Si4300

Dual-Band Monolithic Power Amplifier System

Description

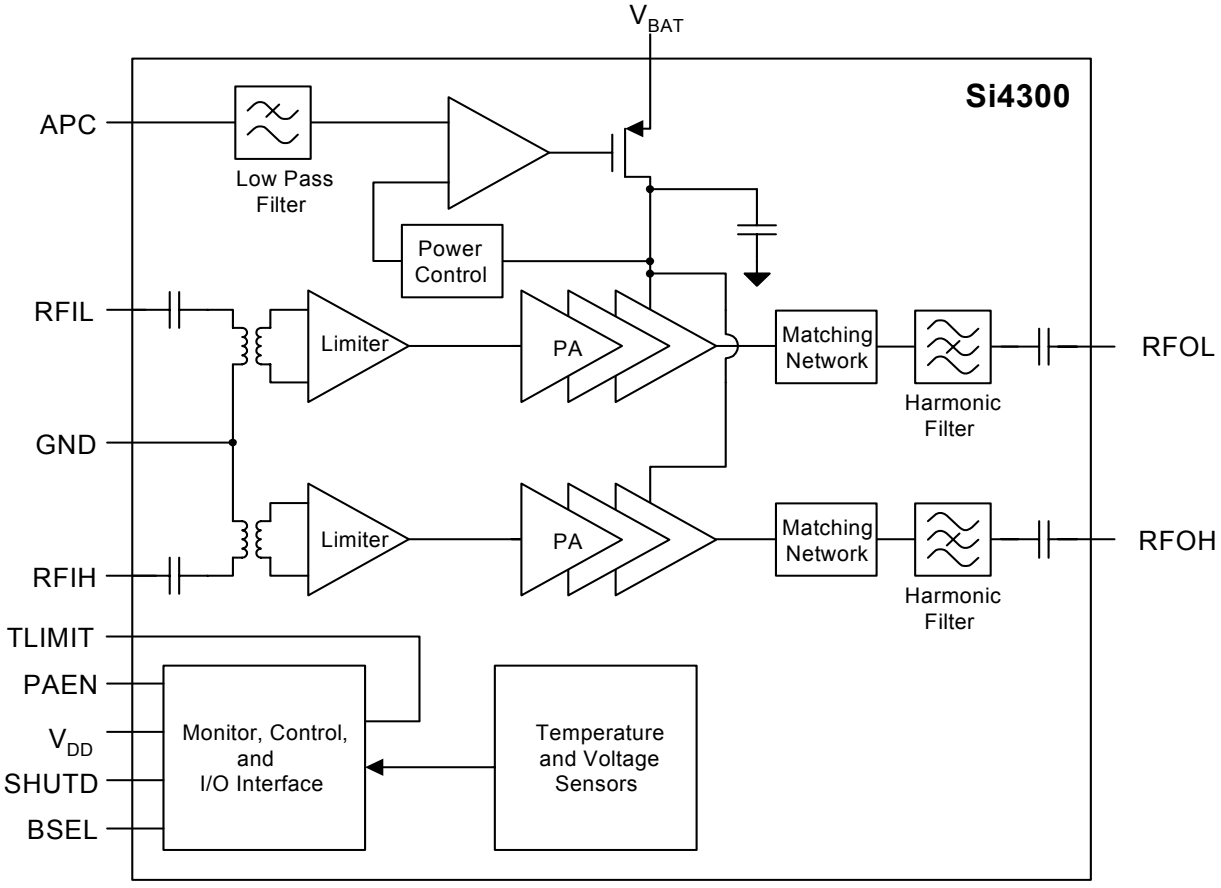
The Si4300 is a complete, monolithic, high-power, and high-performance power amplifier system that integrates all functions and all components between the transmit portion of the transceiver and antenna switch module (ASM). The integrated circuit consists of two amplification paths which supports GSM 900 and DCS 1800. These amplifiers are General Packet Radio Service (GPRS) class 12 compatible and can be used in GPRS multi-slot applications. The Si4300 integrates the input and output matching networks, complete power control, thermal and load mismatch protection, and many other features and functions in a single, standard CMOS die on a ceramic substrate.

