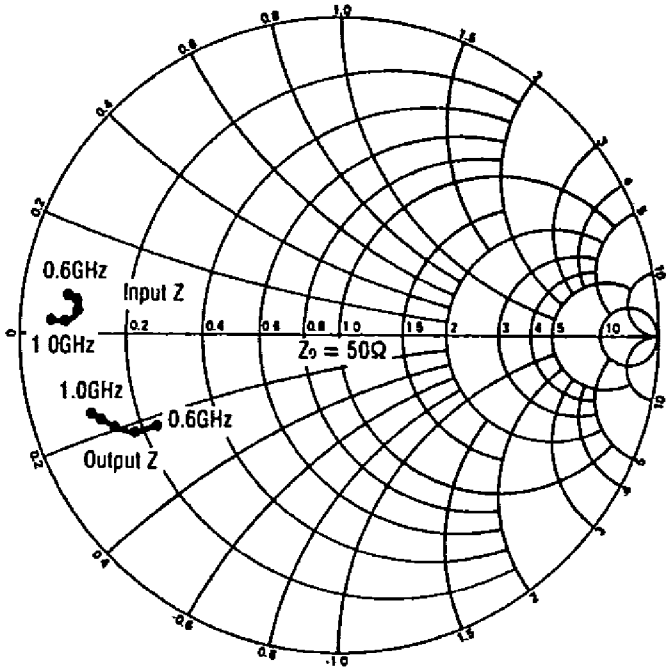
Typical Efficiency vs Frequency



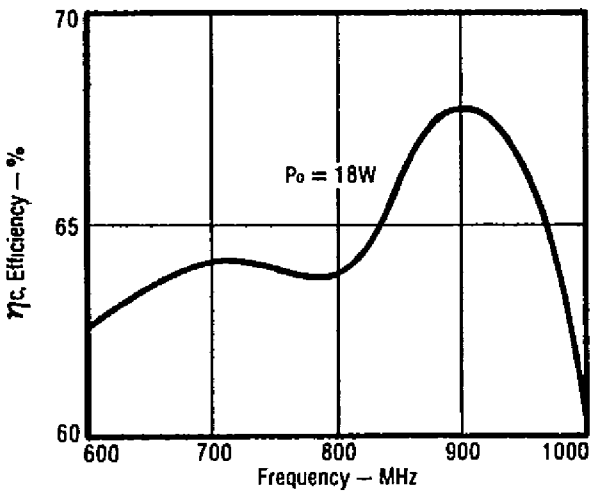
Typical Power Output vs Frequency



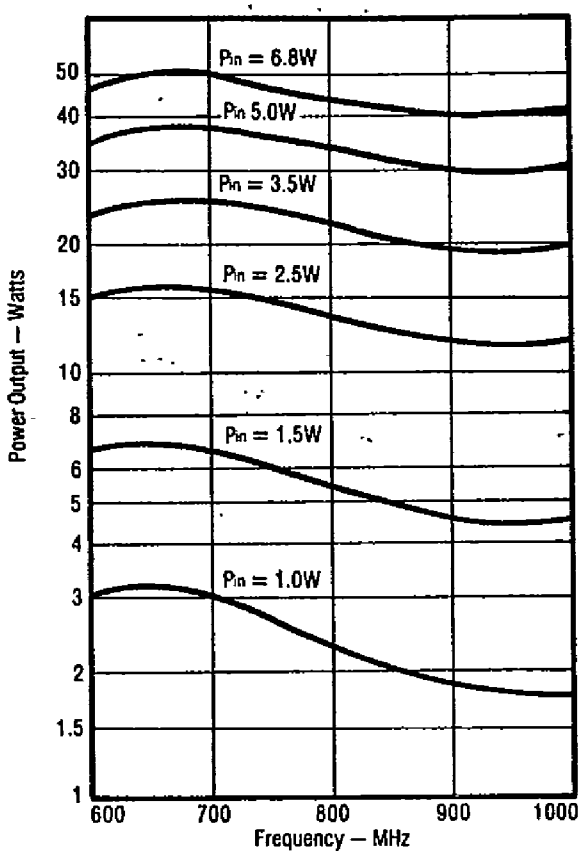
Impedance Data
