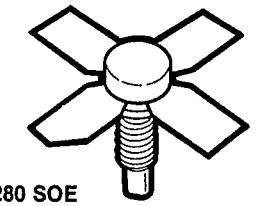
RF Devices Division
TRW Electronic Components Group

PT9700 Series

UHF Power Transistors

- 1.5 to 30 Watts
- 28 Vcc
- 400 MHz
- Gold Metalized
- Diffused Ballast Resistors
- Class AB or C Operation
- Common Emitter
- Isolated Package
- ∞ VSWR



.280 SOE

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

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	PT 9701B	PT 9703B	PT 9702B	PT 9704B	UNIT
BV_{EBO}	Min. Emitter-Base Breakdown	I_E = 0.1mA, I_C = 0 I_E = 0.5mA, I_C = 0 I_E = 1mA, I_C = 0 I_E = 2mA, I_C = 0 I_E = 3mA, I_C = 0	4	4	4	4	V
BV_{CES}	Min. Collector-Emitter Breakdown	I_C = 1mA, V_{BE} = 0 I_C = 5mA, V_{BE} = 0 I_C = 10mA, V_{BE} = 0 I_C = 20mA, V_{BE} = 0 I_C = 30mA, V_{BE} = 0	60	60	60	60	V
BV_{CEO}	Min. Collector-Emitter Breakdown	I_C = 2.0mA, I_B = 0 I_C = 5mA, I_B = 0 I_C = 10mA, I_B = 0 I_C = 20mA, I_B = 0 I_C = 30mA, I_B = 0	30	30	30	30	V
I_{CBO}	Max. Collector-Base Leakage Current	V_{CB} = 30V	0.5	1.0	2.0	3.0	mA
H_{FE}	Min. D.C. Current Gain	I_C = 0.1A, V_{CE} = 5V	10-150	10-150	10-150	10-150	—
P_{GAIN}	Min. Power Gain	V_{CE} = 28V, P_{IN} = 0.12W P_{IN} = 0.62W P_{IN} = 1.5W f = 400 MHz, P_{IN} = 4W P_{IN} = 6W	5	10	20	30	W
η	Min. Collector Efficiency	V_{CE} = 28V, f = 400 MHz Rated Output Power	55	60	60	60	%
VSWR	Mismatch Tolerance	V_{CE} = 28V, f = 400 MHz 360° Rated Output Power	∞	∞	∞	∞	
P_{SAT}	Min. Saturated Power Output	V_{CE} = 28V, f = 400 MHz	6	12	24	36	W
C_{OB}	Max Collector-Base Capacitance	V_{CB} = 28V, f = 1 MHz I_E = 0	6	12	24	36	pF
I_C	Continuous Collector Current (Max. Rating)		0.75	1.25	2	5	A
Θ_{J-C}	Thermal Resistance	T_C = 25°C	17.5	8.8	4.4	2.5	°C/W
T_{STG}	Storage Temperature		−65 to +150				°C
T_J	Junction Temperature		+200° Maximum				
P_D	Power Dissipation	T_C = 25°C	10	20	40	70	W

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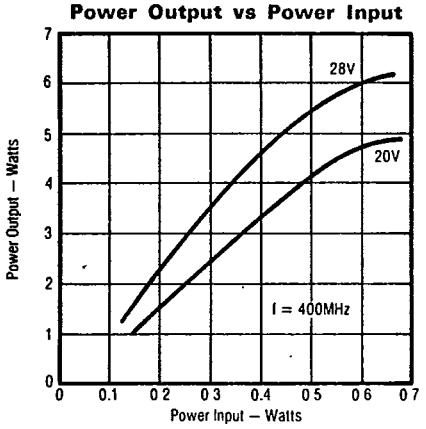
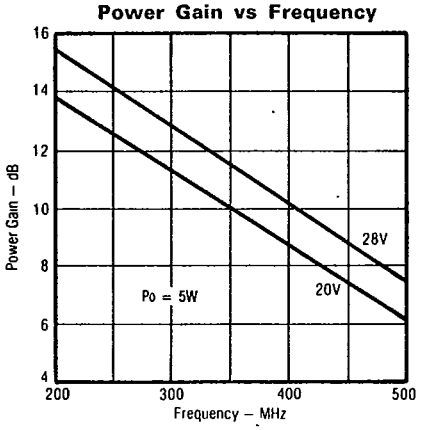
PT9701B — 5 Watts

