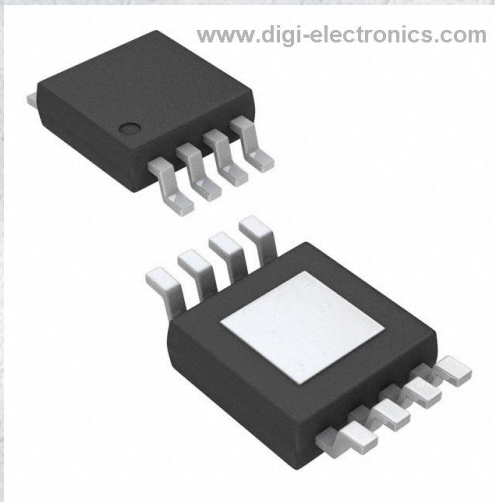


HMC361S8G Datasheet



<https://www.DiGi-Electronics.com>

DiGi Electronics Part Number	HMC361S8G-DG
Manufacturer	Analog Devices Inc.
Manufacturer Product Number	HMC361S8G
Description	IC FREQ DIVIDER DC-10GHZ 8SOIC
Detailed Description	RF IC Prescaler General Purpose 0Hz ~ 10GHz Divide by 2 8-SOIC

This model HMC361S8G is available at DiGi Electronics.

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Purchase and inquiry

Manufacturer Product Number:

HMC361S8G

Series:

-

Function:

Prescaler

RF Type:

General Purpose

Mounting Type:

Surface Mount

Supplier Device Package:

8-SOIC

Manufacturer:

Analog Devices Inc.

Product Status:

Active

Frequency:

0Hz ~ 10GHz

Secondary Attributes:

Divide by 2

Package / Case:

8-SOIC (0.154", 3.90mm Width) Exposed Pad

Base Product Number:

HMC361

Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8542.39.0001

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99



HMC361S8G/361S8GE

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SMT GaAs HBT MMIC
DIVIDE-BY-2, DC - 10 GHz



Typical Applications

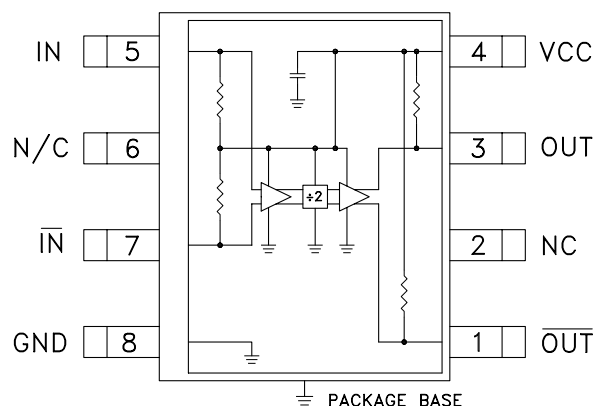
Prescaler for DC to X Band PLL Applications:

- Satellite Communication Systems
- Fiber Optic
- Point-to-Point and Point-to-Multi-Point Radios
- VSAT

Features

- Ultra Low SSB Phase Noise: -148 dBc/Hz
- Wide Bandwidth
- Output Power: 3 dBm
- Single DC Supply: +5V
- S8G SMT Package

Functional Diagram



General Description

The HMC361S8G & HMC361S8GE are low noise Divide-by-2 Static Dividers with InGaP GaAs HBT technology in 8 lead surface mount plastic packages. This device operates from DC (with a square wave input) to 10 GHz input frequency with a single +5V DC supply. The low additive SSB phase noise of -148 dBc/Hz at 100 kHz offset helps the user maintain good system noise performance.

