HMC8411TCPZ-EP Datasheet Rev A will change minimum P1dB Specification in the 6 to 10 GHz Frequency Range from 14 dBm to 13 dBm. New 13 dBm value accounts for performance variations observed during production Lot testing.

ANALOG DEVICES
AHEAD OF WHAT'S POSSIBLE™

Rev 0 (7/2019)

HMC8411TCPZ-EP Enhanced Product

6 GHz TO 10 GHz FREQUENCY RANGE

V_{DD} = 5 V, I_{DQ} = 55 mA, and T_A = 25°C, unless otherwise noted.

Table 3.

Parameter	Symbol	Min	Typ	Max	Unit	Test Conditions/Comments
FREQUENCY RANGE		6		10	GHz	
GAIN		11	14		dB	
Gain Variation over Temperature			0.013		dB/°C	
NOISE FIGURE			2		dB	
RETURN LOSS						
Input			15		dB	
Output			17		dB	
OUTPUT						
Output Power for 1 dB Compression	P1dB	14	17		dBm	
Saturated Output Power	P_{SAT}		19.5		dBm	
Output Third-Order Intercept	OIP3		33		dBm	Measurement taken at P_{OUT} per tone = 6 dBm
Output Second-Order Intercept	OIP2		40		dBm	Measurement taken at P_{OUT} per tone = 6 dBm
POWER ADDED EFFICIENCY	PAE		23		%	Measured at P_{SAT}
SUPPLY CURRENT	I_{DQ}		55		mA	
SUPPLY VOLTAGE	V_{DD}	2	5	6	V	

Rev A (Update in Process)

HMC8411TCPZ-EP Enhanced Product

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Output			17		dB	
OUTPUT						
Output Power for 1 dB Compression	P1dB	~~14~~ 13	~~17~~ 16		dBm	
Saturated Output Power	P_{SAT}		19.5		dBm	
Output Third-Order Intercept	OIP3		33		dBm	Measurement taken at P_{OUT} per tone = 6 dBm
Output Second-Order Intercept	OIP2		40		dBm	Measurement taken at P_{OUT} per tone = 6 dBm
POWER ADDED EFFICIENCY	PAE		23		%	Measured at P_{SAT}
SUPPLY CURRENT	I_{DQ}		55		mA	
SUPPLY VOLTAGE	V_{DD}	2	5	6	V	

HMC8411TCPZ-EP Rev A Datasheet will change Thermal Resistance from 82 to 115.35 °C/W. New 115.35 °C/W value is the result of an updated thermal analysis reflecting more accurately the device performance.

ANALOG DEVICES
AHEAD OF WHAT'S POSSIBLE™

Rev 0 (7/2019)

ABSOLUTE MAXIMUM RATINGS

Table 4.

Parameter[1]	Rating
Drain Bias Voltage (V_{DD})	7 V
Radio Frequency Input (RF_{IN}) Power	20 dBm
Channel Temperature	175°C
Continuous Power Dissipation, P_{DISS}[2]	
T_{CASE} = 85°C	1.098 W
T_{CASE} = 125°C	0.61 W
Storage Temperature Range	−65°C to +150°C
Operating Temperature Range	−55°C to +125°C
Peak Reflow Temperature Moisture Sensitivity Level 1 (MSL1)[3]	260°C
Electrostatic Discharge (ESD) Sensitivity	
Human Body Model (HBM)	500 V, Class 1B passed

THERMAL RESISTANCE

Thermal performance is directly linked to printed circuit board (PCB) design and operating environment. Close attention to PCB thermal design is required.

θ_{JC} is the junction to case thermal resistance.

Table 5. Thermal Resistance

Package Type	θ_{JC}	Unit
CP-6-12	82	°C/W

POWER DERATING CURVES

Figure 2 shows the maximum power dissipation vs. case temperature.

Rev A (to be released)

ABSOLUTE MAXIMUM RATINGS

Table 4.

Parameter[1]	Rating
Drain Bias Voltage (V_{DD})	7 V
Radio Frequency Input (RF_{IN}) Power	20 dBm
Channel Temperature	175°C
Continuous Power Dissipation, P_{DIS}[2]	
T_{CASE} = 85°C	~~1.098~~ 0.78 W
T_{CASE} = 125°C	~~0.61~~ 0.43 W
Storage Temperature Range	−65°C to +150°C
Operating Temperature Range	−55°C to +125°C
Peak Reflow Temperature Moisture Sensitivity Level 1 (MSL1)[3]	260°C
Electrostatic Discharge (ESD) Sensitivity	
Human Body Model (HBM)	500 V, Class 1B passed

Thermal Resistance

Thermal performance is directly linked to printed circuit board (PCB) design and operating environment. Close attention to PCB thermal design is required.

θ_{JC} is the junction to case thermal resistance.

Table 5. Thermal Resistance

Package Type	θ_{JC}	Unit
CP-6-12	~~82~~ 115.35	°C/W

POWER DERATING CURVES

Figure 2 shows the maximum power dissipation vs. case temperature.