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v03.1007



HMC-C006

DIVIDE-BY-4 PRESCALER MODULE, 0.5 - 18 GHz

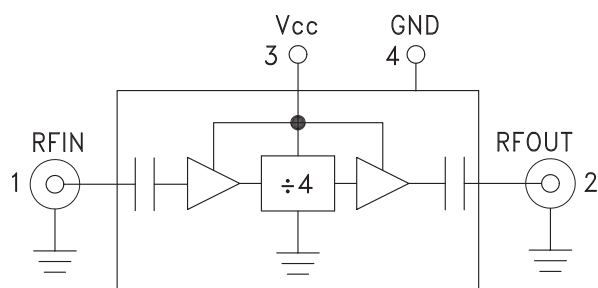


Typical Applications

Prescaler for 0.5 to 18 GHz PLL Applications:

- Point-to-Point / Multi-Point Radios
- VSAT Radios
- Fiber Optic
- Test Equipment
- Military & Space

Functional Diagram



Features

- Ultra Low SSB Phase Noise: -150 dBc/Hz
- Very Wide Bandwidth
- Output Power: -4 dBm
- Single DC Supply: +5V
- Hermetically Sealed Module
- Field Replaceable SMA Connectors
- 55 to +85 °C Operating Temperature

General Description

The HMC-C006 is a low noise Divide-by-4 Static Divider utilizing InGaP GaAs HBT technology packaged in a miniature, hermetic module with replaceable SMA connectors. This device operates from 0.5 to 18 GHz input frequency from a single +5V DC supply. The low additive SSB phase noise of -150 dBc/Hz at 100 kHz offset helps the user maintain excellent system noise performance.

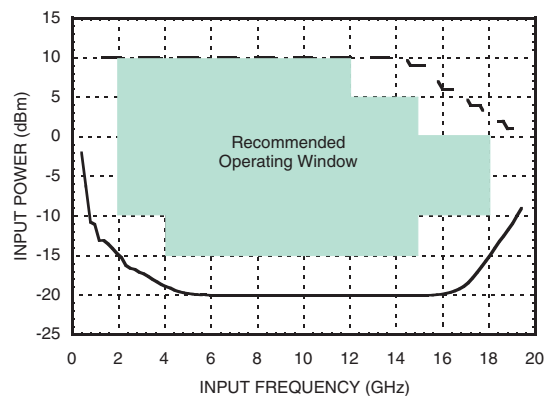
Electrical Specifications, $T_A = +25^\circ\text{C}$, 50 Ohm System, $V_{cc} = +5V$

Parameter	Conditions	Min.	Typ.	Max.	Units
Maximum Input Frequency		18	19		GHz
Minimum Input Frequency	Sine Wave Input			0.5	GHz
Input Power Range	$F_{in} = 2$ to 4 GHz	-15	-10	+10	dBm
	$F_{in} = 4$ to 12 GHz	-20	-15	+10	dBm
	$F_{in} = 12$ to 15 GHz	-20	-15	+5	dBm
	$F_{in} = 15$ to 18 GHz	-15	-10	0	dBm
Output Power	$F_{in} = 0.5$ to 18 GHz	-7	-4		dBm
Reverse Leakage	$F_{in} = 0.5$ to 18 GHz		60		dB
SSB Phase Noise (100 kHz offset)	$P_{in} = 0$ dBm, $F_{in} = 4.8$ GHz		-150		dBc/Hz
Output Transition Time	$P_{in} = 0$ dBm, $F_{out} = 882$ MHz		100		ps
Supply Current (I_{cc})			93		mA

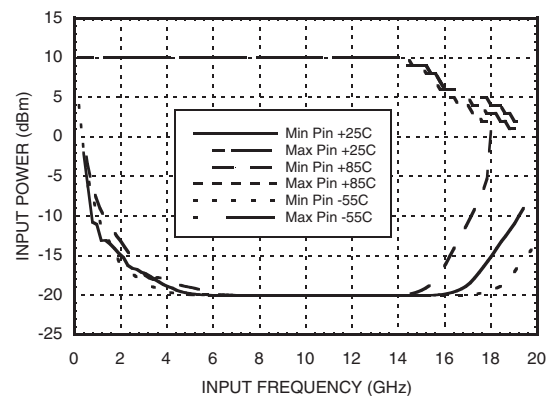
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20 Alpha Road Chelmsford, MA 01824 Phone: 978-250-3343 Fax: 978-250-3373
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**DIVIDE-BY-4 PRESCALER
MODULE, 0.5 - 18 GHz**