Electrical Specifications, $T_A = +25^\circ\text{C}$, 50 Ohm System, $V_{CC} = 5V$

Parameter	Conditions	Min.	Typ.	Max.	Units
Maximum Input Frequency		10	11		GHz
Minimum Input Frequency	Sine Wave Input. ^[1]		0.2	0.5	GHz
Input Power Range	$F_{in} = 1$ to 8 GHz	-15		+10	dBm
	$F_{in} = 8$ to 10 GHz	-10		+2	dBm
Output Power	$F_{in} = 6$ GHz	0	3		dBm
	$F_{in} = 10$ GHz	-6			dBm
Reverse Leakage	Both RF Outputs Terminated		45		dB
SSB Phase Noise (100 kHz offset)	$P_{in} = 0$ dBm, $F_{in} = 6$ GHz		-148		dBc/Hz
Output Transition Time	$P_{in} = 0$ dBm, $F_{out} = 882$ MHz		100		ps
Supply Current (I_{CC})			83		mA

1. Divider will operate down to DC for square-wave input signal.



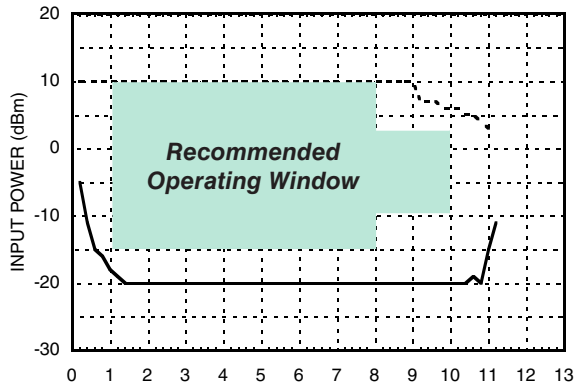
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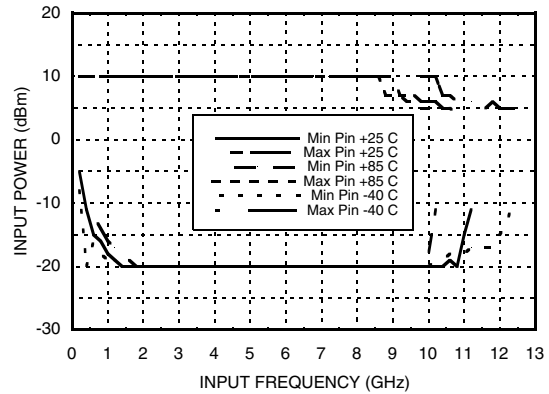
SMT GaAs HBT MMIC DIVIDE-BY-2, DC - 10 GHz



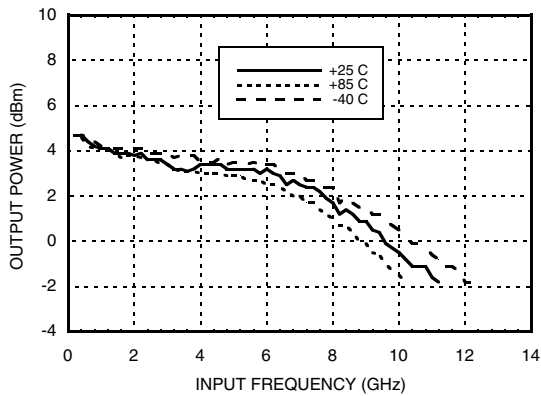
Input Sensitivity Window, $T = 25\text{ }^\circ\text{C}$