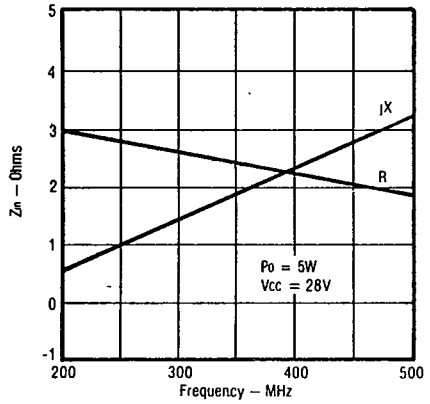
Power Output vs Power Input



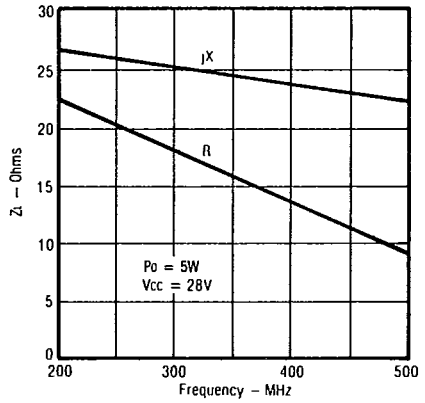
Power Gain vs Frequency



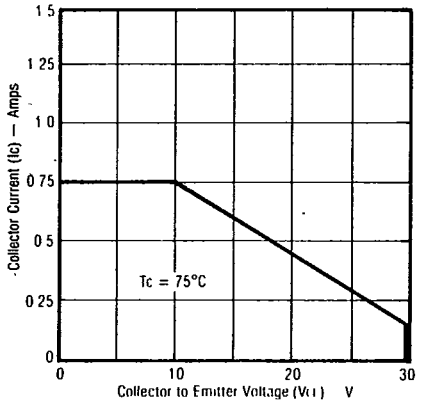
Series Input Impedance vs Frequency



Series Load Impedance vs Frequency

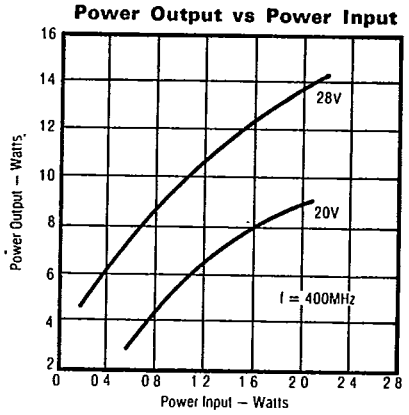


Safe Operating Area

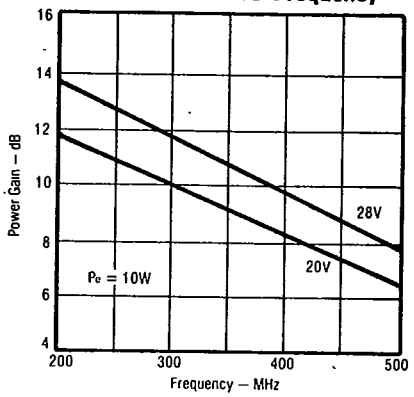


PT9703B — 10 Watts

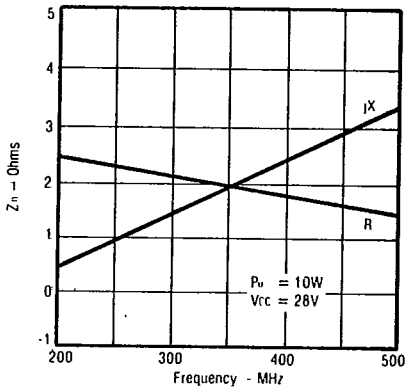
Power Output vs Power Input



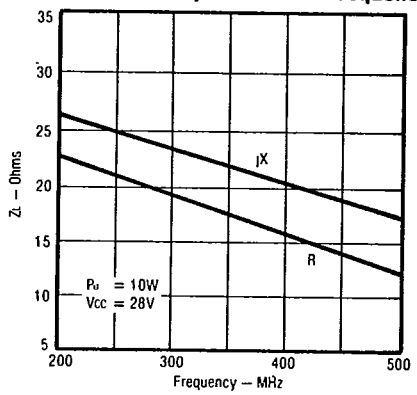
Power Gain vs Frequency



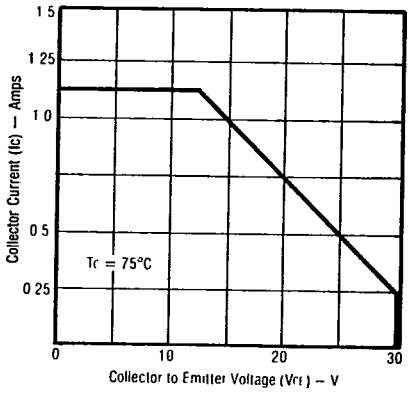
Series Input Impedance vs Frequency



Series Load Impedance vs Frequency

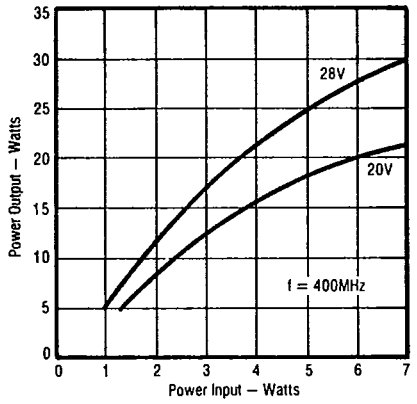


Safe Operating Area

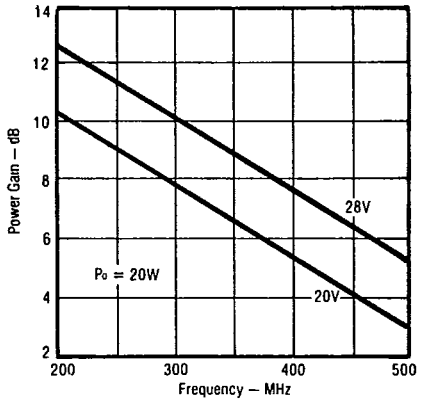


