

1819CD60

60 Watts PEP, 25 Volts, Class AB
CDMA Personal 1805 - 1880 MHz

GENERAL DESCRIPTION

The 1819CD60 is a COMMON EMITTER transistor capable of providing 60 Watts of Class AB, RF PEP output power over the band 1805-1880 MHz. This transistor is specifically designed for **LINEAR PERSONAL (PCN) 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.

ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation @ 25°C 200 Watts

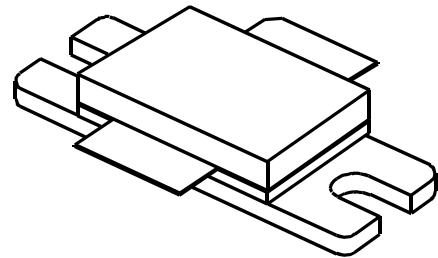
Maximum Voltage and Current

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 + 150°C
Operating Junction Temperature	+ 200°C

CASE OUTLINE 55SW, STYLE 2 COMMON EMITTER



ELECTRICAL CHARACTERISTICS @ 25 °C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Pout - 1 dB	Power Out - PEP	F = 1805 - 1880 MHz	60			Watt
Pin	Power Input - PEP	Vce = 25 Volts		8.5	10.5	Watt
RI	Return Loss	Icq = 400 mAmps			-10	dB
η_c	Collector Efficiency	As Above	42	44		%
VSWR₁	Load Mismatch Tolerance	F = 1805 MHz, CDMA Power			3:1	
		Pave = +39 dBm				
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
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* 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	
θ_{jc}	Thermal Resistance	Tc = 25°C			.87	°C/W

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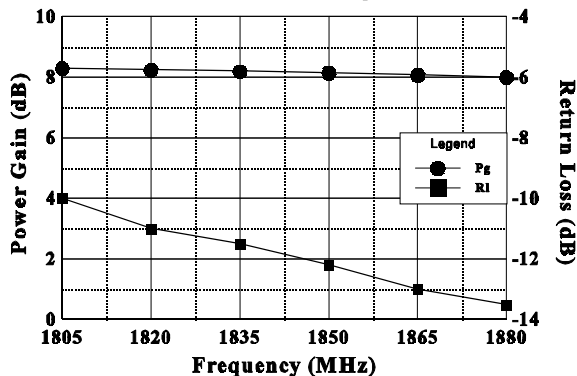
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Typical Performance

1819CD60

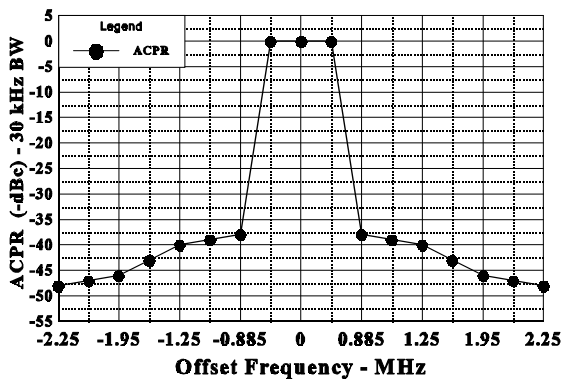
BROADBAND POWER GAIN & RETURN LOSS

$P_{out} = 60\text{ W}$, $V_{cc} = 25\text{ V}$, $I_{cq} = 400\text{ mA}$



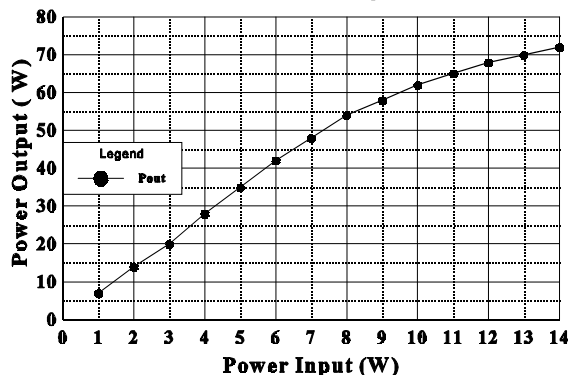
Adjacent Channel Power Ratio (ACPR)