Input Sensitivity Window vs. Temperature

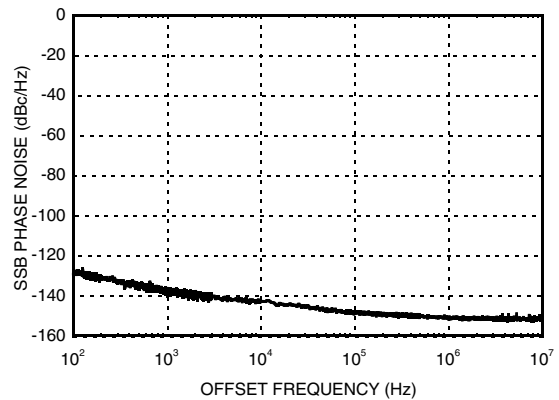


Output Power vs. Temperature



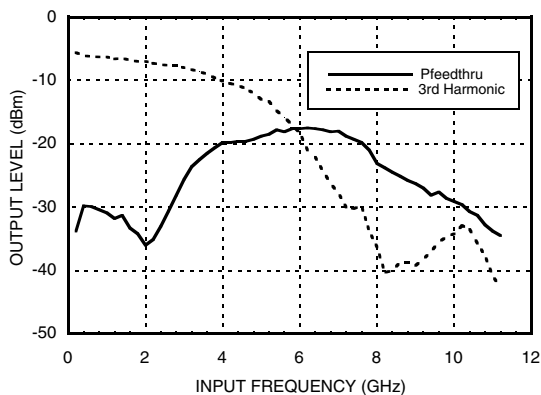
SSB Phase Noise

Performance, $P_{in} = 0\text{ dBm}$, $T = 25\text{ }^\circ\text{C}$

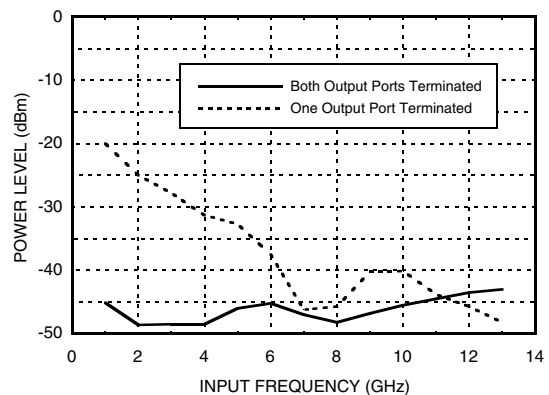


Output Harmonic

Content, $P_{in} = 0\text{ dBm}$, $T = 25\text{ }^\circ\text{C}$



Reverse Leakage, $P_{in} = 0\text{ dBm}$, $T = 25\text{ }^\circ\text{C}$





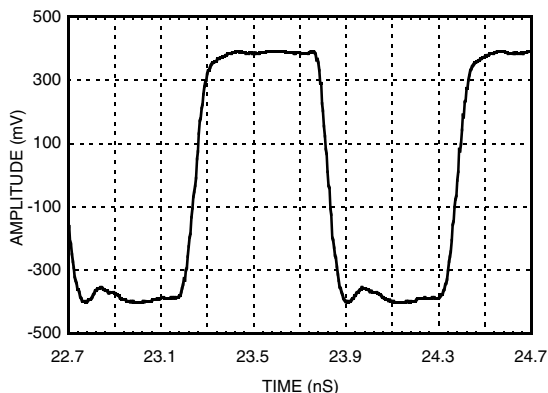
HMC361S8G/361S8GE

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SMT GaAs HBT MMIC DIVIDE-BY-2, DC - 10 GHz



Output Voltage Waveform,
Pin = 0 dBm, Fout = 882 MHz, T = 25 °C



Absolute Maximum Ratings

RF Input (Vcc = +5V)	+13 dBm
Vcc	+5.5V
VLogic	Vcc -1.6V to Vcc -1.2V
Junction Temperature (Tj)	135 °C
Continuous P _{diss} (T = 85 °C) (derate 15.9 mW/°C above 85 °C)	0.79 W
Thermal Resistance (R _{TH}) (junction to ground paddle)	63 °C/W
Storage Temperature	-65 to +150 °C
Operating Temperature	-40 to +85 °C

Typical Supply Current vs. Vcc

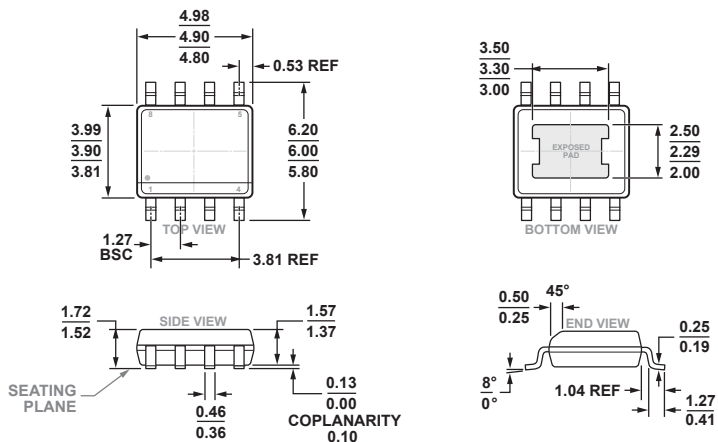
Vcc (V)	I _{cc} (mA)
4.75	74
5.0	83
5.25	89

