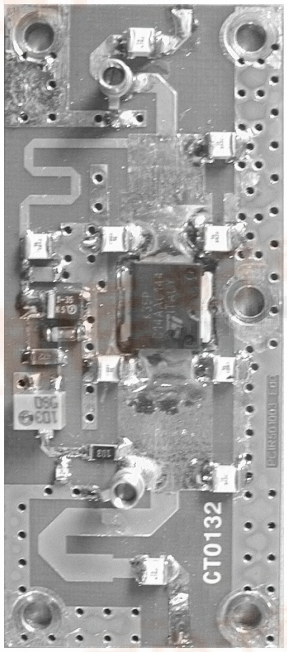
DB-960-60W

60W / 26V / 925-960 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 925 - 960 MHz
- 10:1 LOAD VSWR CAPABILITY
- BeO FREE AMPLIFIER.



ORDER CODE
DB-960-60W

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

DESCRIPTION

The DB-960-60W is a common source N-Channel enhancement-mode lateral Field-Effect RF power amplifier designed for GSM / GPRS / EDGE base station applications.
The DB-960-60W 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)

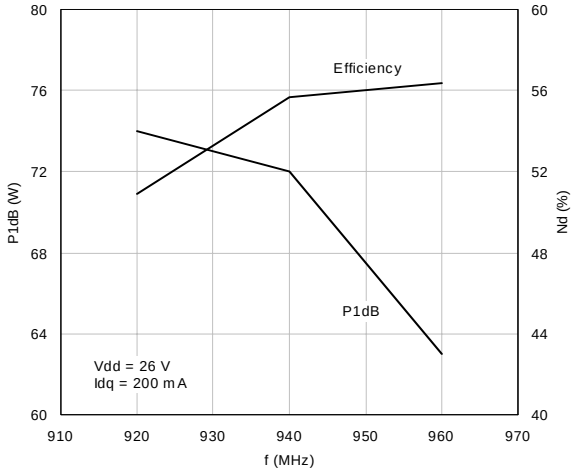
Symbol	Parameter	Value	Unit
V_{DD}	Supply voltage	32	V
I_D	Drain Current	8	A
P_{DISS}	Power Dissipation	95	W
T_{CASE}	Operating Case Temperature	-20 to +85	°C
P_{amb}	Max. Ambient Temperature	+55	°C

ELECTRICAL SPECIFICATION (T_{amb} = +25 °C, Vdd = 26 V, Idq = 200 mA)

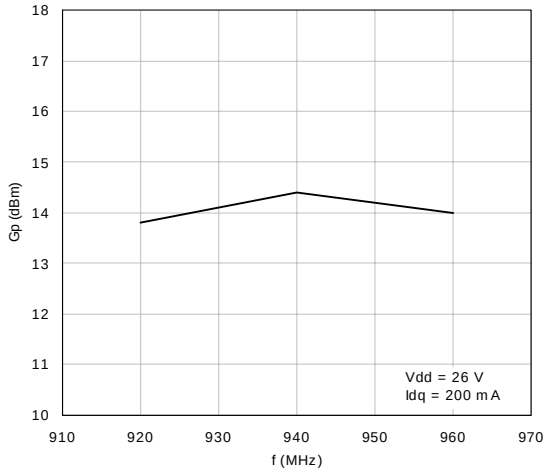
Symbol	Test Conditions	Min.	Typ.	Max.	Unit
FREQ.	Frequency Range	925		960	MHz
Gain	P_{OUT} = 60 W	13	14		dB
P_{1dB}	Over frequency range: 925 - 960 MHz	60	65		W
Flatness	Over frequency range and @ P_{OUT} = 60 W			+/- 0.5	dB
Flatness	P_{OUT} from 0.1 W to 60 W			1	dB
ND at P_{1dB}	P_{1dB}	45	52		%
IRTL	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

