



1920A20

20 Watts, 25 Volts, Class A

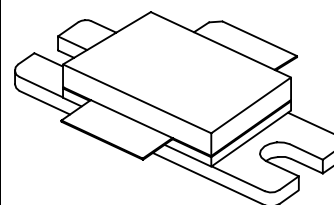
10 dB Gain

Personal 1930 – 1990 MHz

GENERAL DESCRIPTION

The 1920A20 is a COMMON EMITTER transistor capable of providing 20 watts of Class A, RF output power over the band 1930-1990 MHz. This transistor is specifically designed for **PERSONAL COMMUNICATIONS BASE STATION LINEAR** amplifier applications. It includes input prematching and utilizes Gold metalization and HIGH VALUE EMITTER ballasting to provide high reliability and supreme ruggedness.

CASE OUTLINE 55SW Style 2 COMMON EMITTER



ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation @ 25°C	190 Watts
Maximum Voltage and Current	
Collector to Emitter Voltage (BV_{CES})	55 V
Collector to Emitter Voltage (LV_{CEO})	27 V
Emitter to Base Voltage (BV_{EBO})	3.5 V
Collector Current (I_c)	14.0 Amps
Maximum Temperatures	
Storage Temperature	-65 to +150 °C
Operating Junction Temperature	+200 °C

ELECTRICAL CHARACTERISTICS @ 25°C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
P_{out}	Power Out	$F = 1930 - 1990 \text{ MHz}$	20			W
P_{in}	Power Input	$V_{CE} = 25 \text{ Volts}$			2.2	W
P_g	Power Gain	$I_{cq} = 3.0 \text{ Amps}$	9.5	10		dB
IMD3	Intermodulation Distortion	$P_{ave} = +37 \text{ dBm}$			-38	dBc
η_c	Collector Efficiency	At P1dB		30		%
VSWR ₁	Load Mismatch Tolerance				3:1	

FUNCTIONAL CHARACTERISTICS @ 25°C

BV_{CES}	Collector to Emitter Breakdown	$I_e = 50 \text{ mA}$	55			V
LV_{CEO}	Collector to Emitter Breakdown	$I_c = 50 \text{ mA}$	25			V
BV_{EBO}	Emitter to Base Breakdown	$I_e = 20 \text{ mA}$	3.5			V
I_{CES}	Collector Leakage Current	$V_{ce} = 27 \text{ V}$			20	mA
h_{FE}	DC – Current Gain	$V_{ce} = 5 \text{ V}, I_c = 1 \text{ A},$	30		100	
θ_{jc}	Thermal Resistance	$T_c = 25^\circ \text{C}$			0.92	°C/W

