



## DB-960-90W

90W / 26V / 925-960 MHz PA using 2x PD57060S

The *LdmosST* FAMILY

PRELIMINARY DATA

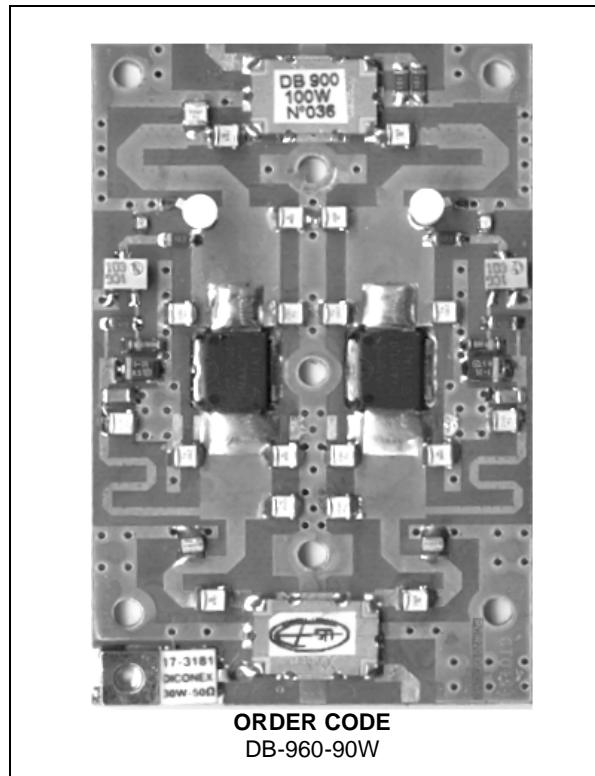
N-CHANNEL ENHANCEMENT-MODE LATERAL MOSFETs

- 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.

### 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 Telecommunications S.A. ([www.et-sa.rf](http://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.



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

### ABSOLUTE MAXIMUM RATINGS ( $T_{CASE} = 25^{\circ}C$ )

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

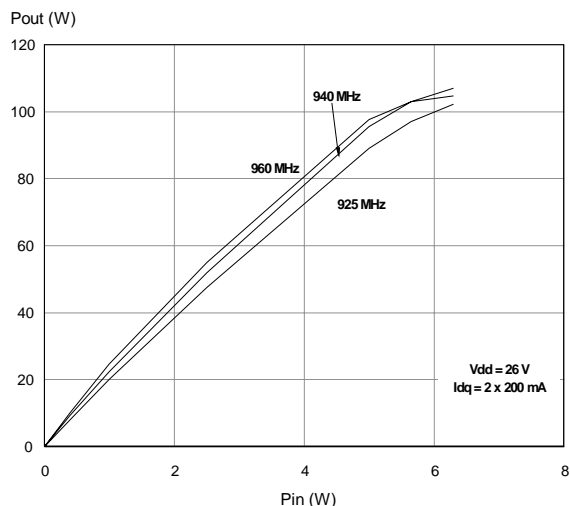
# DB-960-90W

## ELECTRICAL SPECIFICATION ( $T_{amb} = +25^{\circ}C$ , $V_{dd} = 26V$ , $I_{dq} = 2 \times 200 \text{ mA}$ )

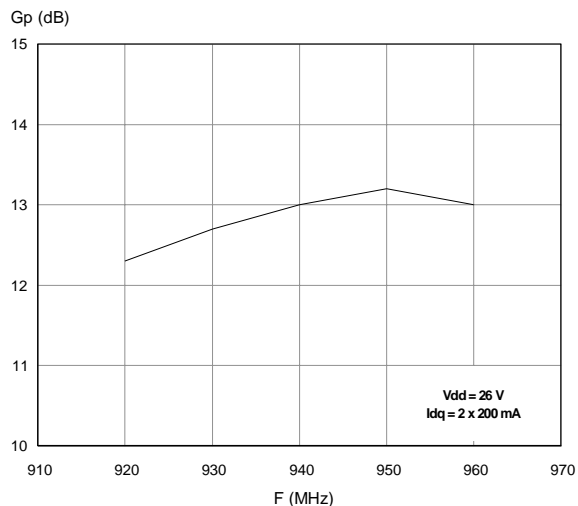
Symbol	Test Conditions	Min.	Typ.	Max.	Unit
FREQ.	Frequency Range	925		960	MHz
Gain	$P_{OUT} = 90 \text{ W}$	12	13		dB
$P_{1dB}$	Over frequency range: 925 - 960 MHz	90	100		W
Flatness	Over frequency range and @ $P_{OUT} = 90 \text{ W}$			+/- 0.5	dB
Flatness	$P_{OUT}$ from 0.1W to 90 W			1	dB
ND at $P_{1dB}$	$P_{1dB}$	40	45		%
IRTL	Input return Loss $P_{OUT}$ from 0.1W to 90 W		-20	-15	dB
Harmonic	$P_{OUT} = 90 \text{ W}$			-30	dBc
VSWR	Load Mismatch all phases @ $P_{OUT} = 90 \text{ W}$	10:1			
Spurious	10:1 VSWR all phases and $P_{OUT}$ from 0.1 to 90 W			-76	dBc
IMD <sub>3</sub>	$P_{OUT} = 90 \text{ WPEP}$			-25	dBc

