FUJITSU SEMICONDUCTOR
DATA SHEET

DS04-23507-1E

ASSP

CMOS

HIGH-POWER AMPLIFIER

MB54503

■ DESCRIPTION

The Fujitsu MB54503 is a high-power amplifier which is used for mobile telecommunication systems such as handy phones and car phones. This device is ideally suitable for power amplifier driver.
Using Fujitsu's advanced technology, MB54503 achieves an Icc of 26.0mA (typ.).

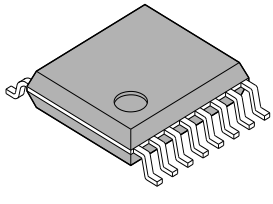
■ FEATURES

- Supply voltage 3.6V (typ.)
- Current consumption 26mA (typ.)
- Input frequency 1.1GHz (max.)
- Gain 25dB (typ.)*1
- Output level (@Pin=–8dBm) +13dBm (typ.)*1
- Input return loss 14dBm (typ.)*1
- Output return loss 6dB (typ.)*1

  *1: Measured by the circuit of "measurement circuit example". (fin = 933MHz)
- 16-pin Plastic Shrink Small Outline Package (Suffix: -PFV)

■ PACKAGE

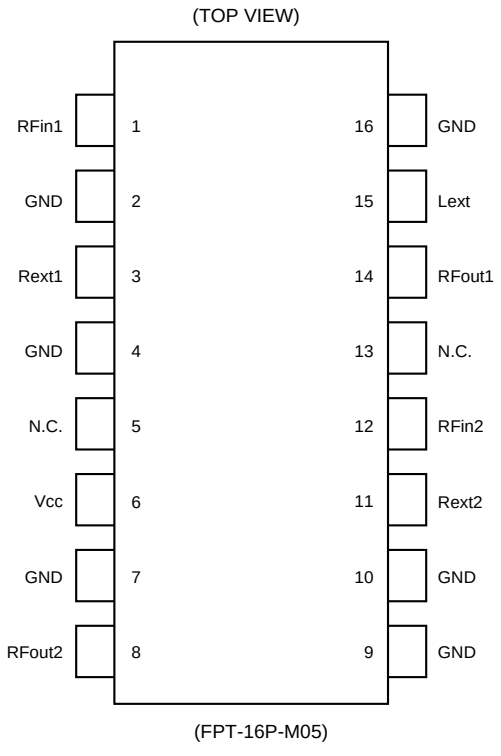
PLASTIC PACKAGE



(FP-16P-M05)

