

TS-PA1-60

SiGe:C HBT MMIC

PA, 57 – 67 GHz

Typical applications

Power amplifier 57 - 67 GHz for use in:

- Short Range High Capacity Links,
- Mobile Terminals,
- Battery Operated Devices.

Features

Output power: P_{SAT}=17 dBm, P_{1dB}=12 dBm

Gain 14 dB

Peak PAE 16.4 %

Differential Inputs/Outputs

Internally Matched to 100 Ohm

Unconditionally stable

Supply voltage: +3.3 V

Die Size: 0.84 x 0.72 mm² *General description*

The TS-PA1-60 is a Power Amplifier intended for use in 60 GHz applications. Differential inputs allow balun-less connection to mixer. Integrated diode connected BJT is placed near the output transistors, and allows temperature measurement for thermal protection.

Electrical specifications, $T_A=25$ °C, 50 Ohm system, Measured with 1:2 Balun, $V_{cc}=3.3V$

Parameter	Min	Тур	Max	Units
Input return loss	-10			dB
Gain		14		dB
Output power (saturated)		17		dBm
Output power (1 dB compression)		12		dBm
Peak PAE		16.4		%
PAE at 1 dB compression point		6		%
Supply current		78		mA

Functional diagram





Input Return Loss

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Output Return Loss



Gain

Power, Gain and PAE @ 61.5 GHz



Absolute Maximum Ratings

Parameter	Min	Тур	Max	Units
Supply voltage			3.5	V
Input Power			10	dBm
Operating Temperature	TBD		TBD	°C
Storage Temperature	-50		150	°C



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Outline Drawing and Chip Identification Information





ELECTROSTATIC SENSITIVE DEVICE HANDLE IN ESD SAFE ENVIRONMENT

Pad Descriptions

Function	Description	Interface	
Power	3.3 V DC supply Pov		
Dowar	Adjust to get I(VCC)=77.8 mA	Power	
Power	Typical value: 3 V		
Power	Ground Power		
Input	Differential signal input + AC coup		
Input	Differential signal input -	AC coupled	
Output	Differential signal output + AC co		
Output	Differential signal output - AC coup		
Temp. sense	Diode connected BJT for temperature measurement	DC	
	Function Power Power Nower Input Input Output Output Temp. sense	FunctionDescriptionPower3.3 V DC supplyPowerAdjust to get I(VCC)=77.8 mAPowerTypical value: 3 VPowerGroundInputDifferential signal input +InputDifferential signal input -OutputDifferential signal output +OutputDifferential signal output -Temp.Diode connected BJT for temperature measurement	



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Assembly Diagram





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Revision information

Version	Change List
1.0	Preliminary data



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Notes:

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