GHz TECHNOLOGY
RF·MICROWAVE SILICON POWER TRANSISTORS

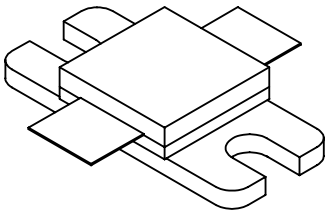
1920CD35

35 Watts, 25 Volts, Class AB
Personal 1930 – 1990 MHz

GENERAL DESCRIPTION

The **1920CD35** is a **COMMON EMITTER** transistor capable of providing 35 Watts of Class AB, RF output power over the band 1930-1990 MHz. This transistor is specifically designed for **PERSONAL COMMUNICATIONS BASE STATION** amplifier applications. It includes Input prematching and utilizes Gold metalization and HIGH VALUE EMITTER ballasting to provide high reliability and supreme ruggedness.

CASE OUTLINE
55AR Style 2
COMMON EMITTER



ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation @ 25°C	**120 Watts**
Maximum Voltage and Current	
Collector to Emitter Voltage (BV_{CES})	55 V
Collector to Emitter Voltage (LC_{CEO})	27 V
Collector to Emitter Voltage (BV_{CER})	50 V
Emitter to Base Voltage (BV_{EBO})	3.5 V
Collector Current (I_c)	14.0 Amps
Maximum Temperatures	
Storage Temperature	-65 to +200 °C
Operating Junction Temperature	+230 °C

ELECTRICAL CHARACTERISTICS @ 25°C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
P_{out}	Power Out	F = 1990 MHz	35			W
P_{in}	Power Input	V_{CC} = 25 Volts			6.0	W
P_g	Power Gain	Icq = 250 mAmps	8.0	8.5		dB
η_c	Collector Efficiency	As above		43		%
$VSWR_1$	Load Mismatch Tolerance				3:1	

FUNCTIONAL CHARACTERISTICS @ 25°C

BV_{CES}	Collector to Emitter Breakdown	Ie = 50 mA	55			V
LV_{CEO}	Collector to Emitter Breakdown	Ic = 50 mA	25			V
BV_{CER}	Collector to Emitter Breakdown	Ic = 50mA, Re = 10 Ohms	50			V
BV_{EBO}	Emitter to Base Breakdown	Ie = 10mA	3.5			V
I_{CES}	Collector Leakage Current	Vce = 27 V			10	mA
h_{FE}	DC – Current Gain	Vce = 5V, Ic = 1A,	20		100	
C_{OB}	Output Capacitance	F = 1 MHz, Vcb = 28V		28		PF
θjc^2	Thermal Resistance	Tc = 25°C			1.6	°C/W

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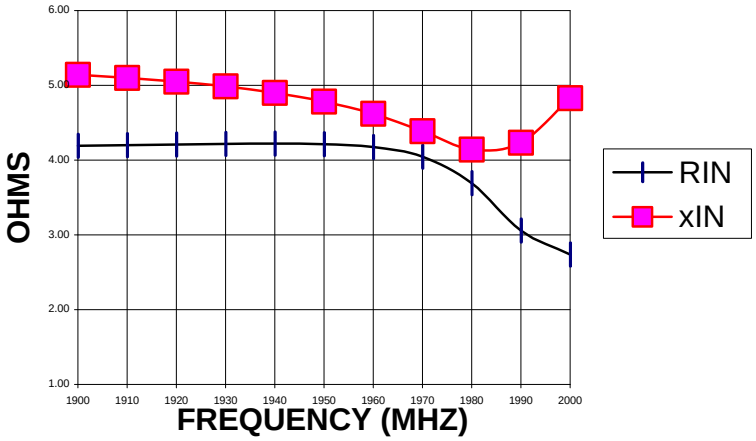
GHz Technology Inc. 3000 Oakmead Village Drive, Santa Clara, CA 95051-0808 Tel. 408 / 986-8031 Fax 408 / 986-8120

1920CD35

	Zin		ZCL	
Frequency	R	jx	R	jx
1900	4.19	5.14	4.7	-8.28
1930	4.22	4.99	4.56	-8.24
1960	4.17	4.62	4.05	-7.69
1990	3.06	4.23	4.39	-7.38
2000	2.74	4.83	4.42	-7.34

