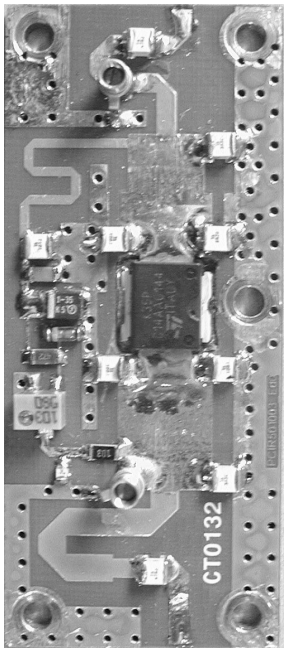
DB-900-60W

60W / 26V / 869-894 MHz PA using 1x PD57070S
The *LdmosST* FAMILY

PRELIMINARY DATA

N-CHANNEL ENHANCEMENT-MODE LATERAL MOSFETs

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



ORDER CODE
DB-900-60W

MECHANICAL SPECIFICATION
L=60 mm W=30 mm H=10 mm

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), 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)

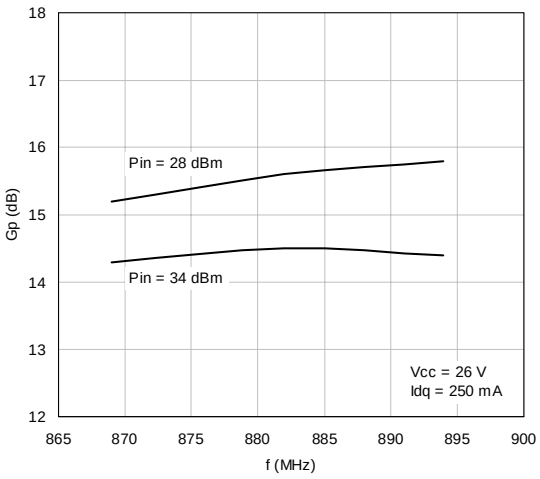
Symbol	Parameter	Value	Unit
V_{DD}	Supply voltage	32	V
I_D	Drain Current	8	A
P_{DISS}	Power Dissipation	95	W
T_{CASE}	Operating Case Temperature	-20 to +85	°C
P_{amb}	Max. Ambient Temperature	+55	°C

ELECTRICAL SPECIFICATION (T_{amb} = +25 °C, Vdd = 26 V, Idq = 250 mA)

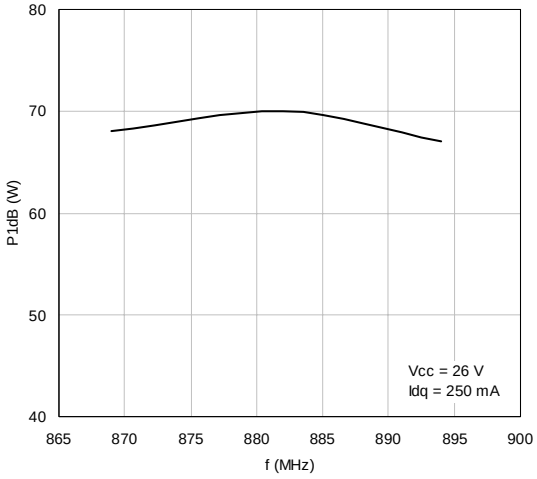
Symbol	Test Conditions	Min.	Typ.	Max.	Unit
FREQ.	Frequency Range	869		894	MHz
Gain	P_{OUT} = 60 W	13	14		dB
P_{1dB}	Over frequency range: 869 - 894 MHz	60	65		W
Flatness	Over frequency range and @ P_{OUT} = 60 W			+/- 0.5	dB
Flatness	P_{OUT} from 0.1 W to 60 W			1	dB
ND at P_{1dB}	P_{1dB}	45	52		%
IRTL	Input return Loss P_{OUT} from 0.1 W to 60 W		-15	-10	dB
Harmonic	P_{OUT} = 60 W			-30	dBc
VSWR	Load Mismatch all phases @ P_{OUT} = 60 W	10:1			
Spurious	10:1 VSWR all phases and P_{OUT} from 0.1 to 60 W			-76	dBc
IMD_3	P_{OUT} = 60 WPEP			-25	dBc