MB54503

■ PIN ASSIGNMENT



■ ABSOLUTE MAXIMUM RATINGS

Parameters	Symbol	Value	Unit
Supply Voltage	V_{CC}	–0.5 to 7.0	V
Output Voltage	V_O	–0.5 to V_{CC} + 0.5	V
Output Current	I_O	0 to 10	mA
Storage Temperature	T_{STG}	–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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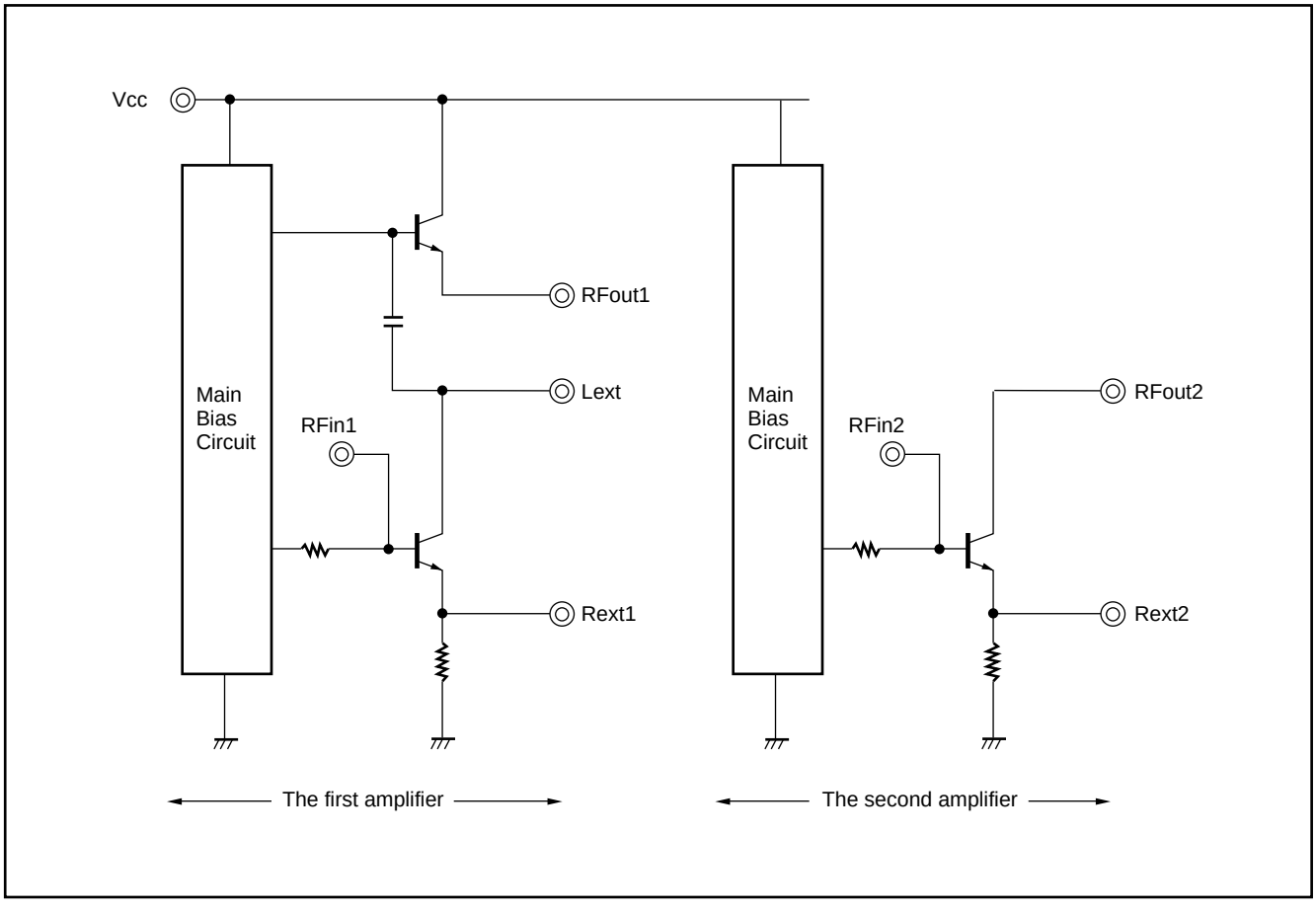
■ EQUIVALENT CIRCUIT



■ PIN DESCRIPTION

Pin No.	Pin Name	Description	Pin No.	Pin Name	Description
1	RFin1	The first amplifier input	9	GND	Ground
2	GND	Ground	10	GND	Ground
3	Rext1	Emitter for the first amplifier	11	Rext2	Emitter of the second amplifier
4	GND	Ground	12	RFin2	The second amplifier input
5	N.C.	No connection	13	N.C.	No connection
6	V_{CC}	Power supply	14	RFout1	The first amplifier output
7	GND	Ground	15	Lext	Load connecting for the first amplifier
8	RFout2	The second amplifier output	16	GND	Ground

■ RECOMMENDED OPERATING CONDITIONS

(Vcc = +3.6V, Ta = 25°C)

Parameter	Symbol	Value			Unit
		Min.	Typ.	Max.	
Supply Voltage	V_{CC}	2.7	3.6	5.0	V
Input Voltage	V_I	GND	—	V_{CC}	V
Operating Temperature	Ta	–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

(Vcc = +3.6V, Ta = 25°C)

