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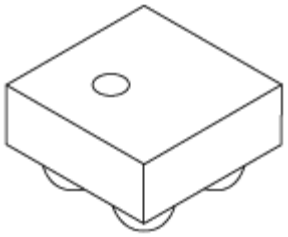
High-frequency Power Detection IC: TCX4A01WBG

This IC enables high-efficiency operation of a power amplifier and long battery use with its small circuit area.



WCSP4

Features

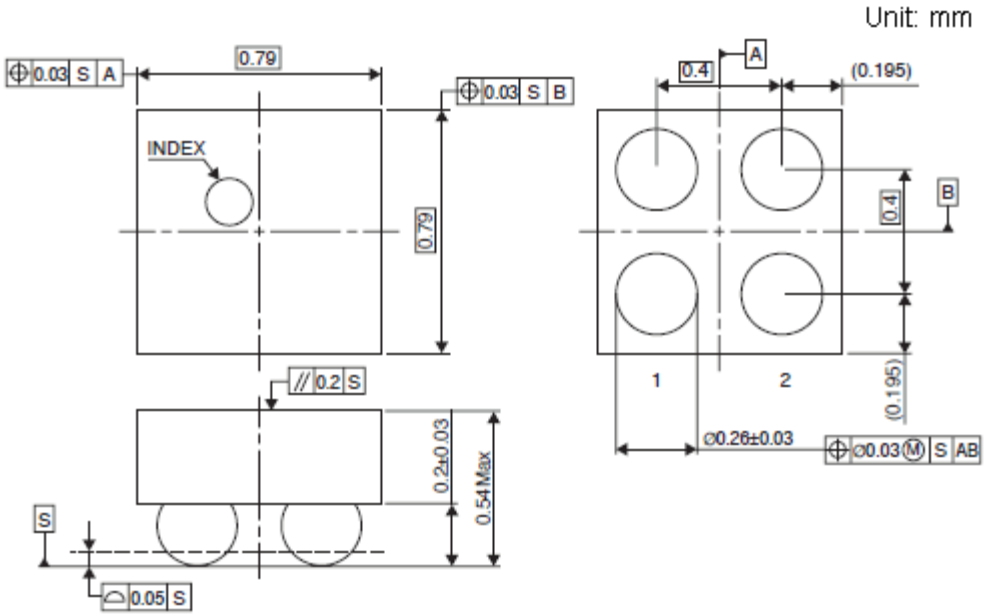
- Extracts a high-accuracy detection voltage from even a complex modulation signals using Root Mean Square (RMS) detection.
- Single-power operation in the 2.5 to 3.3 V range
- Low power consumption of 0.95 mW (typ.)
- Ultra-small package WCSP (0.79 mm × 0.79 mm × 0.5 mm)
- Small number of peripheral circuit parts
  (the IC operates with only a coupling capacitor and a bypass capacitor)

Uses

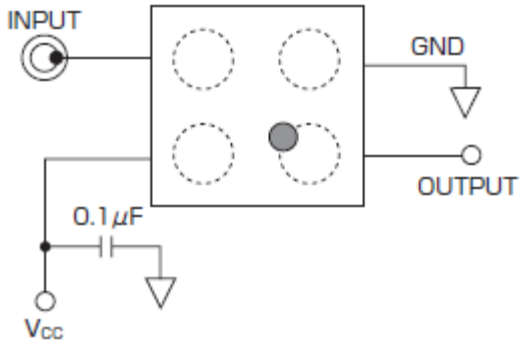
- Mobile phone
  high-frequency power detection (for UMTS, CDMA, WCDMA, and LTE)

Outline Drawing / Basic circuit diagram

Outline Drawing

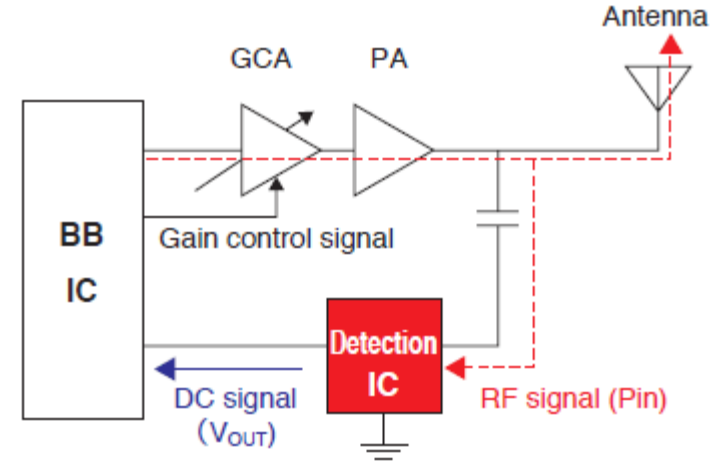


Basic circuit diagram



Circuit Example

Signal transmission section of mobile phone



GCA : Gain Control Amplifier
PA : Power Amplifier

Main Specifications

Main Specifications of High-frequency Power Detection IC: TCX4A01WBG
(V_{CC}=2.8V, Ta=25°C)

Parameter	Symbol	Measurement conditions	Min	Typ.	Max	Unit
Operating current	I_{CC}	No input signal	—	0.34	0.5	mA
Operating frequency	f		700	—	2000	MHz
Error	ER	f=900MHz, P_{in}=-15 to 0dBm	-0.3	—	+0.3	dB
Dynamic range	DR	f=900MHz, Error ±1.0dB	—	27	—	dB
Conversion gain	G_C	f=900MHz, P_{in}=-15 to 0dBm	77	85	93	mV/dB
Error temperature factor	K_{ERROR}	f=900MHz, P_{in}=-5dBm, Ta=-25 to +85°C	—	-0.003	—	dB/°C

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