Features

- Small 25 mm^2 package (3.9 x 6.4 x 1.3 mm)
- Complete power control
- Thermal and load mismatch protection
- Harmonic filtering
- Input and output matching circuits
- Optimal average burst current (ABC) for all power levels
- Low powerdown current during receive and standby
- GPRS Class 12 compatible
- 3.0 to 4.8 V operation
- JEDEC moisture sensitivity level (MSL) 1
- RoHS compliant

Applications

- E-GSM 900 and DCS 1800 dual-band cellular handsets
- GPRS data terminals

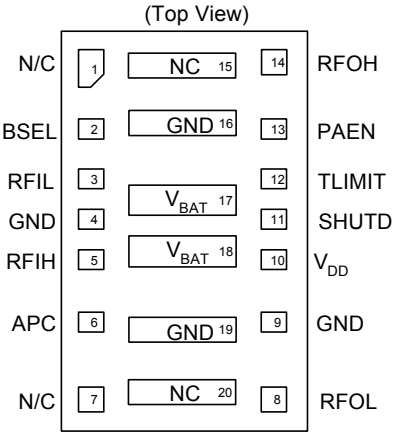


Selected Electrical Specifications

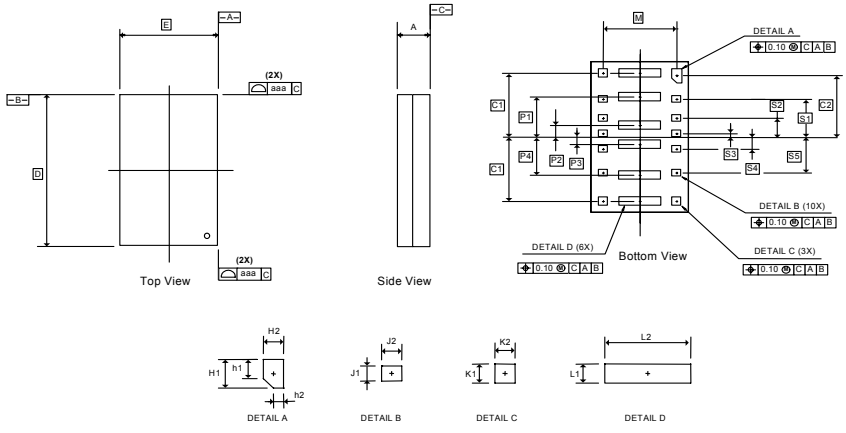
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
GSM						
Input Power	P_{IN}	Across all operating conditions	3.5	—	11	dBm
Output Noise Power		RBW = 100 kHz, f = 925 to 935 MHz	—	—	–72	dBm
		RBW = 100 kHz, f > 935 MHz, 6 dBm	—	–86	–84	dBm
Input VSWR		P_{OUT} = over all power levels,	—	1.6:1	1.8:1	
Ruggedness		All combinations of the following: P_{IN} = 3.5 to 11 dBm, APC ≤ 2.0 V, T_C = –20 to 85 °C, V_{BAT} = 3.0 to 4.8 V, Antenna VSWR ≤ 20:1, all angles Post-PA loss ≥ 1.4 dB	—	—	no damage or permanent degradation	
DCS						
Input Power	P_{IN}	Across all operating conditions	3.5	—	9	dBm
Output Noise Power	P_{NOISE}	RBW = 100 kHz, f = 1805–1880 MHz	—	—	–77	dBm
		RBW = 100 kHz, f > 1880 MHz	—	—	–77	dBm
Input VSWR		P_{OUT} = over all power levels,	—	1.6:1	1.8:1	
Ruggedness		All combinations of the following: P_{IN} = 3.5 to 9 dBm, APC ≤ 2.0 V, T_C = –20 to 85 °C, V_{BAT} = 3.0 to 4.8 V, Antenna VSWR ≤ 20:1, all angles Post-PA loss ≥ 1.4 dB	—	—	no damage or permanent degradation	

Pin Assignments

(Top View)



Package Information



Dimension	MIN	NOM	MAX
A	1.17	1.30	1.43
H1	0.55	0.60	0.65
h1	0.35	0.40	0.45
H2	0.35	0.40	0.45
h2	0.15	0.20	0.25
J1	0.27	0.32	0.37
J2	0.35	0.40	0.45
K1	0.35	0.40	0.45
K2	0.35	0.40	0.45

Dimension	MIN	NOM	MAX
L1	0.35	0.40	0.45
L2	1.65	1.70	1.75
C1		2.70 BSC	
C2		2.60 BSC	
D		6.40 BSC	
E		3.90 BSC	
M		2.90 BSC	
P1		1.70 BSC	
P2		0.50 BSC	

Dimension	MIN	NOM	MAX
P3		0.30 BSC	
P4		1.60 BSC	
S1		1.60 BSC	
S2		0.80 BSC	
S3		0.15 BSC	
S4		0.50 BSC	
S5		1.50 BSC	
aaa		0.10	