

RTG9001

RF Activity Monitor and Threshold Detector with Sequencer Broadband input from 100MHz – 2.5GHz

Features

- Linear operating Frequency Range from 100MHz to 2.5GHz
- Dynamic Range 45 dB
- Unbalanced or Balanced Antenna Inputs
- Power Level Threshold Set Point Adjustment
- 3 Output Sequencer for use with external circuits
- Compact 14-pin TSSOP Package
- Optional received-signal-strength indication (RSSI) voltage output
- \$1.90 at 1K volume

Applications

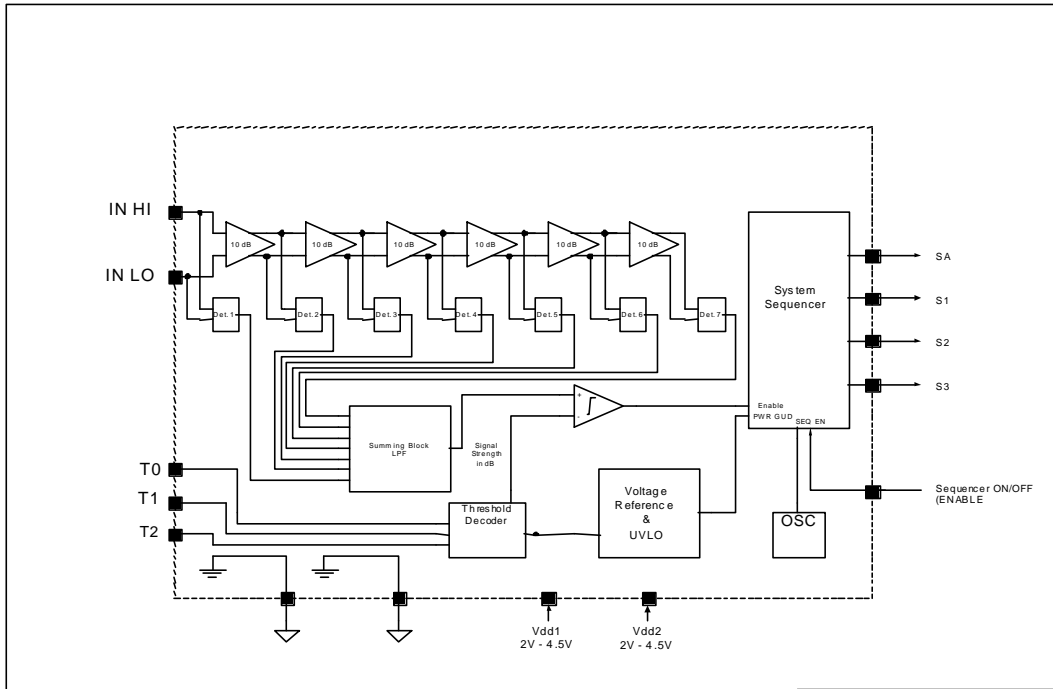
- 802.11, 15
- WiFi, ZigBee and BlueTooth Repeaters
- Cellular Handsets (TDMA, CDMA, GSM)
- TSSI for Wireless Terminal Devices
- WLAN remote access point control
- WLAN Repeater Control
- Consumer Gateway Sleep Mode
- RF Sniffers for Dosimeter Applications
- Medical Proximity Monitors
- Wireless Data Modems
- RF Power Alarm
- Envelope Detector
- Transmitter power and control

Description

The RTG9001 is an RF receiver that monitors RF signal strength and detects when the power level has exceeded a user programmable threshold. This part detects and measures RF signals in the frequency range of 100MHz to 2.5GHz. A logarithmic receiver puts out an RSSI DC voltage that is linearly related to the RF input power in dB. This voltage is fed to an on-chip comparator with a 3 bit programmable threshold. When power exceeds the threshold, a Signal Active output goes high, followed by three additional delayed digital outputs from a sequencing circuit. Hysteresis is built in so that after the power level falls below the threshold the three delayed outputs remain true for a nominal 30 seconds, and then the three outputs are turned off simultaneously.

The RTG9001 is designed to be used with any circuit that requires an RF power monitor for start up and/or shutdown of external circuits. Applications include low power WLAN repeaters where the repeater is powered up only when RF power is detected above a preset level.

Functional Block Diagram



PIN	Name	Function
1	IN LO	RF- Signal input. Must be capacitively coupled. This may be coupled to ground for single ended input
2	GND1	Ground for first gain stages
3	GND2	Ground for remaining gain stages and other circuits
4	SA	Signal Active – indicates RF power exceeds threshold. This signal goes false when power level falls below the threshold.
5	S1	Sequencer output 1 – goes true 5 Ms after SA. This signal goes false 30 seconds after SA goes false.
6	S2	Sequencer output 2 – goes true 10 ms after S1. This signal goes false 30 seconds after SA goes false.
7	S3	Sequencer output 3 – goes true 35 ms after S2. This signal goes false 30 seconds after SA goes false.
8	Enable	Low puts chip in power down mode (10 uA current to operate)
9	T2	Threshold set digital input MSB (Threshold repeatability within 1dB.)
10	T1	Threshold set digital input middle bit
11	T0	Threshold set digital input LSB
12	VDD2	Input voltage for remaining gain stages and other circuits (2V to 5.5V) Total current for VDD1 and VDD2 is 5.6 mA at 3V
13	VDD1	Input voltage for first gain stages (2 V to 5.5V)
14	IN HI	RF+ Signal input. Must be capacitively coupled. Input resistance 1000 Ohms. Capacitance 1.2 pF at .1Ghz. Dynamic range is 45 dB.

Absolute Maximum Operating Limits

Rating	Symbol	Value	Unit
Input Supply Voltage Range (VDD to GND)	V _{dd}	+6	V
Voltage on Any Other Pin to GND	V _{in}	-0.3 to (VDD+0.3)	V
Operating Junction Temperature	T _a	0 to 85	°C
Storage Temperature Range	T _{stg}	-65 to 150	°C

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