

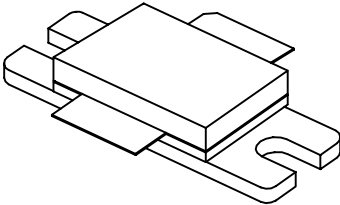


1920A20

20 Watts, 25 Volts, Class A

10 dB Gain

Personal 1930 – 1990 MHz

<p>GENERAL DESCRIPTION</p> <p>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.</p>	<p>CASE OUTLINE 55SW Style 2 COMMON EMITTER</p> 
<p>ABSOLUTE MAXIMUM RATINGS</p> <p>Maximum Power Dissipation @ 25°C 190 Watts</p> <p>Maximum Voltage and Current</p> <p>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</p> <p>Maximum Temperatures</p> <p>Storage Temperature -65 to +150 °C Operating Junction Temperature +200 °C</p>	

ELECTRICAL CHARACTERISTICS @ 25°C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
P_{out}	Power Out	F = 1930 - 1990 MHz	20			W
P_{in}	Power Input	$V_{CE} = 25$ Volts			2.2	W
P_g	Power Gain	$I_{cq} = 3.0$ Amps	9.5	10		dB
IMD3	Intermodulation Distortion	$P_{ave} = +37$ dBm			-38	dBc
η_c	Collector Efficiency	At P1dB		30		%
$VSWR_1$	Load Mismatch Tolerance				3:1	

