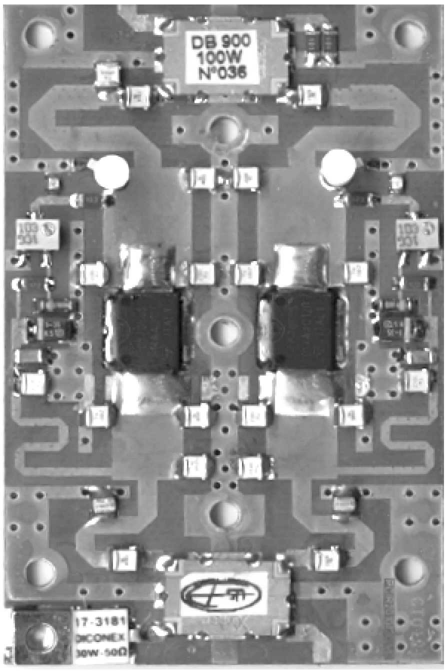
DB-960-90W

90W / 26V / 925-960 MHz PA using 2x PD57060S
The *LdmosST* FAMILY

PRELIMINARY DATA

N-CHANNEL ENHANCEMENT-MODE LATERAL MOSFETs

- EXCELLENT THERMAL STABILITY
- COMMON SOURCE CONFIGURATION
- P_{OUT} = 90 W min. with 13 dB gain over 925-960 MHz
- 10:1 LOAD VSWR CAPABILITY
- BeO FREE AMPLIFIER.



ORDER CODE
DB-960-90W

MECHANICAL SPECIFICATION
L=80 mm W=50 mm H=10 mm

DESCRIPTION

The DB-960-90W is a common source N-Channel enhancement-mode lateral Field-Effect RF power amplifier designed for GSM/GPRS/EDGE base station applications.

The DB-960-90W is designed in cooperation with Europeenne de Telecomunications S.A. (www.et-sa.rf), for high gain and broadband performance operating in common source mode at 26 V, capable of withstanding load mismatch up to 10:1 all phases and with harmonics lower than 30 dBc.

ABSOLUTE MAXIMUM RATINGS (T_{CASE} = 25°C)

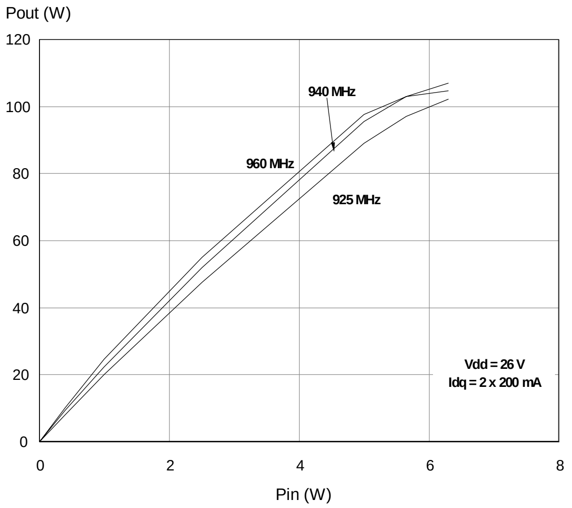
Symbol	Parameter	Value	Unit
V_{DD}	Supply voltage	32	V
I_D	Drain Current	12	A
P_{DISS}	Power Diss. at Tcase = +85°C	145	W
T_{CASE}	Operating Case Temperature	-20 to +85	°C
P_{amb}	Max. Ambient Temperature	+55	°C

ELECTRICAL SPECIFICATION (T_{amb} = +25^{o}C, Vdd = 26V, Idq = 2 x 200 mA)