Vcc = 28V



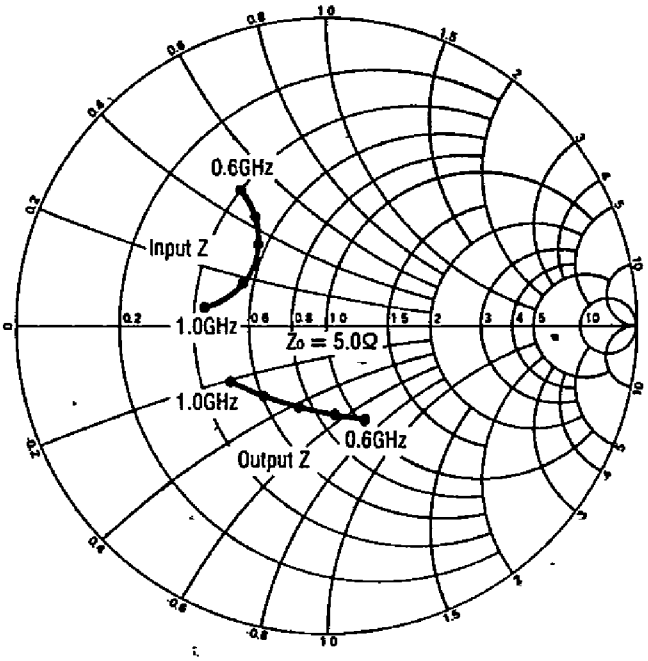
Typical Efficiency vs Frequency



Typical Power Output vs Frequency

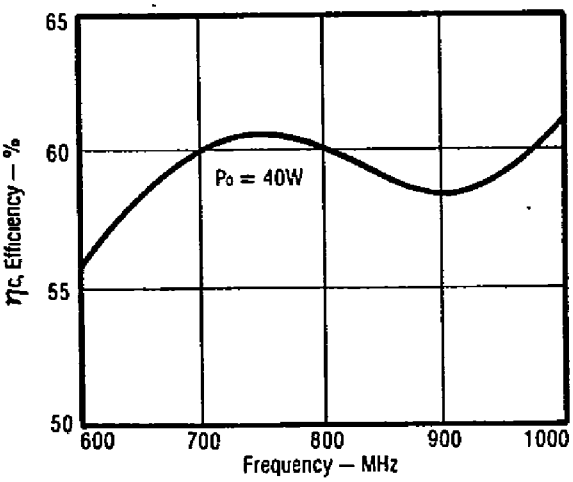


Impedance Data
Vcc = 28V
(5Ω Center)



