ASSP

LOW NOISE AMPLIFIER (2 CIRCUITS)

MB54502

DESCRIPTION

The Fujitsu MB54502 includes two independent amplifiers which are used for mobile telecommunication applications such as handy phones and car phones. Both of the amplifiers achieve low current consumption as well as the low noise performance. Using Fujitsu's advanced technology, MB54502 achieves an Icc of 2mA typ. respectively (total 4mA typ.).

■ FEATURES

- Supply voltage 3V (typ.)
- Current consumption 2mA (typ.)
- Input frequency 1.1GHz (max.)
- Gain
- Noise figure
- 1dB compression point
- Frequency tolerance
- Input return loss
- Output return loss
- *1: Measured by the circuit of "measurement circuit example". (fin = 820MHz)

14dB (typ.)^{*1} 2.2dB (typ.)^{*1}

-6dBm (typ.)*1 2.5dB (typ.)*1

8dB (typ.)*1

8dB (typ.)*1

• 16-pin Plastic Shrink Small Outline Package (Suffix: -PFV)

PACKAGE



■ PIN ASSIGNMENT



■ ABSOLUTE MAXIMUM RATINGS

Parameters	Symbol	Value	Unit
Supply Voltage	Vcc	-0.5 to 7.0	V
Output Voltage	Vo	–0.5 to Vcc + 0.5	V
Output Current	lo	0 to 10	mA
Storage Temperature	Тѕтс	-55 to +125	°C

Note: Permanent device damage may occur if the above Absolute Maximum Ratings are exceeded. Functional operation should be restricted to the conditions as detailed in the operational sections of this data sheet. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

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■ EQUIVALENT CIRCUIT



■ PIN DESCRIPTION

Pin No.	Pin Name	Description	Pin No.	Pin Name	Description
1	Rext1	Emitter (amplifier 1)	9	RFin2	Input (amplifier 2)
2	Lext1	Load connection (amplifier1)	10	GND	Ground
3	RFout1	Output (amplifier 1)	11	GND	Ground
4	GND	Ground	12	Vcc2	Power supply (amplifier 2)
5	NC	No connection	13	NC	No connection
6	RFout2	Output (amplifier 2)	14	Vcc1	Power supply (amplifier 1)
7	Lext2	Load connection (amplifier 2)	15	GND	Ground
8	Rext2	Emitter (amplifier 2)	16	RFin1	Input (amplifier 1)

RECOMMENDED OPERATING CONDITIONS

Baramatar	Symbol		Unit		
Faiametei		Min.	Тур.	Max.	UIII
Supply Voltage	Vcc	2.7	3.0	5.5	V
Input Voltage	Vı	GND		Vcc	V
Operating Temperature	Та	-40		+85	°C

Notes: To protect against damage by electrostatic discharge, note the following handling precautions:

- Store and transport devices in conductive containers.
- Use properly grounded workstations, tools, and equipment.
- Turn off power before inserting or removing this device into or from a socket.
- Protect leads with conductive sheet, when transporting a board mounted device.

■ ELECTRICAL CHARACTERISTICS

(Vcc1 = +3.0V, Vcc2 = 0.0V, Ta = 25°C or Vcc1 = 0.0V, Vcc2 = +3.0V, Ta = 25°C)

Paramatar	Symbol	Conditions	Target Value			Unit
Farameter			Min.	Тур.	Max.	Unit
Supply Voltage	Vcc	—	2.7	3.0	5.5	V
Supply Current	Icc	1 amplifier active		2.0	—	mA
Operating Frequency	fin	—		820	1100	MHz
Gain	Gain	—		14	—	dB
Noise Figure	NF	—		2.2	—	dB
1dB Compression Point	P _{1dB}	Output		-6	—	dBm
Amplitude Tolerance	-	820 ± 50MHz		2.5	—	dB
Input Return Loss	RLin	—		8	—	dB
Output Return Loss	RLOUT	_		8		dB

Remark: Electrical characteristics depend on external circuits (elements) or status of mounting. The above characteristics are measured by the test circuit in the next page.

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■ MEASUREMENT CIRCUIT (EXAMPLE)



■ PACKAGE DIMENSIONS



MB54502

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