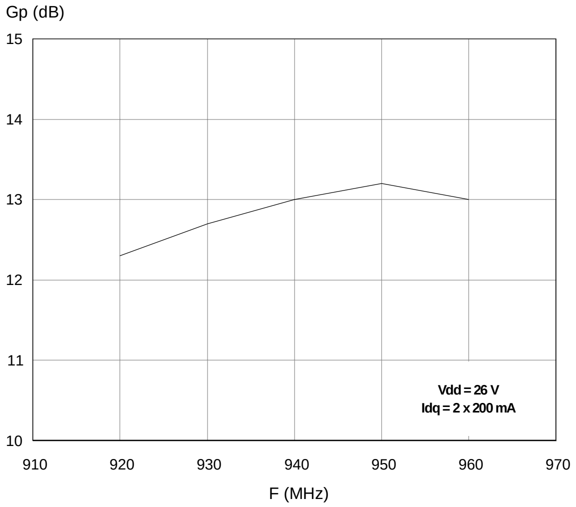
Symbol	Test Conditions	Min.	Typ.	Max.	Unit
FREQ.	Frequency Range	925		960	MHz
Gain	P_{OUT} = 90 W	12	13		dB
P_{1dB}	Over frequency range: 925 - 960 MHz	90	100		W
Flatness	Over frequency range and @ P_{OUT} = 90 W			+/- 0.5	dB
Flatness	P_{OUT} from 0.1W to 90 W			1	dB
ND at P_{1dB}	P_{1dB}	40	45		%
IRTL	Input return Loss P_{OUT} from 0.1W to 90 W		-20	-15	dB
Harmonic	P_{OUT} = 90 W			-30	dBc
VSWR	Load Mismatch all phases @ P_{OUT} = 90 W	10:1			
Spurious	10:1 VSWR all phases and P_{OUT} from 0.1 to 90 W			-76	dBc
IMD_3	P_{OUT} = 90 WPEP			-25	dBc

TYPICAL PERFORMANCE

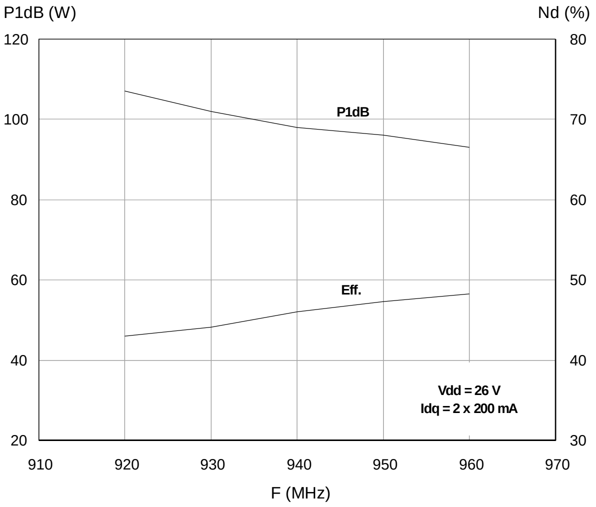
Output Power vs. Input Power



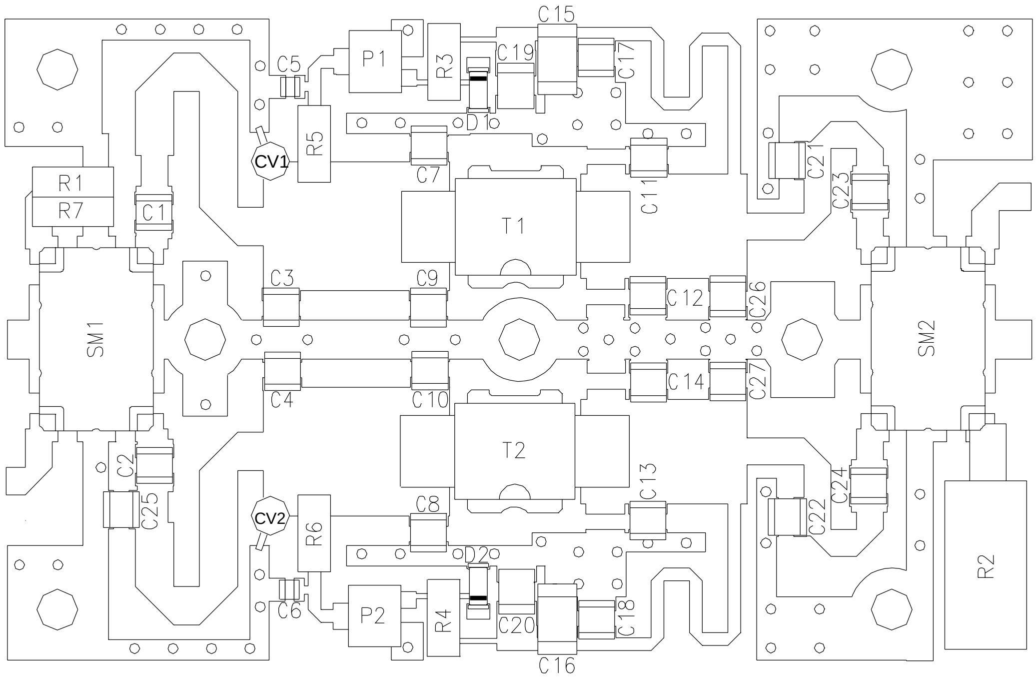
Power Gain vs. Frequency (Pout = 90W)