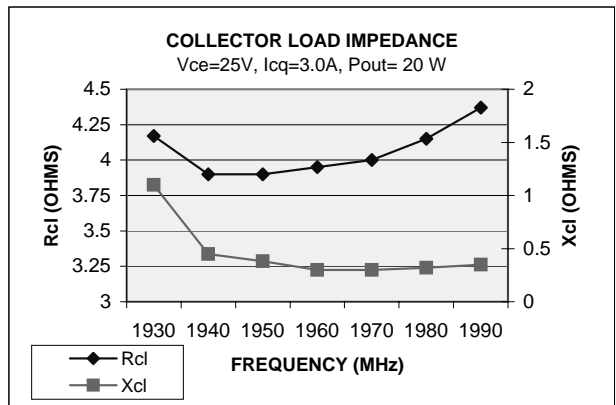
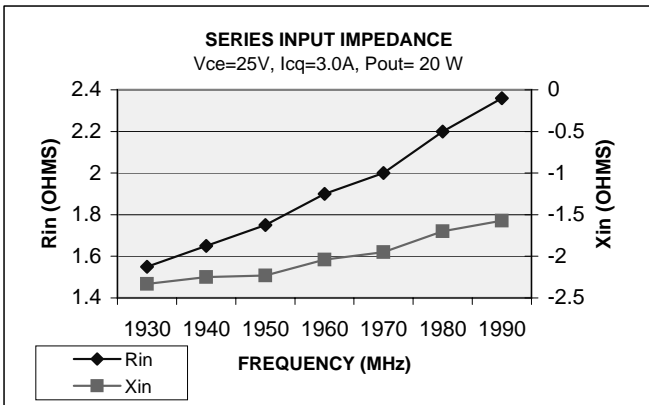
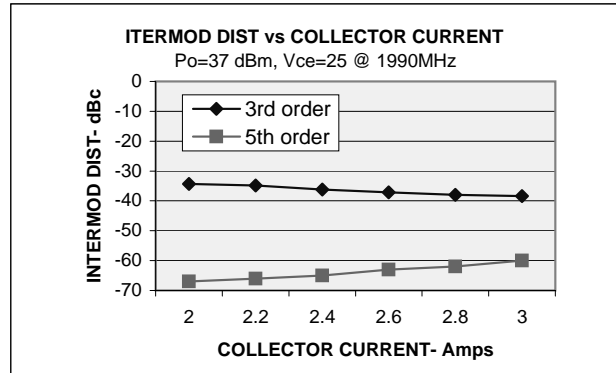
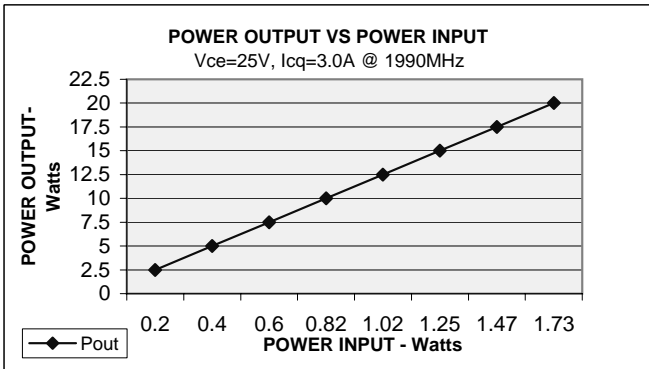
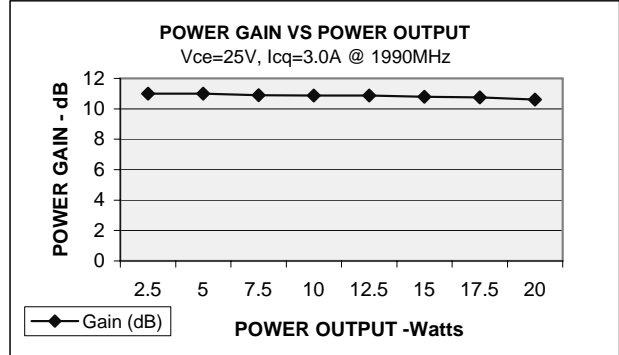
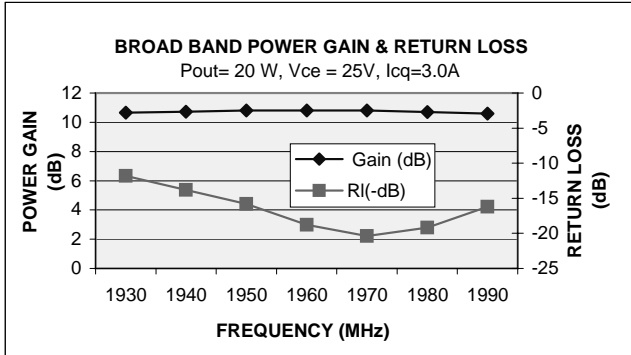
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Typical Performance