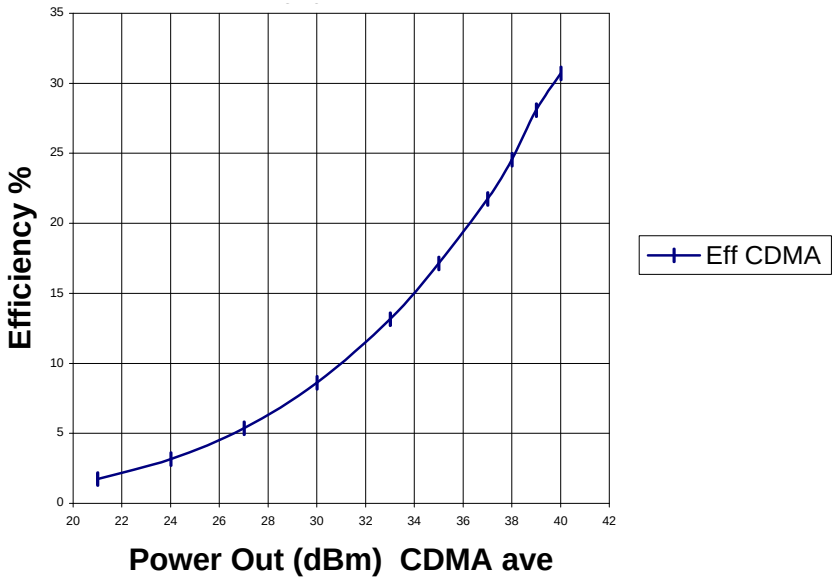
INPUT IMPEDANCE

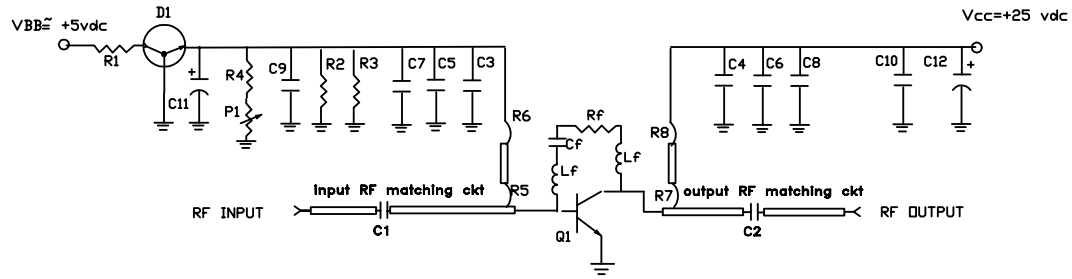
Vcc=25 V Icq=250 mA Pout=35 W CW

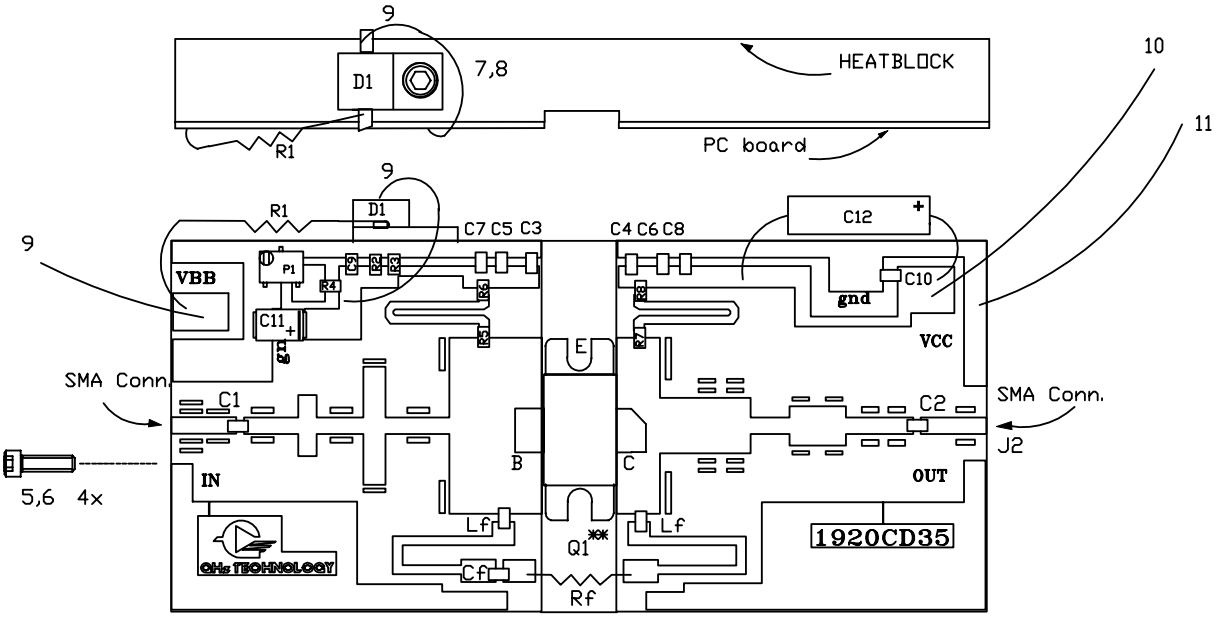


Collector Efficiency vs Power out CDMA

F=1990 mHz Vcc=25







ITEM	QTY	PART/MATERIAL–DESCRIPTION	PART NO.	MATL–SPEC
25	2	Ind Chip, 47 nH Coilcraft 1008CS–470		Lf
24	1	Res Chip, 16Ω, 1 w, 5%		R1
23	2	Res Chip, 27Ω, 1/4 w, 5%		R2, R3
22	1	Res Chip, 12Ω, 1/4 w, 5%		R4
21	4	Res Chip, 0Ω, jumper		R5,R6,R7,R8
20	1	Res, 68Ω, 1 w, 5%		Rf
19	1	Potentiometer 500Ω ST5w		P1
18	4	Cap, 10 pF chip (ATC 100B)		C1,C2,C3,C4
17	2	Cap, 100 pF chip (ATC 100B)		C5,C6
16	3	Cap, 10k pF chip (ATC 200B)		C7,C8,CF
15	2	Cap, 0.1 uF chip NPO		C9
14	1	Cap, 4.7uF 50V,Tantalum, SMD		C10
13	1	Cap, 100uF 10V,Tantalum, SMD		C11
12	1	Cap, 47uF, 50V, Electrolytic		C12
11	AR	Wire, AWG 20 Black		
10	AR	Wire, AWG 20 Red		
9	AR	Wire, AWG 24 yellow		
8	1	Washer # 4		
7	1	Screw, Hex Soc HD, 4–40 x 3/8 stnls	4C37SHCS	
6	4	Washer # 2		
5	4	Screw, Hex Soc HD, 2–56 x 3/8 stnls	2C37SHCS	
4	1	Bias Device,BYI–1T	BYI–1T	
3	2	Connector, SMA, F		J1,J2
2	1	PCB for 1920CD35	42–	PCB
1	1	Heatsink, copper for 55AR outline	43–	HEATSINK

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Test Fixture Assembly Dwg:

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