Note: Divider will operate over full voltage range shown above



ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

Outline Drawing



COMPLIANT TO JEDEC STANDARDS MS-012-BA

8-Lead Standard Small Outline Package, with Exposed Pad [SOIC_N_EP]
Narrow Body, Low Stand-off
(RD-8-3)
Dimensions shown in millimeters.

09-31-2021-A

09-31-2021-A



HMC361S8G/361S8GE

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SMT GaAs HBT MMIC
DIVIDE-BY-2, DC - 10 GHz



Package Information

Part Number	Package Body Material	Lead Finish	MSL Rating	Package Marking ^[3]
HMC361S8G	Low Stress Injection Molded Plastic	Sn/Pb Solder	MSL1 ^[1]	H361 XXXX
HMC361S8GE	RoHS-compliant Low Stress Injection Molded Plastic	100% matte Sn	MSL1 ^[2]	H361 XXXX
HMC361S8GETR	RoHS-compliant Low Stress Injection Molded Plastic	100% matte Sn	MSL1 ^[2]	H361 XXXX
HMC361S8GTR	Low Stress Injection Molded Plastic	Sn/Pb Solder	MSL1 ^[1]	H361 XXXX
104631- HMC361S8G	Eval Board			

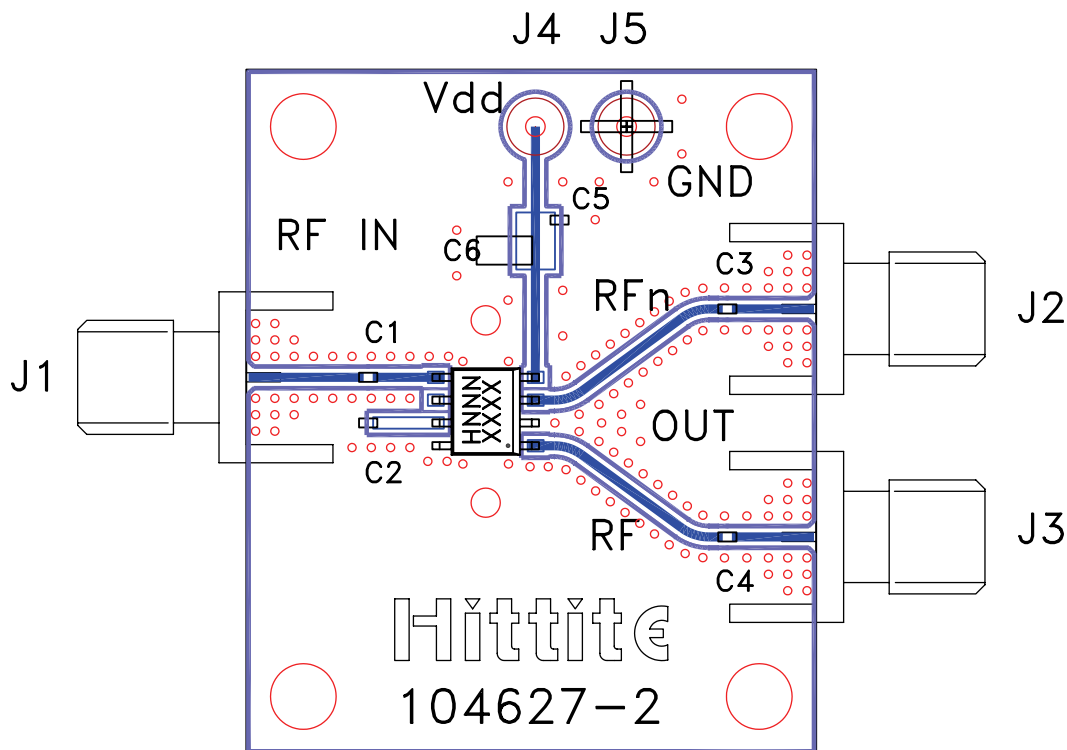
[1] Max peak reflow temperature of 235 °C