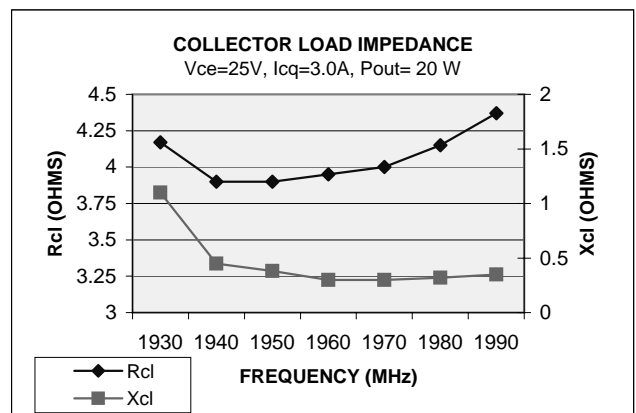
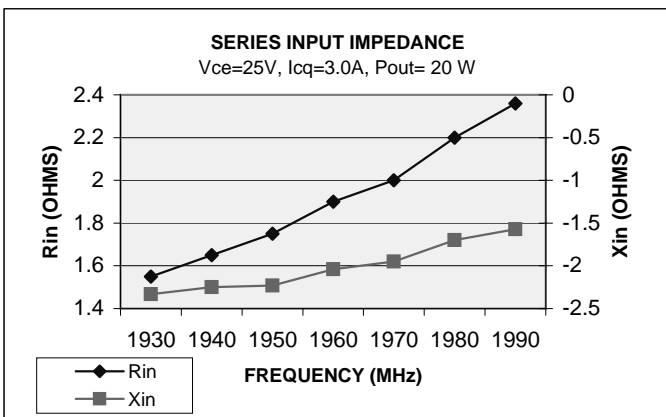
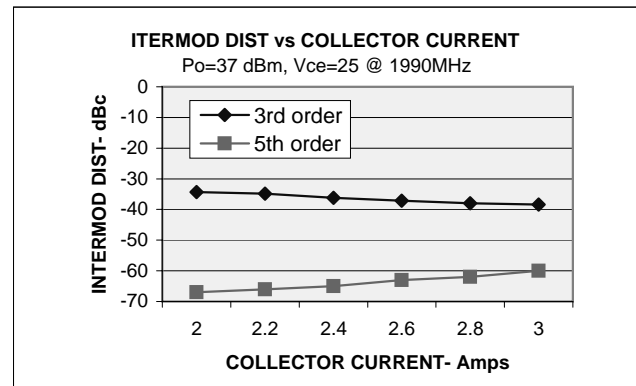
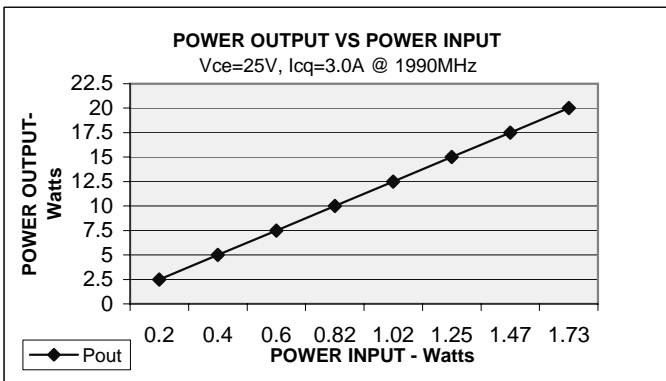
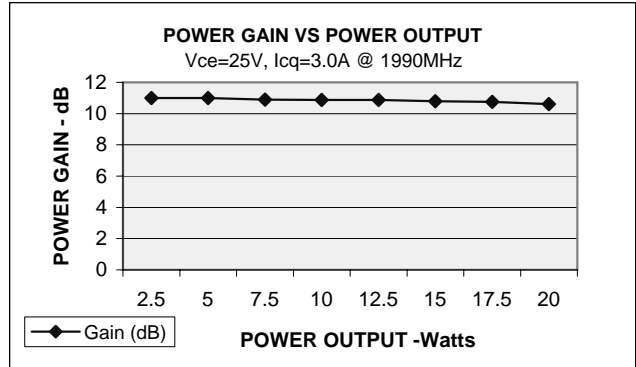
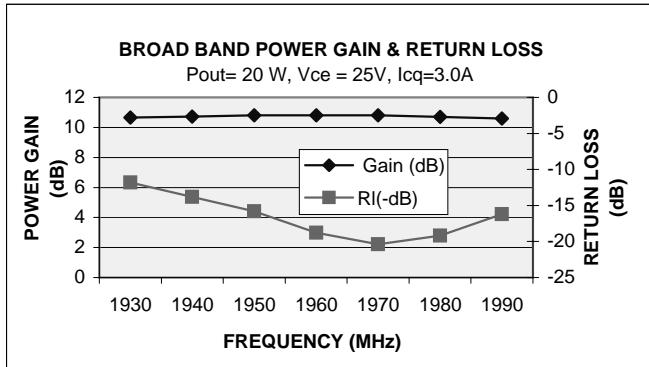
FUNCTIONAL CHARACTERISTICS @ 25°C