TYPICAL PERFORMANCE

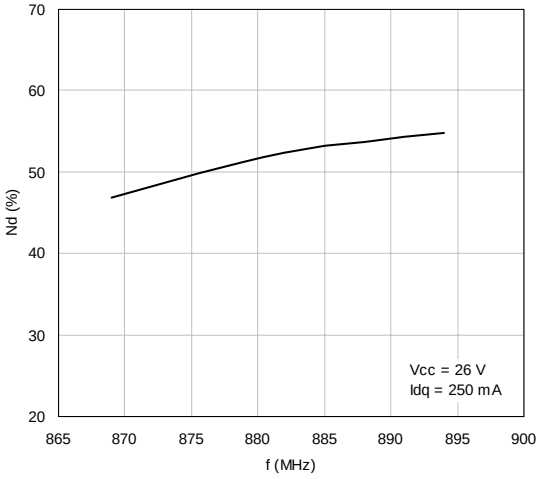
Power Gain vs. Frequency



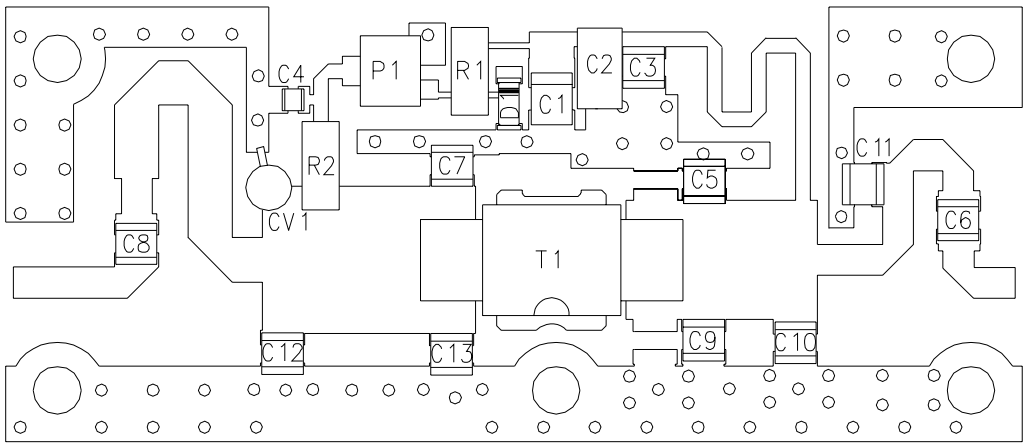
P1dB vs. Frequency



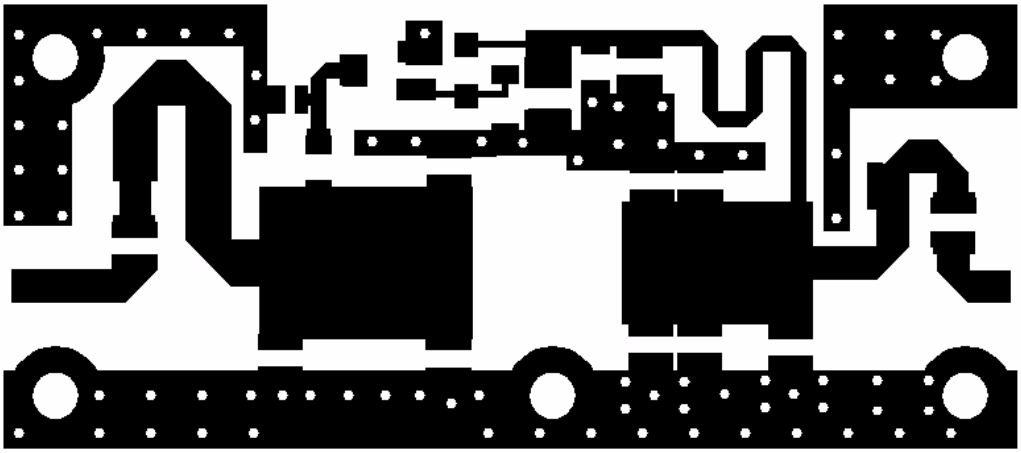
Drain Efficiency at P1dB vs. Frequency



TEST FIXTURE COMPONENT LAYOUT



TEST CIRCUIT PHOTOMASTER



TEST CIRCUIT COMPONENT PART LIST

COMPONENT	DESCRIPTION
T1	PD57070S TRANSISTOR
C1	1µF / 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 SMD 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 35µ
SUBSTRATE	TEFLON-GLASS Er = 2.55
BACK SIDE	COPPER FLANGE 2 mm THICKNESS
CERAMIC CHIP CAPACITORS	ATC100B or EQUIVALENT