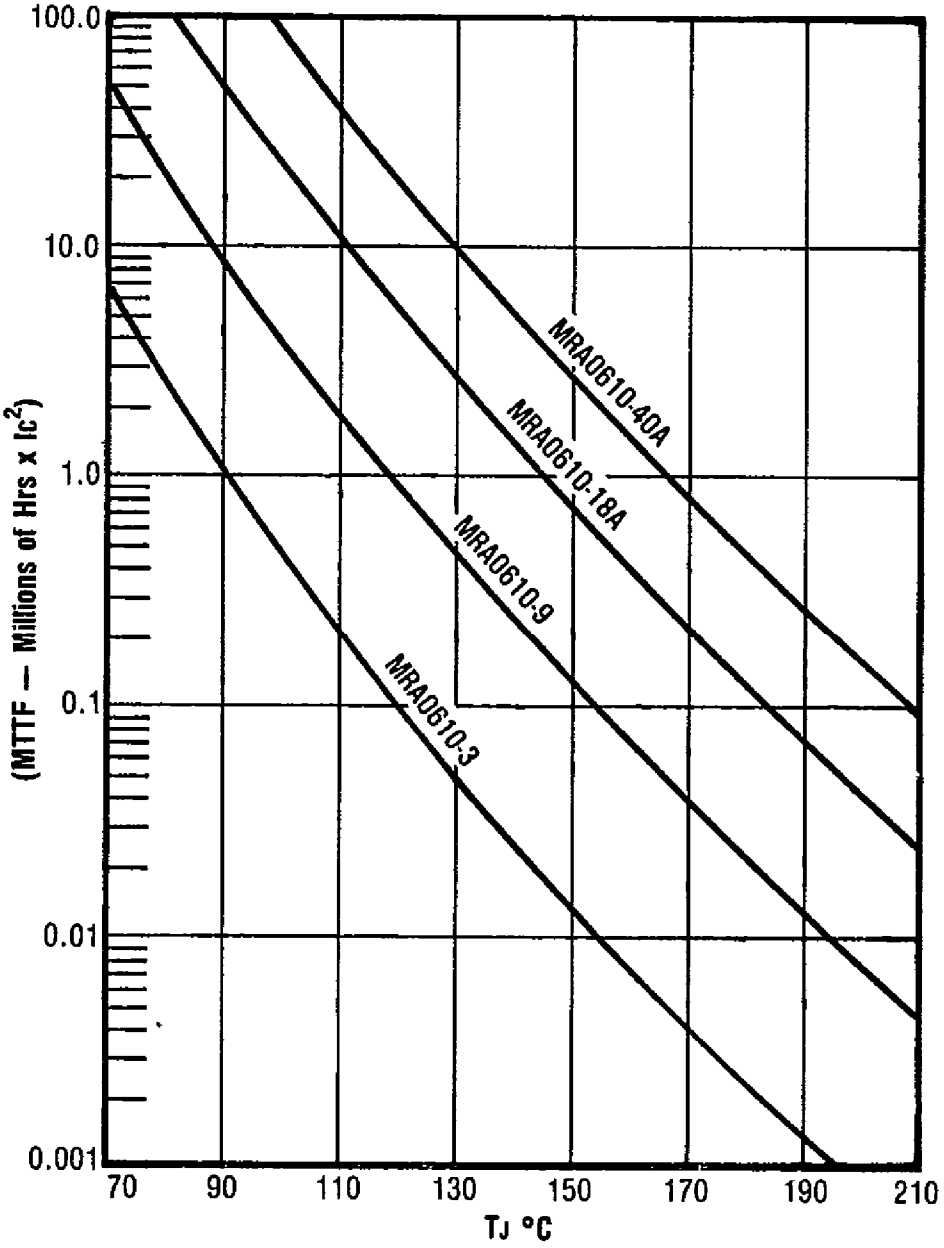
Test Circuit Details available from TRW Semiconductors.

Typical Efficiency vs Frequency

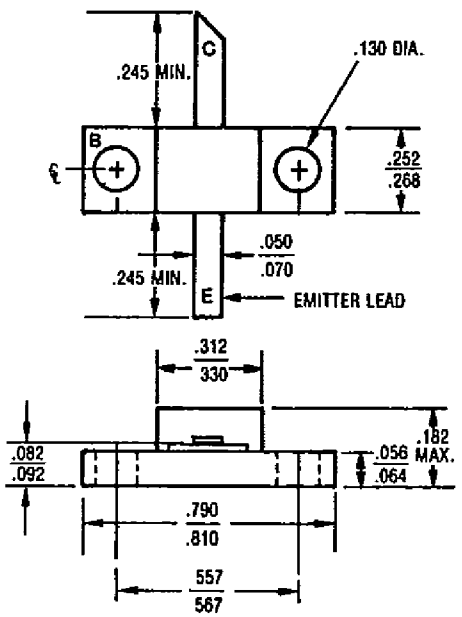


MTTF FACTOR vs T_J

(Divide by I_C^2 to obtain metal lifetime in hours.)