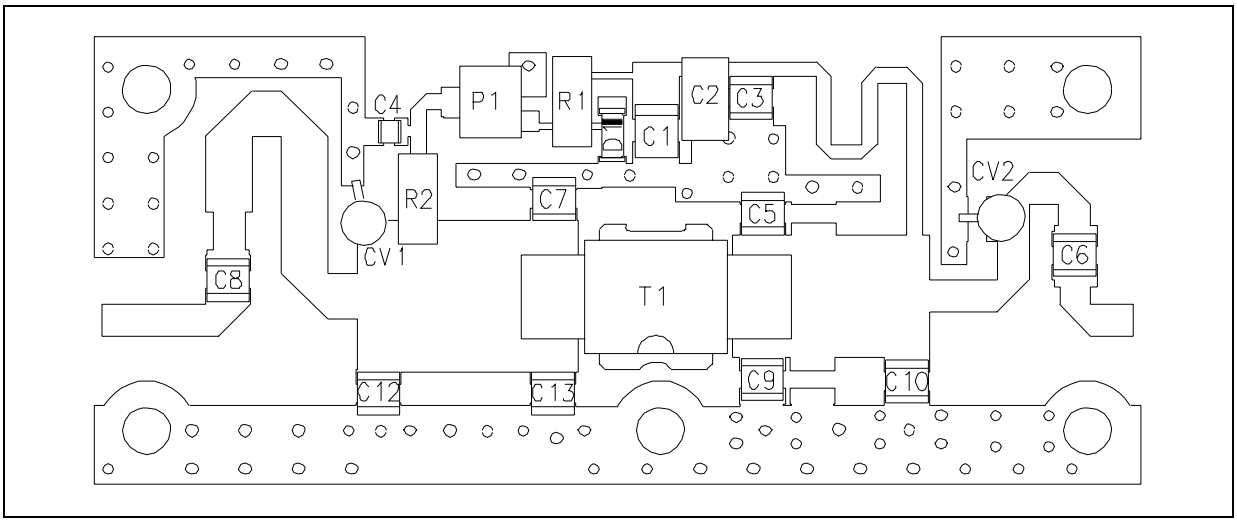
P1dB and Efficiciency Vs Frequency



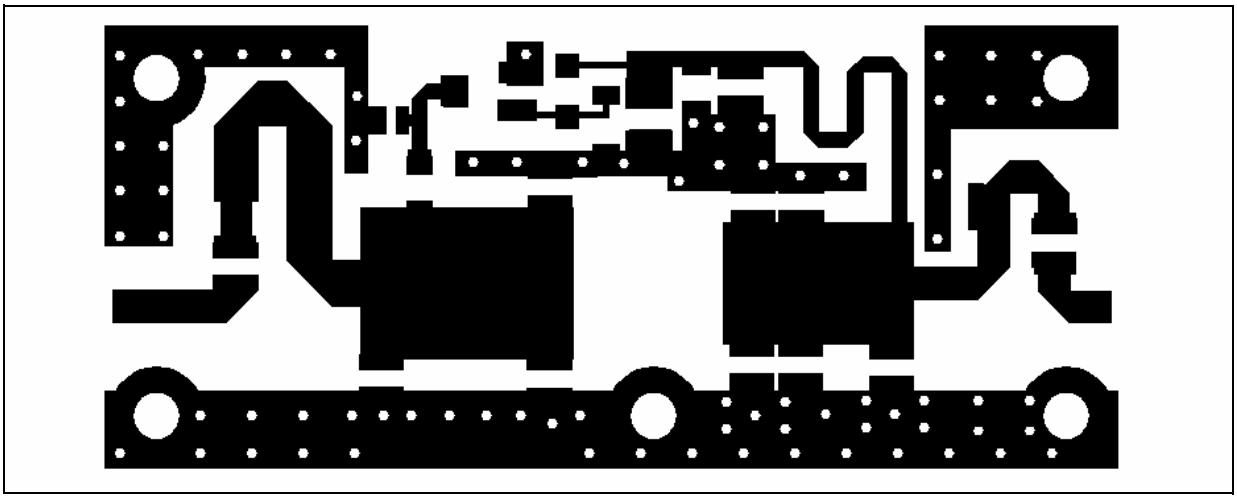
Power Gain Vs Frequency (P_{OUT} = 60 W)



TEST FIXTURE COMPONENT LAYOUT



TEST CIRCUIT PHOTOMASTER



TEST CIRCUIT COMPONENT PART LIST

Ref.	Value	Ref. Manufacturer	Manufacturer
1	RF Power Amplifier Circuit	PCIR501003	ETSA
CV1, CV2	Trim capacitor HQ 0.6-4.5pF 500V	AT27273	TECK
C4	Chip Capacitor HQ 0603 100pF TA 5% 50V	500-CHA-101-JVLE	TEKELEC
C10, C12	Chip Capacitor HQ 3.3pF TB +/- 0,25pF 500V	501-CHB-3R3-CVLE	TEKELEC
C9	Chip Capacitor HQ 8,2pF TB +/- 0,25pF 500V	501-CHB-8R2-CVLE	TEKELEC
C5, C7, C13	Chip Capacitor HQ 10pF TB 5% 500V	501-CHB-100-JVLE	TEKELEC
C6, C8	Chip Capacitor HQ 47pF TB 5% 500V	501-CHB-470-JVLE	TEKELEC
C3	Chip Capacitor HQ 100pF TB 5% 500V	501-CHB-101-JVLE	TEKELEC
C2	Capacitor 1206 100nF 63V X7R 10%	VJ1206Y104KXAT/630	VISHAY
C1	Capacitor CMS tantale 1µF 20% 35V	293D105X9035B	Vishay-Sprague
R1	Resistor CMS 4,7K 1206 1/4W 5%	27597	BOURNS
R2	Resistor CMS 10K 1206 1/4W 5%	27605	BOURNS
P1	Trim resistor CMS cermet 3224W 10K	3224W-103	BOURNS
D1	Zener Diode 5.1V 500mW SOD80	BZV55C5V1	OMNITECH
T1	RF LDMOS Transistor 28V 70W 13dB GSM	PD57070S	STMicroélectronics