[2] Max peak reflow temperature of 260 °C

[3] 4-Digit lot number XXXX

Pin Description

Pin Number	Function	Description	Interface Schematic
1	$\overline{\text{OUT}}$	Divided output 180° out of phase with pin 3.	
2, 6	N/C	No connection. These pins must not be grounded.	
3	OUT	Divided Output.	
4	VCC	Supply voltage 5V ± 0.25V.	
5	IN	RF Input must be DC blocked.	
7	$\overline{\text{IN}}$	RF Input 180° out of phase with pin 5 for differential operation. A/C ground for single ended operation	
8	GND	Ground Backside of package has exposed metal ground slug which must be connected to ground.	


Evaluation PCB

List of Materials for Evaluation PCB 104631 ^[1]

Item	Description
J1 - J3	PCB Mount SMA RF Connector
C1 - C4	100 pF Capacitor, 0402 Pkg.
C5	1000 pF Capacitor, 0603 Pkg.
C6	10 μ F Tantalum Capacitor
U1	HMC361S8G / HMC361S8GE Divide-by-2
PCB ^[2]	104627 Eval Board

[1] Reference this number when ordering complete evaluation PCB

[2] Circuit Board Material: Rogers 4350

The circuit board used in the application should use RF circuit design techniques. Signal lines should have 50 Ohm impedance while the package ground leads and backside ground slug should be connected directly to the ground plane similar to that shown. A sufficient number of via holes should be used to connect the top and bottom ground planes. The evaluation circuit board shown is available from Analog Devices upon request. This evaluation board is designed for single ended input testing. J2 and J3 provide differential output signals.



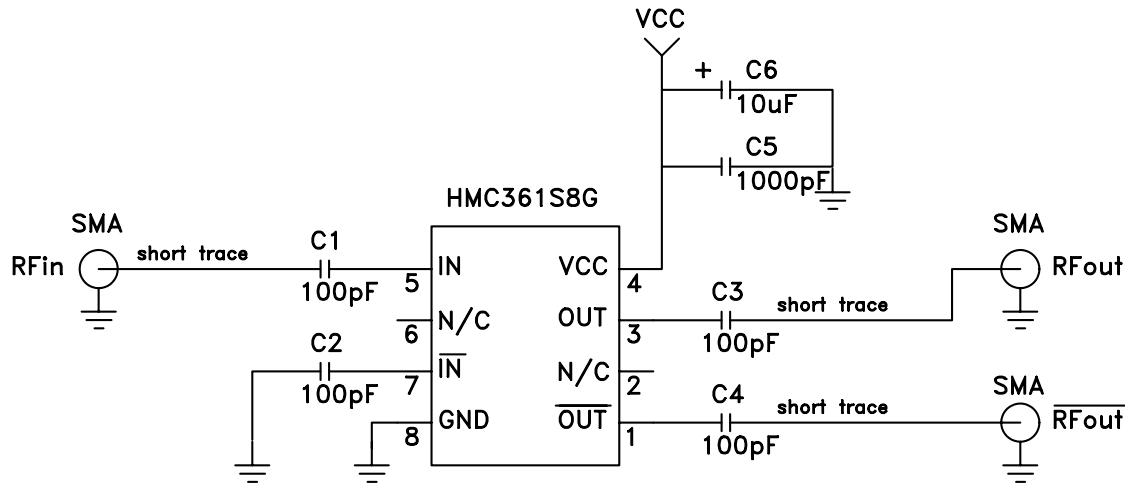
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SMT GaAs HBT MMIC
DIVIDE-BY-2, DC - 10 GHz



Application Circuit



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