Output Power and Efficiency vs. Frequency

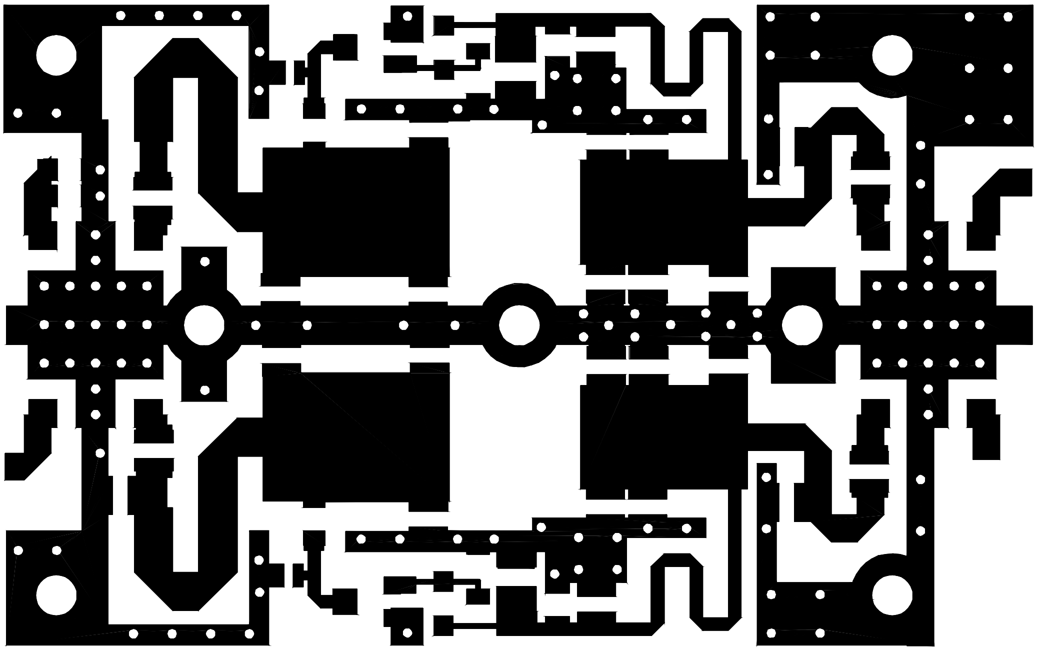


TEST FIXTURE COMPONENT LAYOUT



Ref. ETSA c07/2000 - Ed1

TEST CIRCUIT PHOTOMASTER



Ref. ETSA c07/2000 - Ed1

TEST CIRCUIT COMPONENT PART LIST

COMPONENT	DESCRIPTION
T1, T2	PD57060S TRANSISTOR
C1, C2, C23, C24	47pF - 500V CERAMIC CHIP CAPACITOR
C3, C4	3.3pF - 500V CERAMIC CHIP CAPACITOR
C5, C6, C17, C18	100pF - 500V CERAMIC CHIP CAPACITOR
C7, C8, C9, C10, C11, C13	10pF - 500V CERAMIC CHIP CAPACITOR
C12, C14	6.8pF - 500V CERAMIC CHIP CAPACITOR
C15, C16	100nF - 63V CERAMIC CHIP CAPACITOR
C19, C20	1µF / 35V ELECTROLYTIC CAPACITOR
C21, C22, C26, C27	3.3pF - 500V CERAMIC CHIP CAPACITOR
C25	0.5pF - 500V CERAMIC CHIP CAPACITOR
CV1, CV2	ADJUSTABLE CAPACITOR 0.6 - 4.5pF / 500V
P1, P2	10K Ohms MULTITURN POTENTIOMETER
R1,R7	100 Ohms 1/4W 1206 SMD CHIP RESISTOR
R2	50 Ohms 30W - 4GHz LOAD
R3, R4	4.7K Ohms 1/4W 1206 SMD CHIP RESISTOR
R5, R6	10K Ohms 1/4W 1206 SMD CHIP RESISTOR
D1, D2	ZENER DIODE 5V - 500 mW SOD80
SM1, SM2	90° SMD HYBRID COUPLER ANAREN Xinger 1304-3
BOARD	METCLAD MX3-30-C1/10C THK 0.762 mm Cu 35µ
SUBSTRATE	TEFLON-GLASS Er = 2.55
BACK SIDE	COPPER FLANGE 2 mm THICKNESS
CERAMIC CHIP CAPACITORS	ATC100B or EQUIVALENT

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