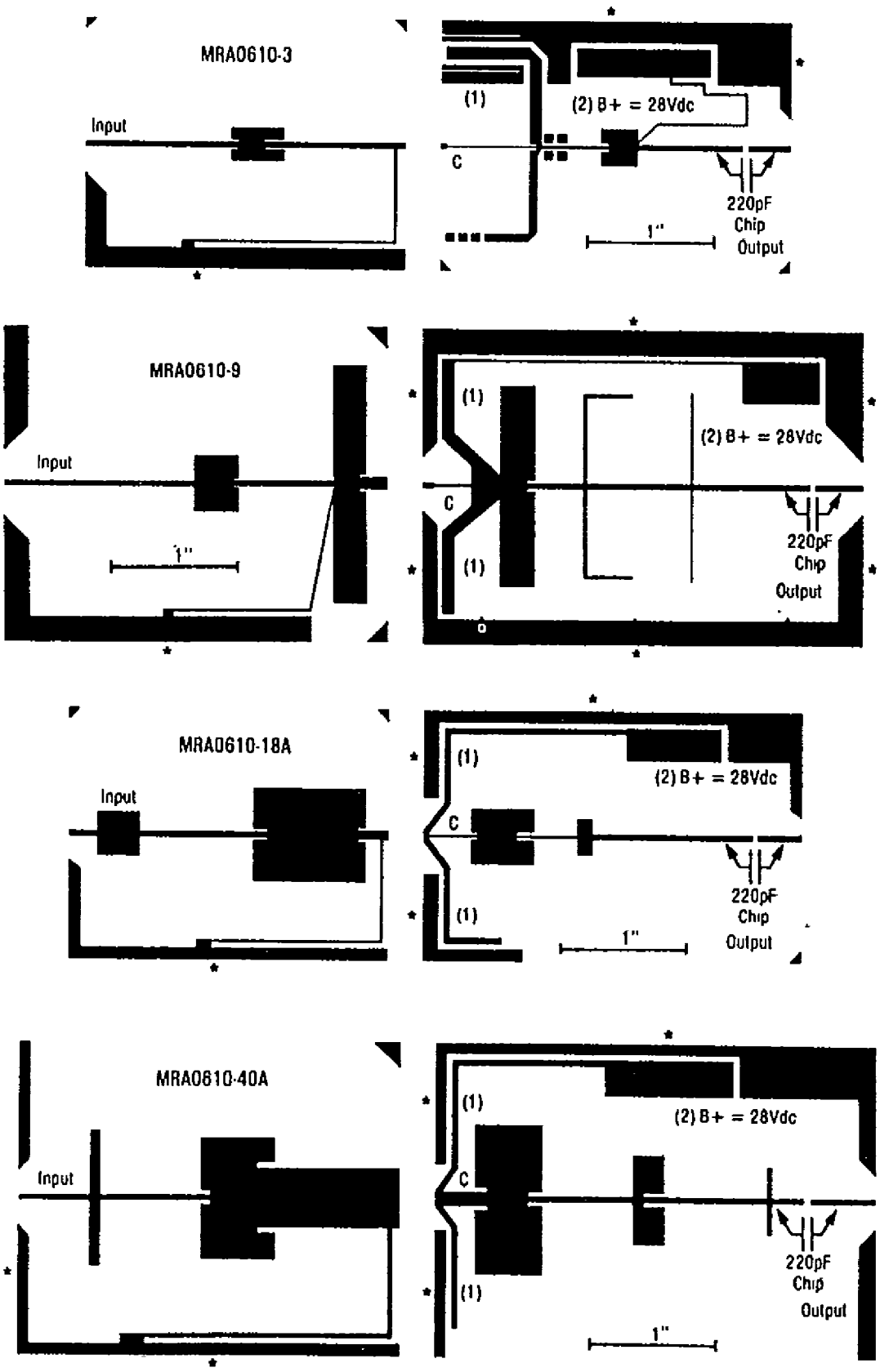


MRA .25



TEST CIRCUIT BOARDS FOR MRA0610 SERIES

NOTE: Scale is not 1:1.



*Foil wrap or plate around to ground plane. Board material 0.020 inch glass teflon $\epsilon_r = 2.55$.

(1) Bypass capacitor to ground for shunt inductor (220pF chip).

(2) Use B+ bypass of 0.01 and 1μF capacitors at this point.