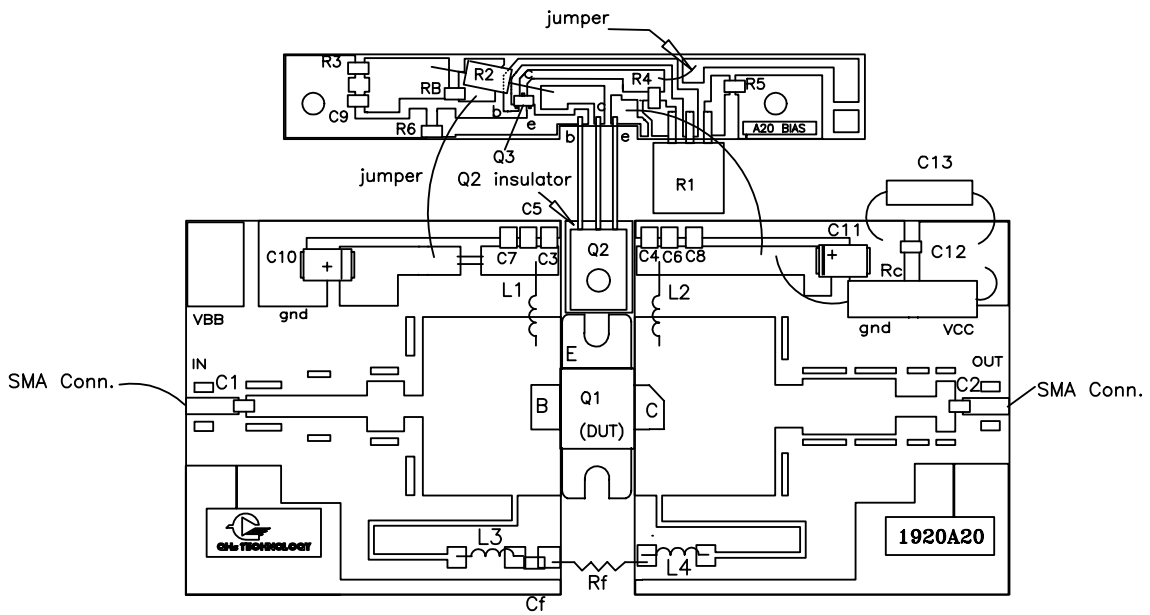
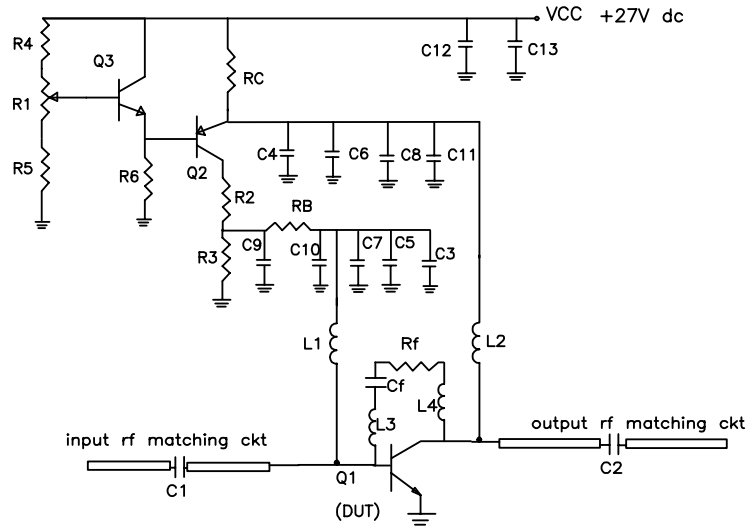
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REVISIONS

ZONE	REV	DESCRIPTION	DATE	APPROVED
TEST CIRCUIT BOM				

TEST FIXTURE
Assembly Drawing



- Q1=1920A20
- Q2=BD136, PNP
- Q3=2N2222A,NPN
- R1=1k pot.
- R2=47 OHM 2W
- R3=82 OHM 1W
- R4=360 OHM 1/4W
- R5=5.6k 1/4W
- R6=2.2K 1/2W
- RB = 4.7 OHM 1/4W

- RC = 0.6 OHM 5W
- Rf = 56 OHM 1/2w
- C1=47 pf, C2=68 pf chip, ATC
- C3,C4=10,000 pf chip, ATC
- C5,C6=11 pf chip (ATC 100 B)
- C7=10 uf, 35V electrolytic
- C8=220 uf 10V electrolytic
- C9=.068 uf
- C10=.33 uf
- C11=10 uf, 35V electrolytic

- C12,Cf =10,000 pf chip (ATC 200B)
- C13=47 uf, 35V electrolytic
- L1,L2 3T # 20 AWG .200 dia
- L3 6T, L4 3T #24 AWG 0.08 dia
- jumpers: #22 AWG
- PCB: USE 1920A20 Board Circuit



CAGE
OPJR2

DWG NO.

1920A20

SCALE

1/1

SHEET