PT9702B — 20 Watts

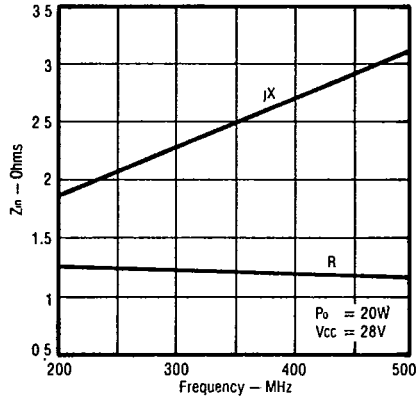
Power Output vs Power Input



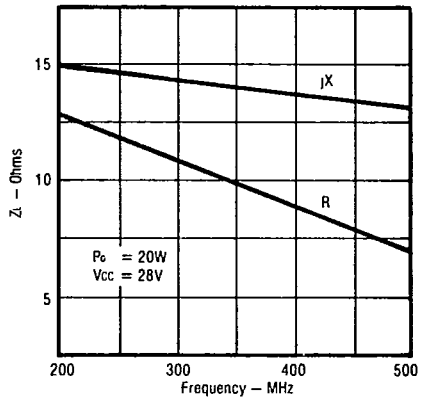
Power Gain vs Frequency



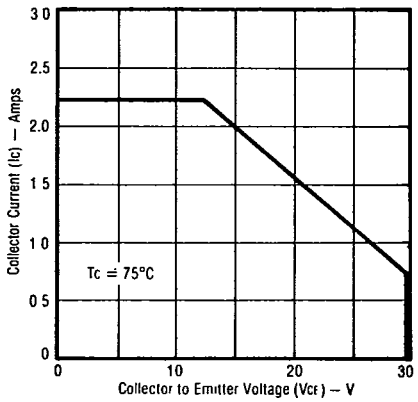
Series Input Impedance vs Frequency



Series Load Impedance vs Frequency

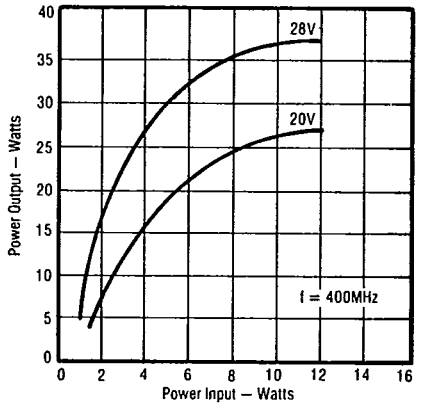


Safe Operating Area

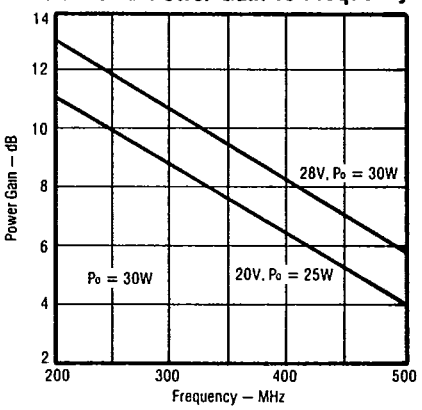


PT9704B — 30 Watts

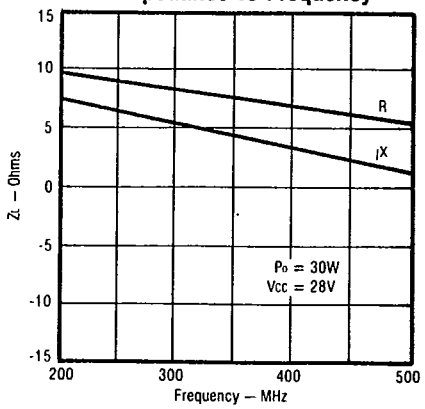
PT9704 B Power Output vs Power Input



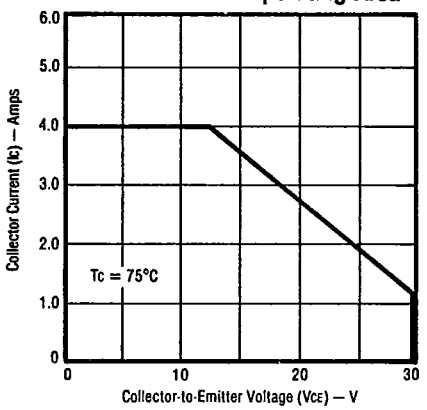
PT9704 B Power Gain vs Frequency



PT9704 B Series Load Impedance vs Frequency



PT9704B — Safe Operating Area

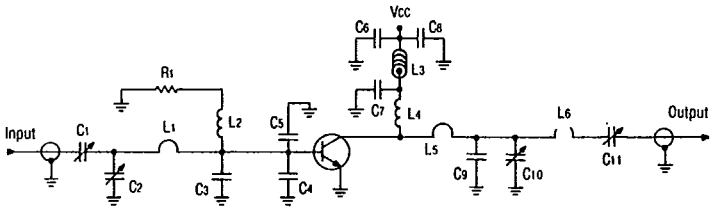


PT9701B and PT9703B, 400 MHz TEST CIRCUIT

