DATA SHEET

SA2410

2.45GHz RF power amplifier and T/R switch

Preliminary specification

1997 Sep 09

IC17 Data Handbook

Philips
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2.45GHz RF power amplifier and T/R switch SA2410

DESCRIPTION

The SA2410 is a GaAs monolithic power amplifier with an integrated T/R switch designed to meet requirements for 802.11 (WLAN). The SA2410 uses an on–chip 4 GHz oscillator to generate the negative bias, thus eliminating the need for a negative supply. It operates from 3V to 5.5V and consumes 125 mA with an output power of 18.5 dB (typ). It is suitable for other 2.45 GHz ISM band applications.

FEATURES

- V_{CC}=3V–5.5V
- No negative bias needed
- I_{CC}=125mA (typ) @ 3.3V
- P_{OUT}=18.5 dB(typ)
  IM3<–30dBc
  IM5<–50dBc
- Gain=29dB (typ)
- Attenuation range=16dB (typ)
- LQFP–32 package

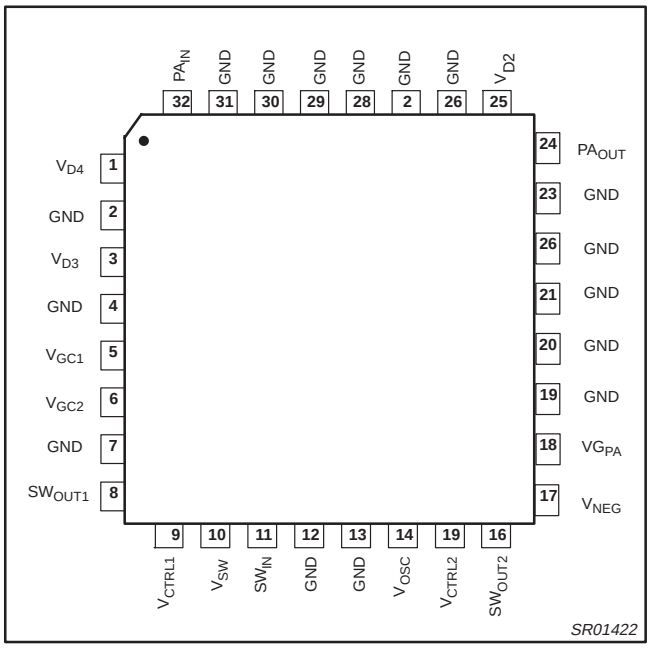


Figure 1. Pin Configuration

APPLICATIONS

- 802.11 WLAN
- 2.4–2.5 GHz ISM BAND

ORDERING INFORMATION

DESCRIPTION	TEMPERATURE RANGE	ORDER CODE	DWG #
32–Pin Plastic Thin Quad Flat Package	–40° C+85°C	SA2410	SOT401–1

GENERAL SPECIFICATIONS

Symbol	Parameter	Condition	Min	Typ	Max	Unit
T	Temperature		–40		+85	C
V_{CC}	Supply V		3		5.5	V
I_{CC}	Supply I	3.3 volts		125		mA
Power Amplifier						
f_{RF}	Frequency Range		2.4		2.5	GHz
IM3	IM3 2 tones		30			dBc
IM5	IM5 2 tones		50			dBc
T_{on}	Transmit power on	Including neg. supply			2	µs
T_{off}	Xmit power down				2	µs
Gain	Small signal gain			29		dB
P_{out}	Output power	IM3=30dBc IM5=50dBc 125mA@3.3 volts	17.5	18.5		dBm
Eff.	Efficiency			25		%
Δ Gt1	Gain variation with temp	–40 to +85°C		±3.5		dB
Δ Gt2	Gain variation with temp	0–70°C		±2.0		dB
Δ Gr	Ripple	2.45±0.05 GHz		±1		dB
Δ Gvd	Gain variation with supply	3.3 volts±0.3 V		0.5		dB

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Negative voltage supply						
t_{on}	Power on time		10		100	nS
	4 GHz spur	Xmit Mode		TBD		dBm
Linear Gain Control						
Symbol	**Parameter**	**Condition**	**Min**	**Typ**	**Max**	**Unit**
V_{GC}	Gain control voltage			TBD		Volt
C_{GC}	Input C at gain pin			TBD		pF
G_{CR}	Attenuation range			16		dB
Transmit/receive switch						
Symbol	**Parameter**	**Condition**	**Min**	**Typ**	**Max**	**Unit**
L_{tx}	Insertion loss T_x			1.3	2	dB
L_{rx}	Insertion loss R_x			1.3	2	dB
t_{sw}	Switch response time				400	nS
ISO_{PA}	Isolation switch to PA		30			dB
Z_{in}	Input impedance			50		Ω
Z_{out}	Output impedance			50		Ω
ISO_{SW}	Switch Isolation		17	19		dB

