GHz TECHNOLOGY
RF·MICROWAVE SILICON POWER TRANSISTORS

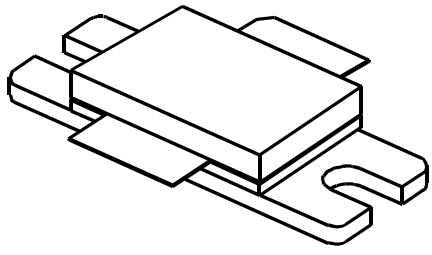
1920CD60

60 Watts PEP, 25 Volts, Class AB
CDMA Personal 1930 - 1990 MHz

GENERAL DESCRIPTION

The 1920CD60 is a COMMON EMITTER transistor capable of providing 60 Watts of Class AB, RF PEP output power over the band 1930-1990 MHz. This transistor is specifically designed for **LINEAR PERSONAL (PCS) CDMA COMMUNICATIONS BASE STATION** amplifier applications. It includes two stage input and single output prematching. It utilizes Gold metalization and EMITTER ballasting to provide high reliability and supreme ruggedness.

CASE OUTLINE
55SW, STYLE 2
COMMON EMITTER



ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation @ 25ºC		200 Watts
Maximum Voltage and Current		
BVces	Collector to Emitter Voltage	55 Volts
BVcer	Collector to Emitter Voltage	50 Volts
BVebo	Emitter to Base Voltage	3.5 Volts
Ic	Collector Current	20.0 Amps
Maximum Temperatures		
Storage Temperature		- 65 to + 150ºC
Operating Junction Temperature		+ 200ºC

ELECTRICAL CHARACTERISTICS @ 25 ^{O}C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Pout - 1 dB	Power Out - PEP	F =1930 - 1990 MHz	60			Watt
Pin	Power Input - PEP	Vce = 25 Volts		8.5	10.5	Watt
Rl	Return Loss	Icq = 400 mAmps			-10	dB
η_c	Collector Efficiency	As Above	42	44		%
$VSWR_1$	Load Mismatch Tolerance	F = 1930 MHz, CDMA Power Pave = +39 dBm			3:1	
Pg - SS	Power Gain - Small Signal	Pout = 20 W PEP	8.5	9.0		dB

SR* - CDMA	Spectral Regrowth Adjacent Channel Power Ratio	Vce = 25 V, Pave = +39 dBm Measurement BW = 30 kHz			-38	dBc

* Spectral Regrowth is measured at 885 kHz offset frequency from reference channel center.

BVces	Collector to Emitter Breakdown	Ic = 100 mA	55			Volts
BVcer	Collector to Emitter Breakdown	Ic = 100 mA, Re = 10 Ohms	50			Volts
BVebo	Emitter to Base Breakdown	Ie = 25 mA	3.5			Volts
Ices	Collector Leakage Current	Vce = 27 Volts			30	mA
h_{FE}	DC - Current Gain	Vce = 5 V, Ic = 1.5 A	20		100	
θjc	Thermal Resistance	Tc = 25ºC			.87	ºC/W

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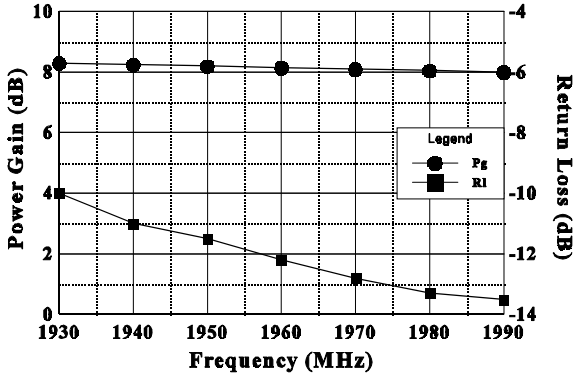
Typical Performance *1920CD60*