1850 MHz, $P_o = +39\text{ dBm}$, 25 V, 1.2 A



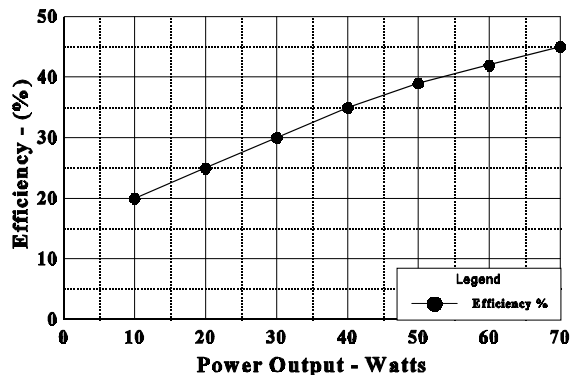
Power Output vs Power Input - PEP

$V_{cc} = 25\text{ V}$, $f = 1880\text{ MHz}$, $I_{cq} = 400\text{ mA}$



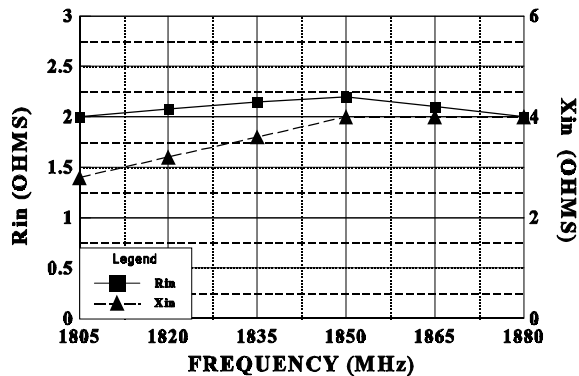
Collector Efficiency vs Power Out - PEP

$V_{cc} = 25\text{ V}$, $f = 1880\text{ MHz}$, $I_{cq} = 400\text{ mA}$



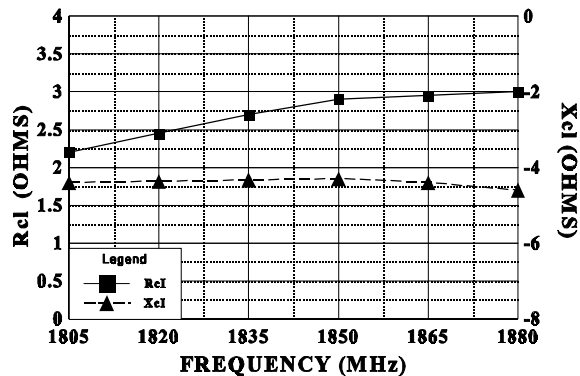
SERIES INPUT IMPEDANCE

$V_{cc} = 25\text{ V}$, $P_{out} = 60\text{ W PEP}$



SERIES LOAD IMPEDANCE

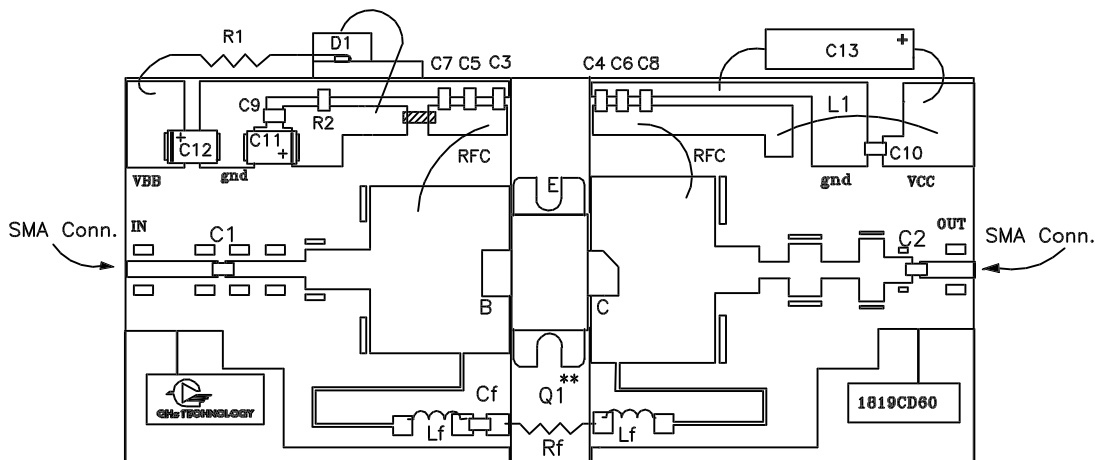
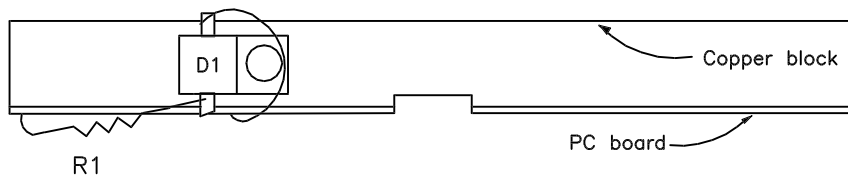
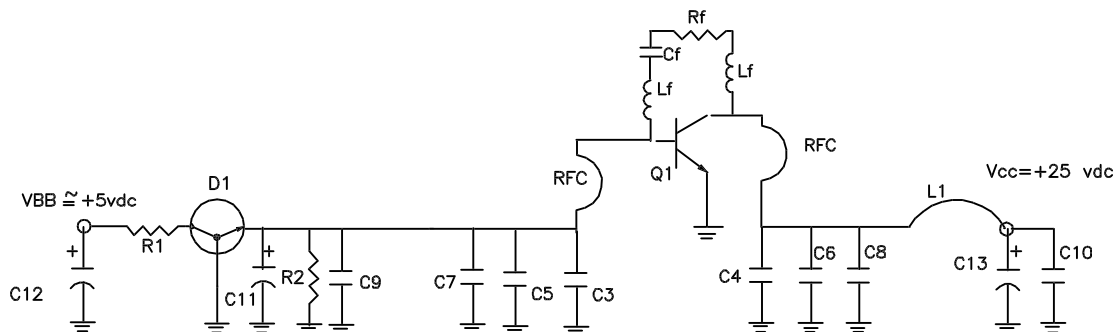
$V_{cc} = 25\text{ V}$, $P_{out} = 60\text{ W PEP}$



REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

1819CD60

TEST FIXTURE
Assembly Drawing



BILL OF MATERIALS

D1=BYI-IT
R1=16 ohm 2w
R2=20 ohm 1/4 w x 2
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=10k pF chip (ATC 200B)
C5,C6=100 pF chip (ATC 100B)
C7,C8=10 pF chip (ATC 100B)
C9,C10=.1 uF chip NPO
C11=220 uF 10V,Tantalum, SMD
C12=100uF 10V,Tantalum, SMD
C13=100 uF, 50V, Electrolytic

Copper Block
Circuit Board (1819CD60)
SMA Connectors (2 pls)

** Q1 Device under test (do not install)

12 Mar 98

1819CD60



CAGE
OPJR2

DWG NO.
TEST FIXTURE ASSY DWG

REV
3

SCALE

Draw

SHEET

1/1