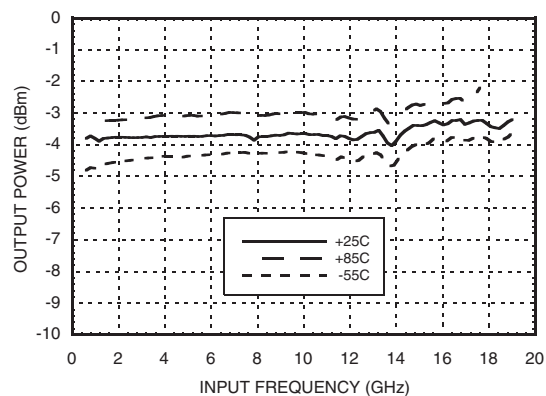
Input Sensitivity Window, $T = 25\text{ }^{\circ}\text{C}$



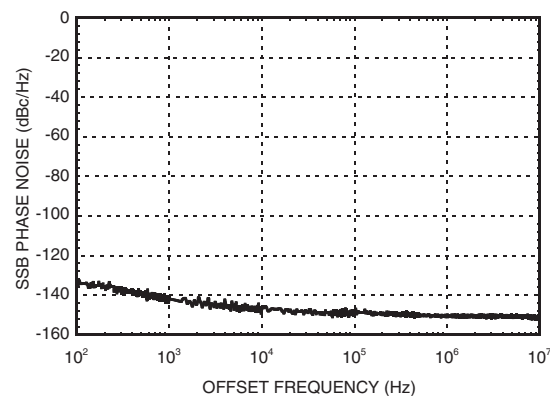
Input Sensitivity vs. Temperature



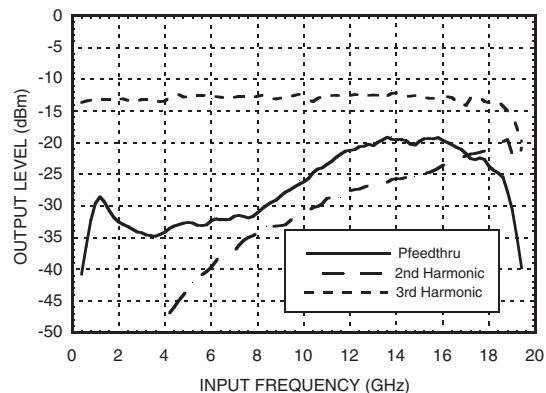
Output Power vs. Temperature



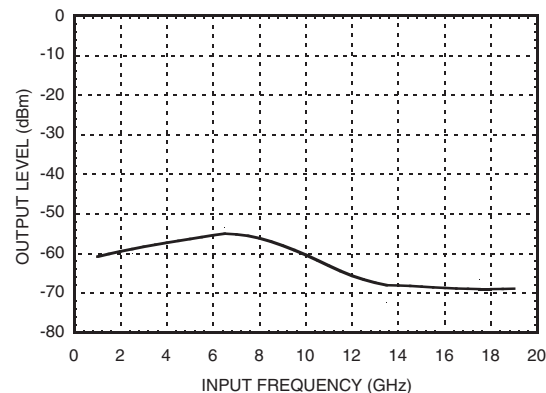
**SSB Phase Noise Performance,
 $P_{in} = 0\text{ dBm}$, $T = 25\text{ }^{\circ}\text{C}$**



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



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

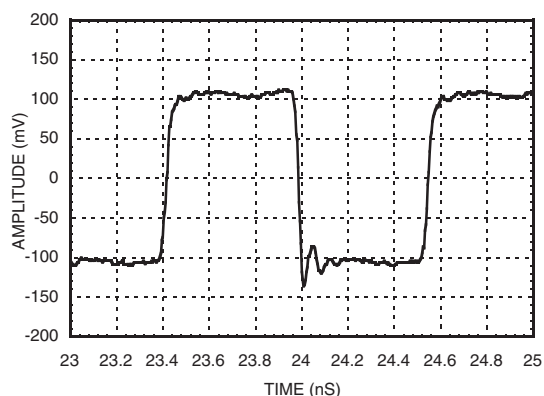




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**HMC-C006****DIVIDE-BY-4 PRESCALER
MODULE, 0.5 - 18 GHz**

Output Voltage Waveform,
 $P_{in} = 0 \text{ dBm}$, $F_{out} = 882 \text{ MHz}$, $T = 25^\circ \text{C}$

**Absolute Maximum Ratings**

Supply Voltage (V_{cc})	+5.5V
RF Input ($V_{cc} = +5V$)	+13 dBm
Storage Temperature	-65 to +150 °C
Operating Temperature	-55 to +85 °C
ESD Sensitivity (HBM)	Class 1A



ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

Typical Supply Current vs. V_{cc}

V_{cc}	I_{cc} (mA)
4.75	82
5.00	93
5.25	104

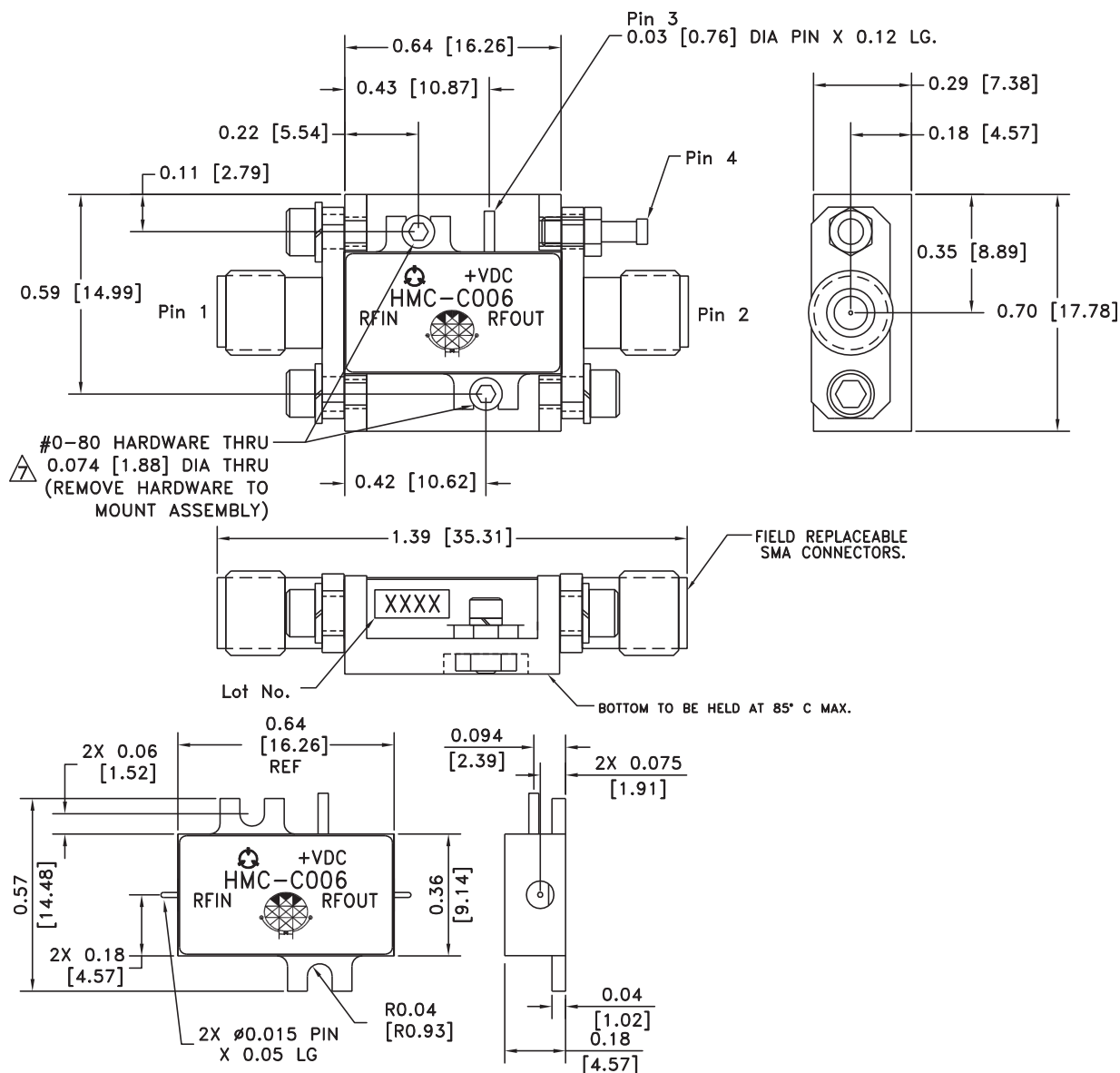
Note: Divider will operate over full voltage range shown above

Pin Description

Pin Number	Function	Description	Interface Schematic
1	RFIN & RF Ground	RF input connector, SMA female, field replaceable. RF Input is AC coupled.	
2	RFOUT & RF Ground	RF output connector, SMA female, field replaceable. Divided output is AC coupled.	
3	V_{cc}	Supply voltage 5V $\pm$ 0.25V.	
4	GND	Power supply ground.	

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Outline Drawing



Package Information

Package Type	C-1
Package Weight [1]	10.2 gms [2]
Spacer Weight	N/A

[1] Includes the connectors

[2] ±1 gms Tolerance

NOTES:

1. PACKAGE, LEADS, COVER MATERIAL: KOVAR™
 2. BRACKET MATERIAL: ALUMINUM
 3. PLATING: ELECTROLYTIC GOLD 50 MICROINCHES MIN., OVER ELECTROLYTIC NICKEL 75 MICROINCHES MIN.
 4. ALL DIMENSIONS ARE IN INCHES [MILLIMETERS].
 5. TOLERANCES ±.005 [0.13] UNLESS OTHERWISE SPECIFIED.
 6. FIELD REPLACEABLE SMA CONNECTORS.
TENSOLITE 5602 - 5CCSF OR EQUIVALENT.
- △ TO MOUNT MODULE TO SYSTEM PLATFORM REPLACE 0-80 HARDWARE WITH DESIRED MOUNTING SCREWS.

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