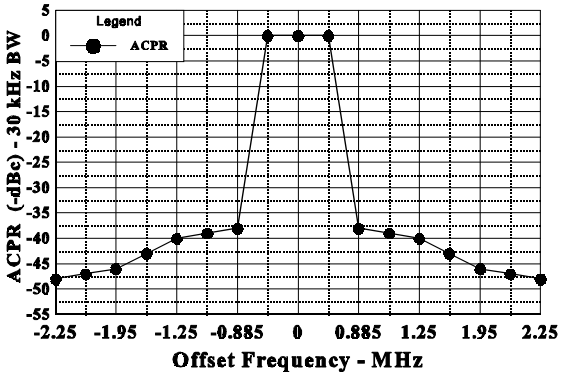
BROADBAND POWER GAIN & RETURN LOSS

Pout = 60 W, Vcc = 25 V, Icq = 400 mA



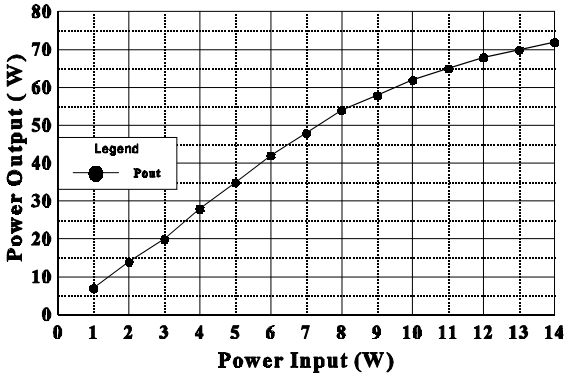
Adjacent Channel Power Ratio (ACPR)