### TYPICAL PERFORMANCE

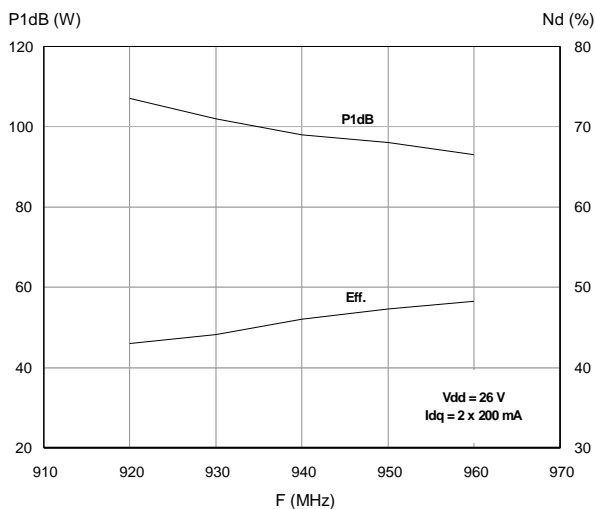
Output Power vs. Input Power



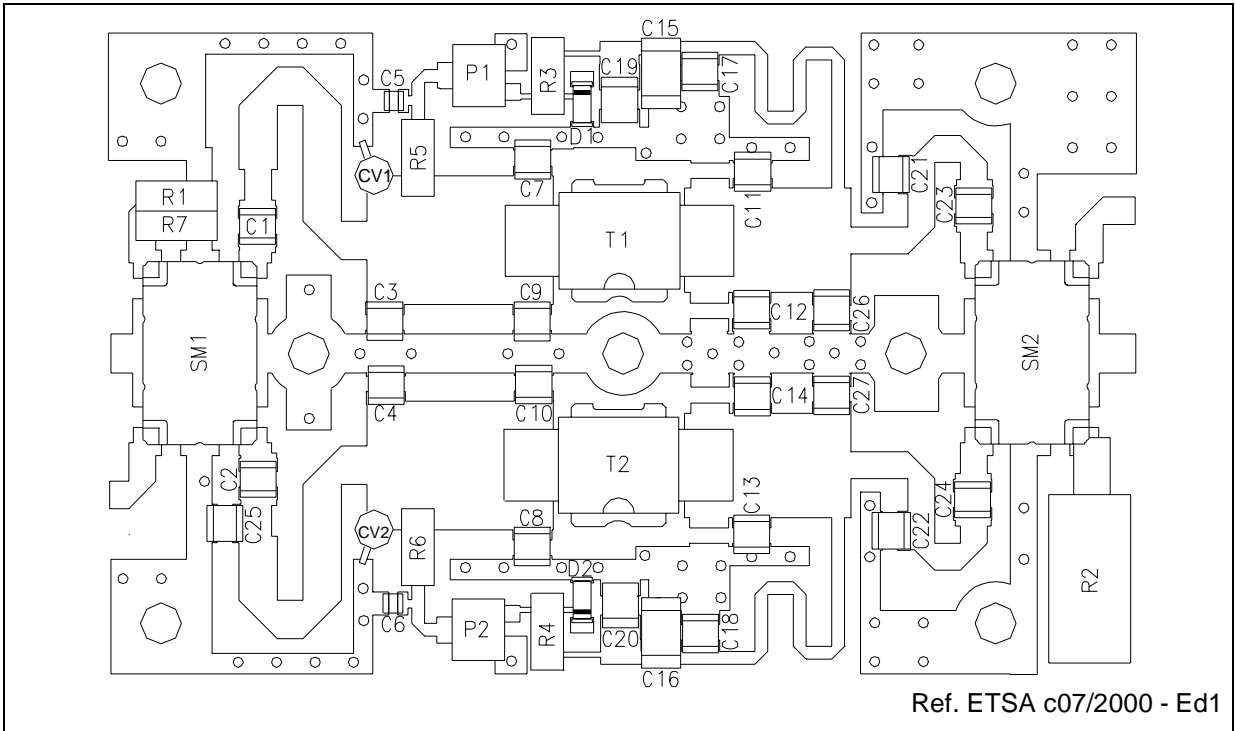
Power Gain vs. Frequency ( $P_{out} = 90W$ )



