



## DB-900-60W

60W / 26V / 869-894 MHz PA using 1x PD57070S

The *Ldmos*ST FAMILY

PRELIMINARY DATA

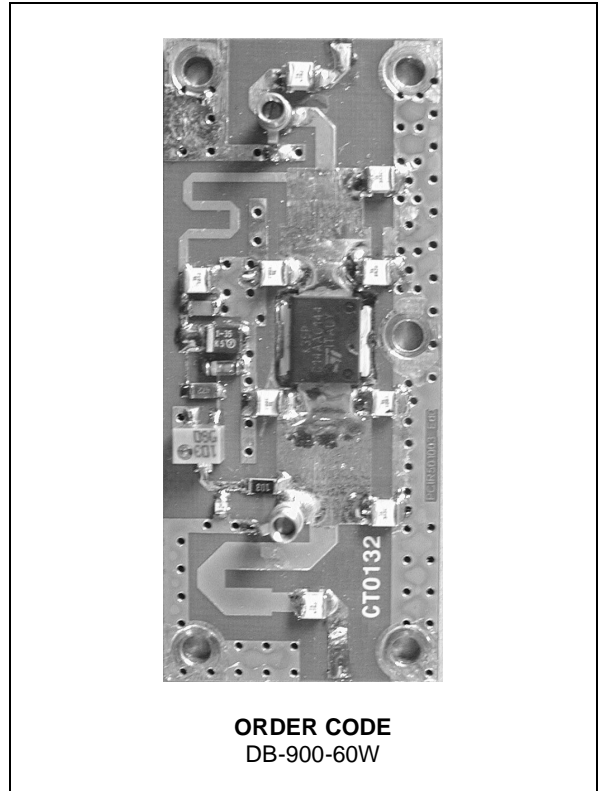
### N-CHANNEL ENHANCEMENT-MODE LATERAL MOSFETs

- EXCELLENT THERMAL STABILITY
- COMMON SOURCE CONFIGURATION
- $P_{OUT} = 60\text{ W}$  min. with 13 dB gain over 869 - 894 MHz
- 10:1 LOAD VSWR CAPABILITY
- BeO FREE AMPLIFIER.

### DESCRIPTION

The DB-900-60W is a common source N-Channel enhancement-mode lateral Field-Effect RF power amplifier designed for IS-54/-136 and IS-95 base station applications.

The DB-900-60W is designed in cooperation with Européenne de Télécommunications S.A ([www.etsa.fr](http://www.etsa.fr)), 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=60 mm W=30 mm H=10 mm

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

Symbol	Parameter	Value	Unit
$V_{DD}$	Supply voltage	32	V
$I_D$	Drain Current	8	A
$P_{DISS}$	Power Dissipation	95	W
$T_{CASE}$	Operating Case Temperature	-20 to +85	$^{\circ}\text{C}$
$P_{amb}$	Max. Ambient Temperature	+55	$^{\circ}\text{C}$

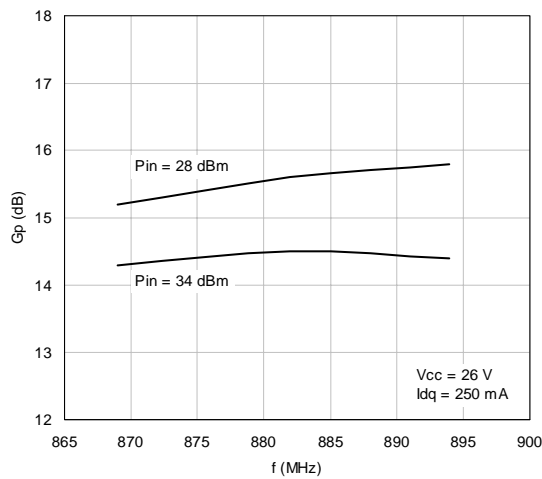
# DB-900-60W

## ELECTRICAL SPECIFICATION ( $T_{amb} = +25\text{ }^{\circ}\text{C}$ , $V_{dd} = 26\text{ V}$ , $I_{dq} = 250\text{ mA}$ )