Parameter	Symbol	Conditions	Target Value			Unit
			Min.	Typ.	Max.	
Supply Voltage	V_{CC}	—	2.7	3.6	5.0	V
Supply Current	I_{CC}	—	—	26	—	mA
Operating Frequency	fin	—	—	933	1100	MHz
Gain	Gain	—	—	25	—	dB
Output Power	Pout	Pin = –8dBm	—	+13	—	dBm
Input Return Loss	RL_{IN}	—	—	14	—	dB
Output Return Loss	RL_{OUT}	—	—	6	—	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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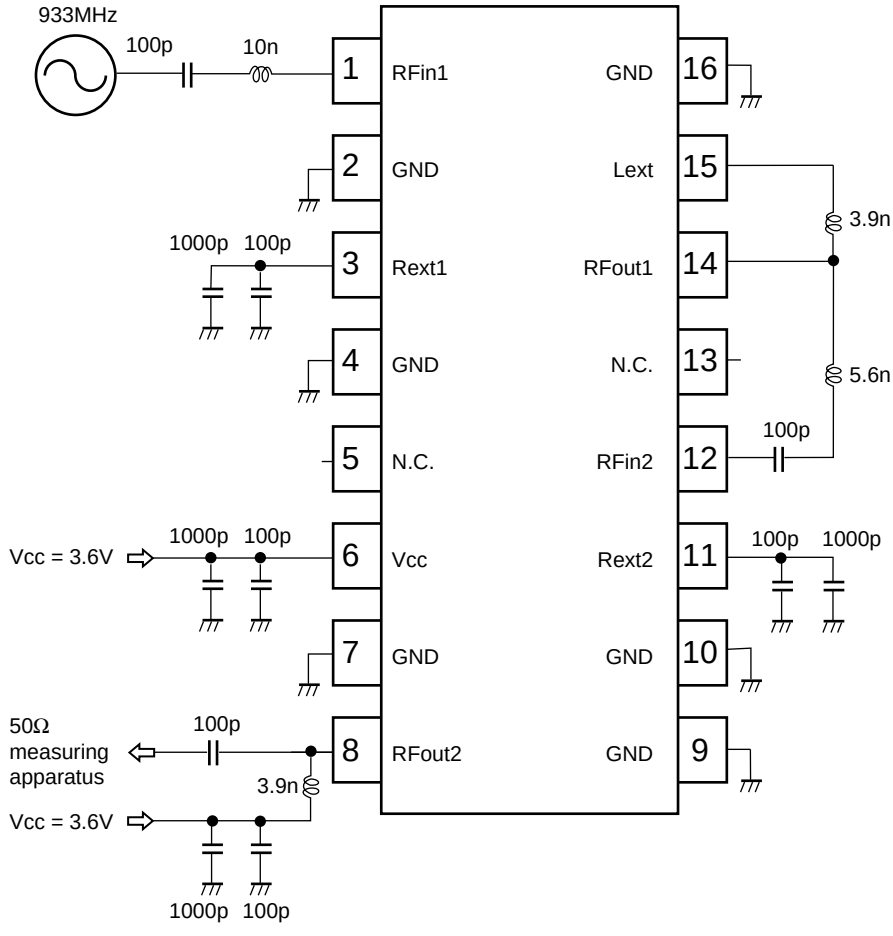
■ MEASUREMENT CIRCUIT (EXAMPLE)



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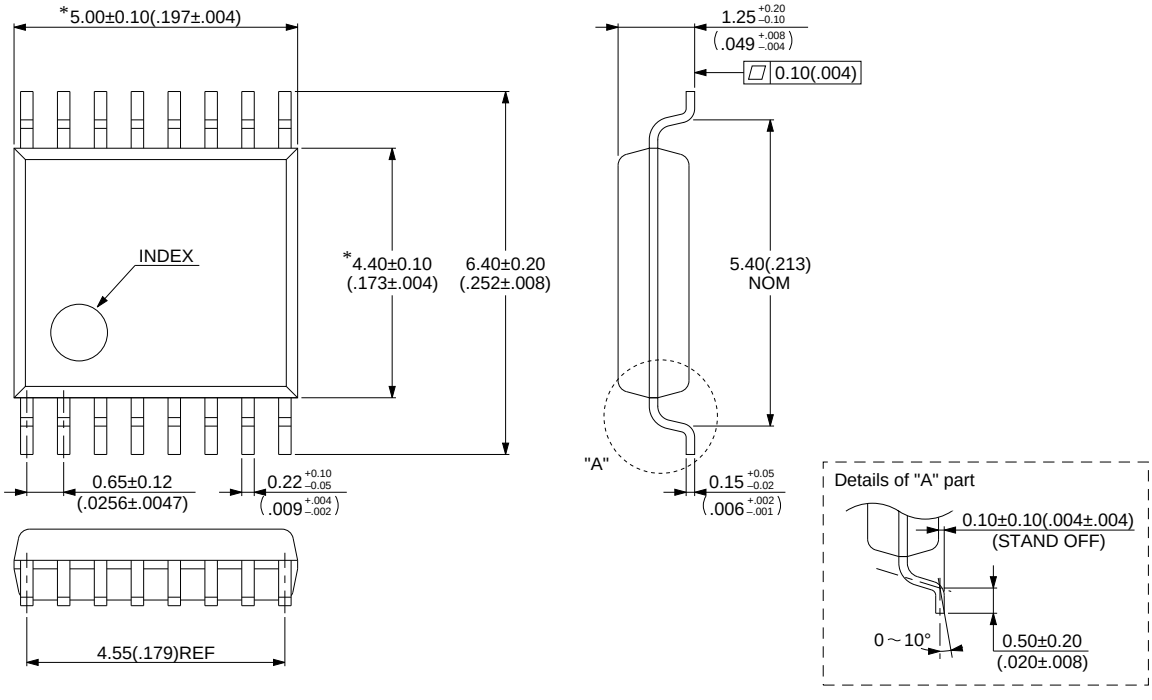
■ PACKAGE DIMENSIONS

16 pins, Plastic SSOP
(FPT-16P-M05)

*:These dimensions do not include resin protrusion.



Dimensions in mm (inches)

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