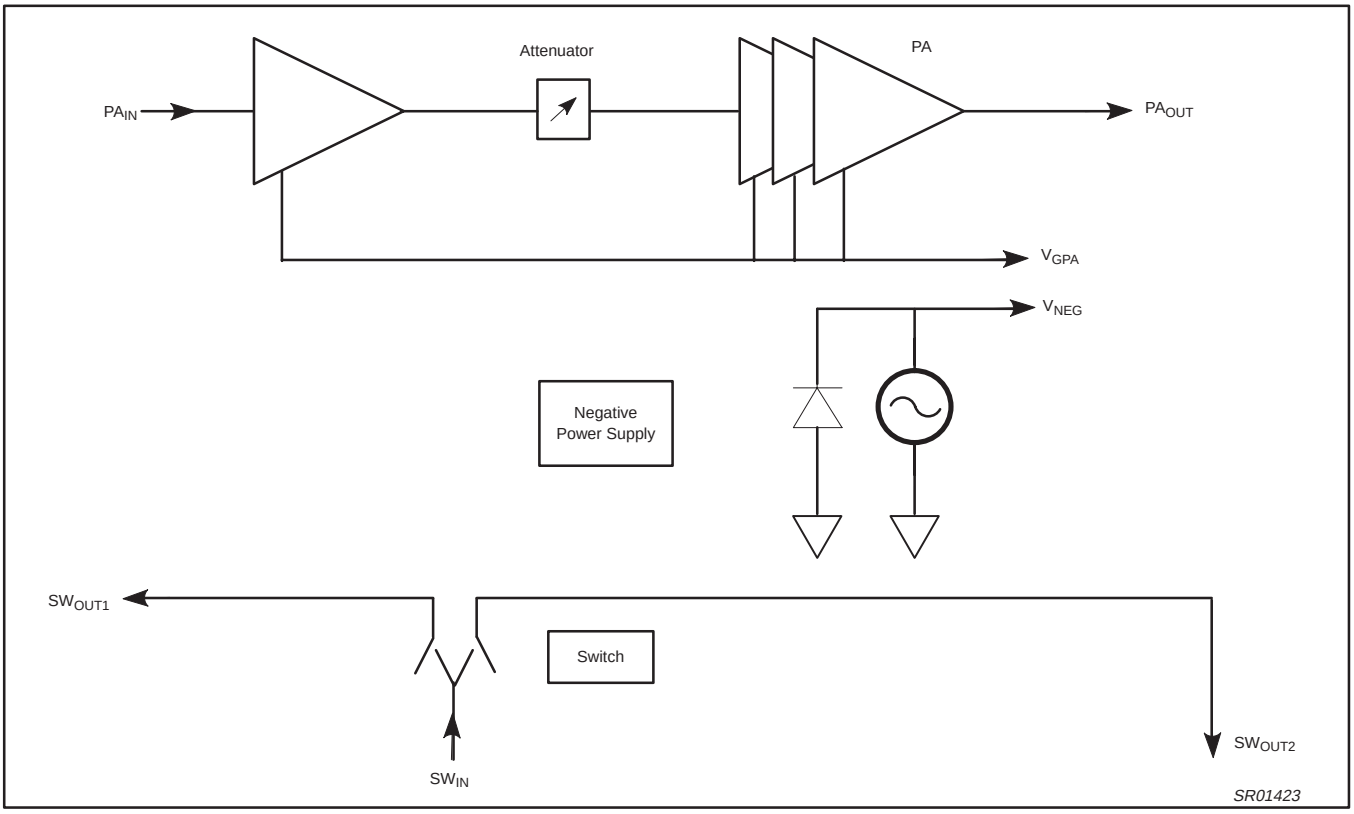
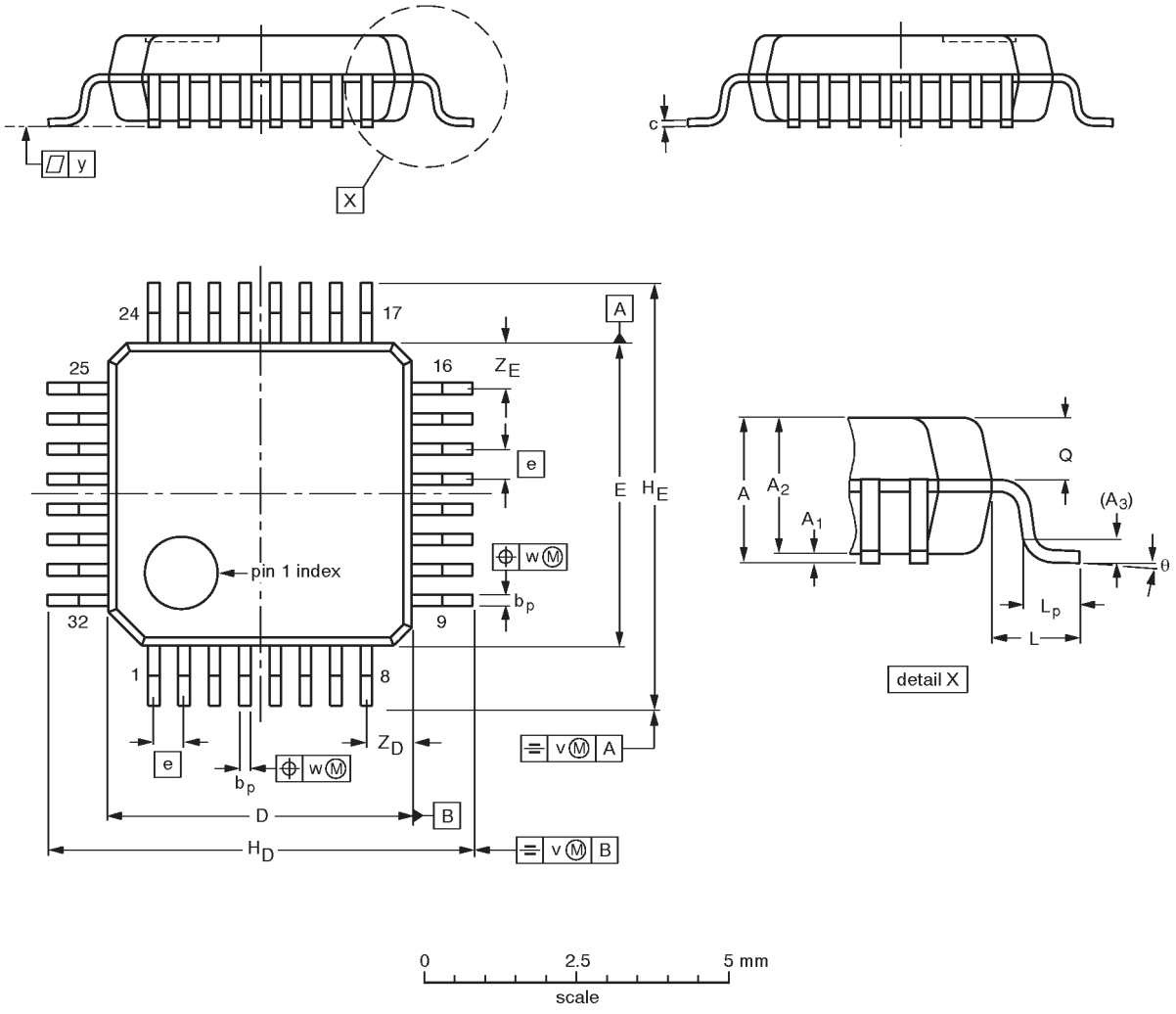