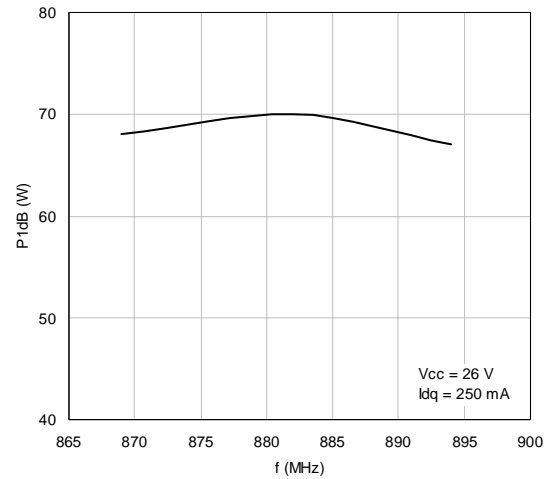
Symbol	Test Conditions	Min.	Typ.	Max.	Unit
FREQ.	Frequency Range	869		894	MHz
Gain	$P_{OUT} = 60\text{ W}$	13	14		dB
$P_{1dB}$	Over frequency range: 869 - 894 MHz	60	65		W
Flatness	Over frequency range and @ $P_{OUT} = 60\text{ W}$			+/- 0.5	dB
Flatness	$P_{OUT}$ from 0.1 W to 60 W			1	dB
ND at $P_{1dB}$	$P_{1dB}$	45	52		%
IRTL	Input return Loss $P_{OUT}$ from 0.1 W to 60 W		-15	-10	dB
Harmonic	$P_{OUT} = 60\text{ W}$			-30	dBc
VSWR	Load Mismatch all phases @ $P_{OUT} = 60\text{ W}$	10:1			
Spurious	10:1 VSWR all phases and $P_{OUT}$ from 0.1 to 60 W			-76	dBc
IMD <sub>3</sub>	$P_{OUT} = 60\text{ WPEP}$			-25	dBc