1960 MHz, Po = +39 dBm, 25 V, 1.2 A



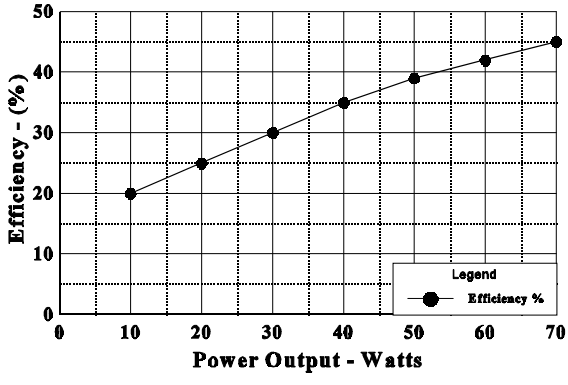
Power Output vs Power Input - PEP

Vcc = 25 V, f = 1990 MHz, Icq = 400 mA



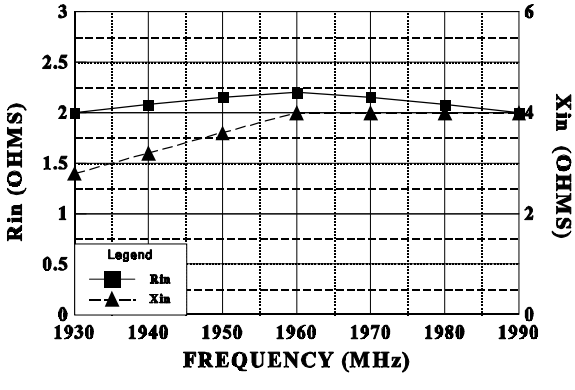
Collector Efficiency vs Power Out - PEP

Vcc = 25 V, f = 1990 MHz, Icq = 400 mA



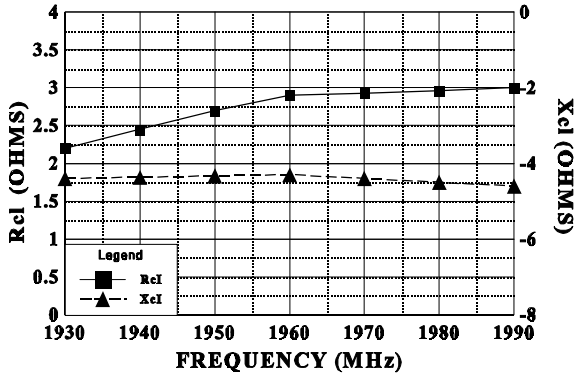
SERIES INPUT IMPEDANCE

Vcc = 25 V, Pout = 60W PEP



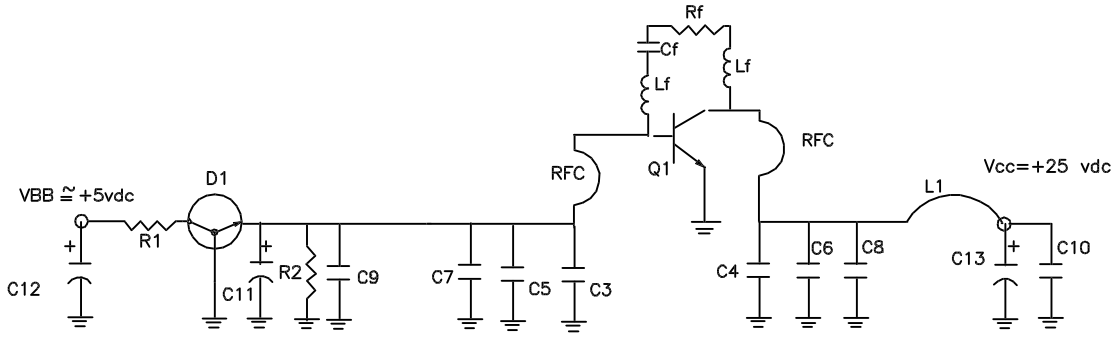
SERIES LOAD IMPEDANCE

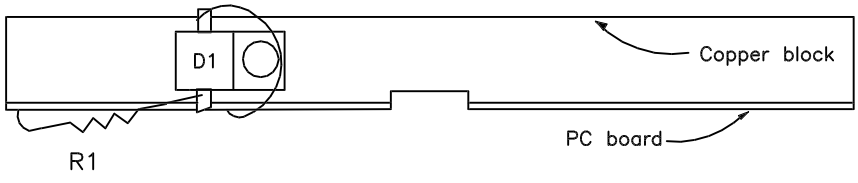
Vcc = 25 V, Pout= 60 W PEP

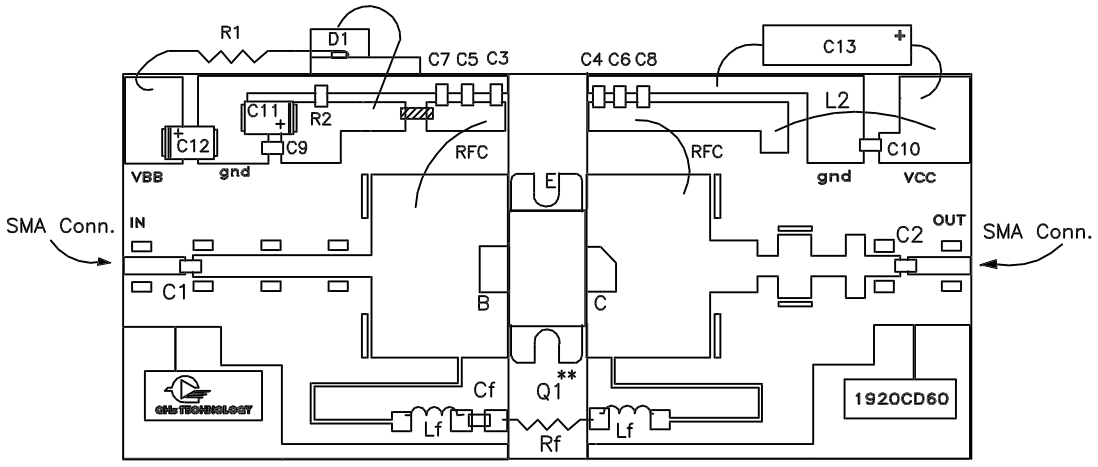


July 1997

REVISIONS				
REV	DESCRIPTION	DATE	APPROVED	SIGNATURE
2	1920CD60 TEST FIXTURE ASSEMBLY DRAWING	09–23–1997		







BILL OF MATERIALS

D1=BYI–IT
R1=16 ohm 2w
R2=10 ohm 1/2w
Rf=82 ohm 1/2w
L1=0.75" #18 AWG wire
RFC=0.6", #18 AWG wire
Lf=7T, .08 dia, #24 AWG
Cf=10k pF chip (ATC 200B)

C1,C2=62 pF chip (ATC 100B)
C3,C4=39k pF chip (ATC 200B)
C5,C6=120 pF chip (ATC 100B)
C7,C8=11 pF chip (ATC 100B)
C9,C10=.1 uF chip NPO
C11=220 uF 10V,Tantalum, SMD
C12=100uF 10V,Tantalum, SMD
C13=100 uF,35V, Electrolytic

Copper Block
Circuit Board (1920CD60)
SMA Connectors (2 pls)

** Q1 Device under test (do not install)

	CAGE	DWG NO.	REV
GHz TECHNOLOGY	0PJR2	1920CD60	2
		LOCATION TESTFIXTURE	SHEET 1/1