Figure 2. Block Diagram

LQFP32: plastic low profile quad flat package; 32 leads; body 5 x 5 x 1.4 mm **SOT401-1**



DIMENSIONS (mm are the original dimensions)

UNIT	A max.	A_1	A_2	A_3	b_p	c	$D^{(1)}$	$E^{(1)}$	e	H_D	H_E	L	L_p	Q	v	w	y	$Z_D^{(1)}$	$Z_E^{(1)}$	θ
mm	1.60	0.15 0.05	1.5 1.3	0.25	0.27 0.17	0.18 0.12	5.1 4.9	5.1 4.9	0.5	7.15 6.85	7.15 6.85	1.0	0.75 0.45	0.70 0.57	0.2	0.12	0.1	0.95 0.55	0.95 0.55	7° 0°

Note

1. Plastic or metal protrusions of 0.25 mm maximum per side are not included.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT401-1						~~94-04-25~~ 95-12-19

NOTES

DEFINITIONS

Data Sheet Identification	Product Status	Definition
Objective Specification	Formative or in Design	This data sheet contains the design target or goal specifications for product development. Specifications may change in any manner without notice.
Preliminary Specification	Preproduction Product	This data sheet contains preliminary data, and supplementary data will be published at a later date. Philips Semiconductors reserves the right to make changes at any time without notice in order to improve design and supply the best possible product.
Product Specification	Full Production	This data sheet contains Final Specifications. Philips Semiconductors reserves the right to make changes at any time without notice, in order to improve design and supply the best possible product.

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Date of release: 09–97

Document order number: 9397 750 03299

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