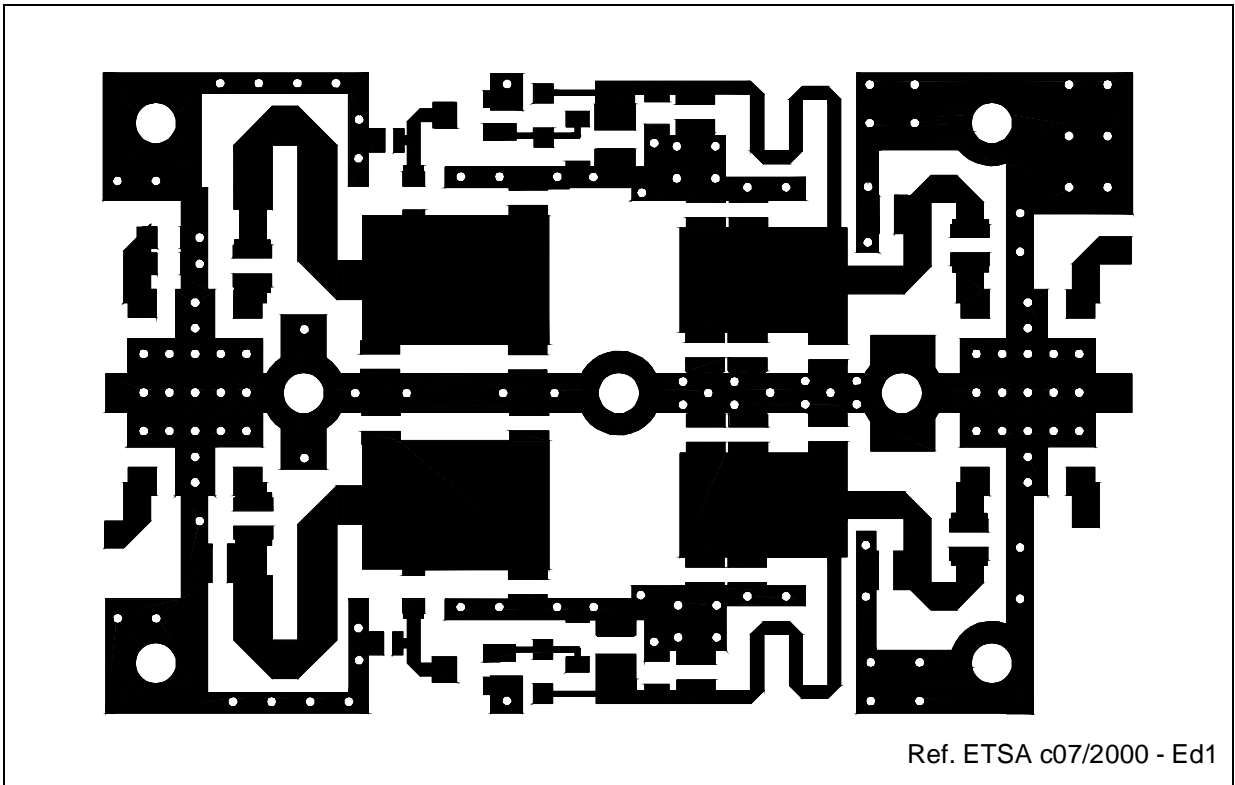
Output Power and Efficiency vs. Frequency



TEST FIXTURE COMPONENT LAYOUT



TEST CIRCUIT PHOTOMASTER



**DB-960-90W****TEST CIRCUIT COMPONENT PART LIST**

<b>COMPONENT</b>	<b>DESCRIPTION</b>
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	1 $\mu$ F / 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 35 $\mu$
SUBSTRATE	TEFLON-GLASS Er = 2.55
BACK SIDE	COPPER FLANGE 2 mm THICKNESS
CERAMIC CHIP CAPACITORS	ATC100B or EQUIVALENT

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