C 3-35pF ARCO #403
C10 0.9-7pF ARCO #400
C3 9 10pF UNELCO
C4 5 30pF UNELCO
C6 7 1000pF UNELCO
C8 100μF electrolytic
C11 0-18pF ARCO #402

L1 #22AWG, 1/2"
L2 4 turns #22AWG, 0.1" I.D.
L3 3 Ferrite beads
L4 2 turns #22AWG, 0.1" I.D.
L5 #22AWG, 0.5" hairpin
L6 3 turns #22AWG, 0.1" I.D.

R1 1 ohm, 1/4 watt carbon resistor



PT9702B and PT9704B, 400 MHz TEST CIRCUIT

C1 12 1.5-20pF ARCO #402
C2 15pF UNELCO
C3 6 7 30pF UNELCO
C4 9 1000pF UNELCO
C5 100μF electrolytic
C8 35pF UNELCO
C10 13 0.9-7pF ARCO #400
C11 10pF UNELCO

L1 6 turns #22AWG, 1/8" I.D.
L2 #22AWG, 3/8" hairpin
L3 1/8" by 1/4" strap
L4 2 turns on resistor lead
L5 3 Ferrite beads
L6 7 2 turns #22AWG, 1/8" I.D.
L8 #22AWG, 0.3"

R1 1 ohm, 1/2 watt carbon resistor