### TYPICAL PERFORMANCE

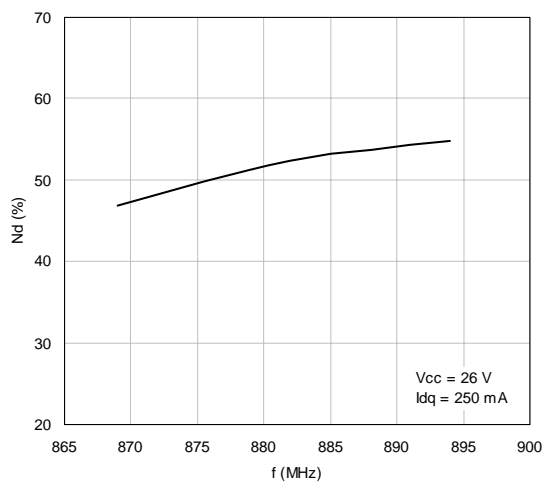
Power Gain vs. Frequency



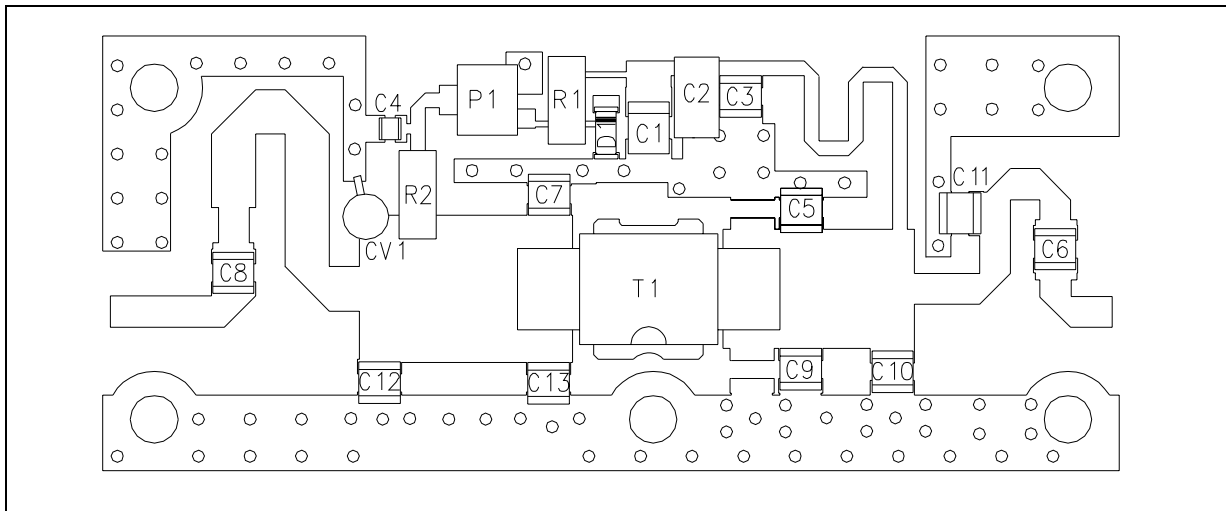
$P_{1dB}$  vs. Frequency



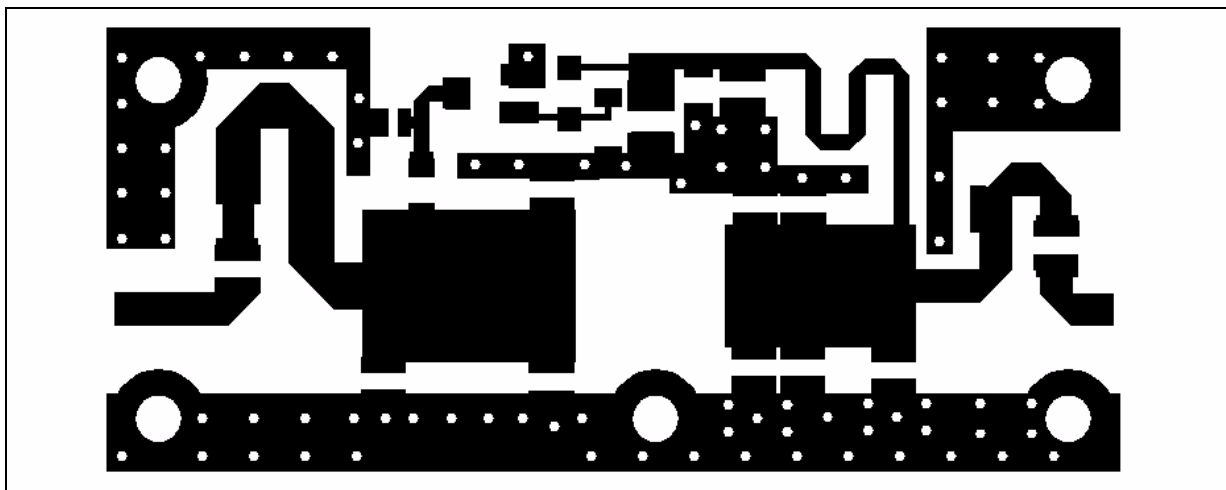
Drain Efficiency at  $P_{1dB}$  vs. Frequency



## TEST FIXTURE COMPONENT LAYOUT



## TEST CIRCUIT PHOTOMASTER



## TEST CIRCUIT COMPONENT PART LIST

COMPONENT	DESCRIPTION
T1	PD57070S TRANSISTOR
C1	1 $\mu$ F / 35V ELECTROLYTIC CAPACITOR
C2	100nF - 63V CERAMIC CHIP CAPACITOR
C3,C4	100pF - 500V CERAMIC CHIP CAPACITOR
C5, C7, C13	10pF - 500V CERAMIC CHIP CAPACITOR
C6, C8	47pF - 500V CERAMIC CHIP CAPACITOR
C10	4.7pF - 500V CERAMIC CHIP CAPACITOR
C11	3.3pF - 500V CERAMIC CHIP CAPACITOR
C12, C9	6.8pF - 500V CERAMIC CHIP CAPACITOR
CV1	ADJUSTABLE CAPACITOR 0.6 - 4.5pF / 500V
P1	10K Ohms MULTITURN POTENTIOMETER
R1	4.7K Ohms 1/4W 1206 CHIP RESISTOR
R2	10K Ohms 1/4W 1206 SMD CHIP RESISTOR
D1	ZENER DIODE 5V - 500 mW SOD80
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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