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

Initial Issue November 1998

Typical Performance

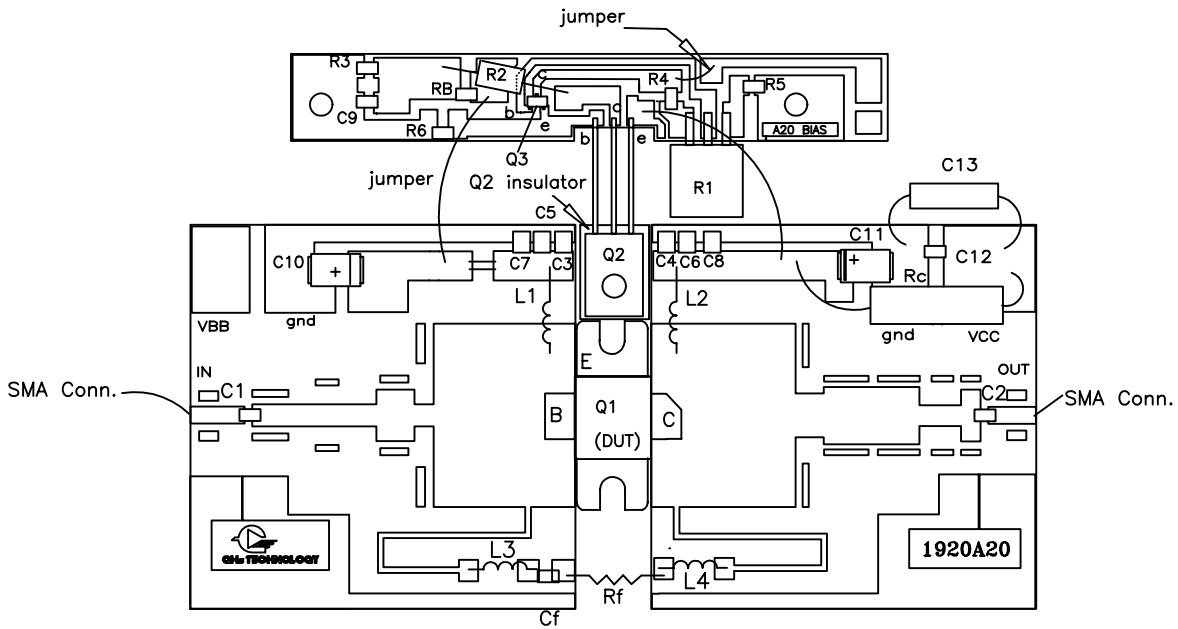
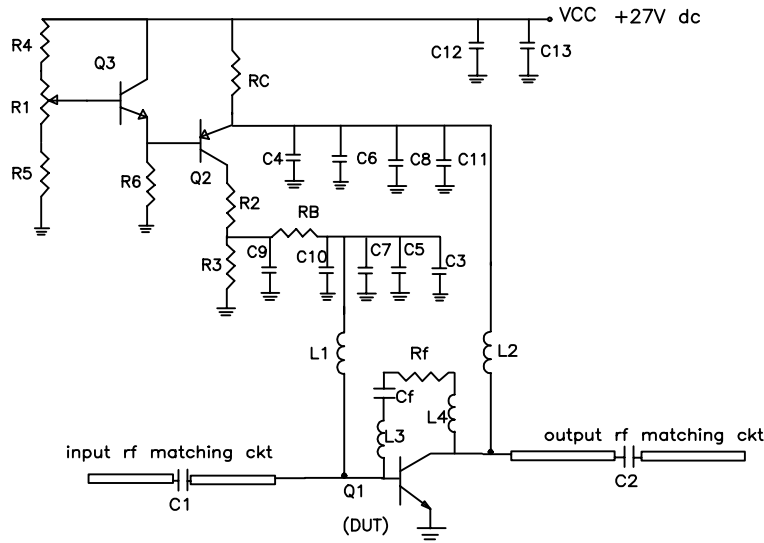
1920A20



REVISIONS

ZONE	REV	DESCRIPTION	DATE	APPROVED
TEST CIRCUIT BOM				

TEST FIXTURE
Assembly Drawing



- | | | |
|-------------------|------------------------------|------------------------------------|
| Q1=1920A20 | RC = 0.6 OHM 5W | C12,Cf = 10,000 pf chip (ATC 200B) |
| Q2=BD136, PNP | Rf = 56 OHM 1/2w | C13=47 uf, 35V electrolytic |
| Q3=2N2222A,NPN | C1=47 pf, C2=68 pf chip, ATC | L1,L2 3T # 20 AWG .200 dia |
| R1=1k pot. | C3,C4=10,000 pf chip, ATC | L3 6T, L4 3T #24 AWG 0.08 dia |
| R2=47 OHM 2W | C5,C6=11 pf chip (ATC 100 B) | jumpers: #22 AWG |
| R3=82 OHM 1W | C7=10 uf, 35V electrolytic | PCB: USE 1920A20 Board Circuit |
| R4=360 OHM 1/4W | C8=220 uf 10V electrolytic | |
| R5=5.6k 1/4W | C9=.068 uf | |
| R6=2.2K 1/2W | C10=.33 uf | |
| RB = 4.7 OHM 1/4W | C11=10 uf, 35V electrolytic | |



CAGE
OPJR2

DWG NO. **1920A20**

SCALE **1/1** SHEET