

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

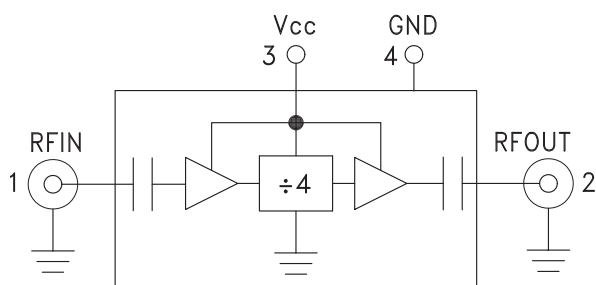


### Typical Applications

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, $V_{CC} = +5V$

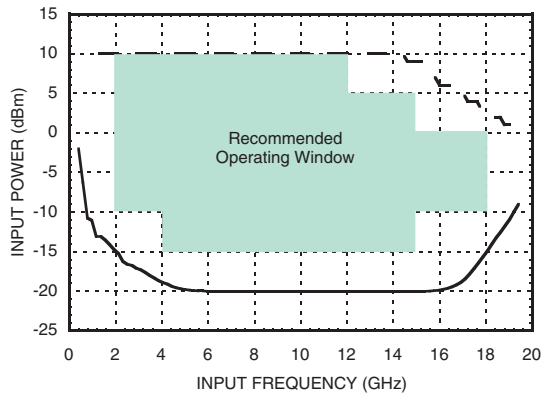
Parameter	Conditions	Min.	Typ.	Max.	Units
Maximum Input Frequency		18	19		GHz
Minimum Input Frequency	Sine Wave Input			0.5	GHz
Input Power Range	Fin = 2 to 4 GHz	-15	-10	+10	dBm
	Fin = 4 to 12 GHz	-20	-15	+10	dBm
	Fin = 12 to 15 GHz	-20	-15	+5	dBm
	Fin = 15 to 18 GHz	-15	-10	0	dBm
Output Power	Fin =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



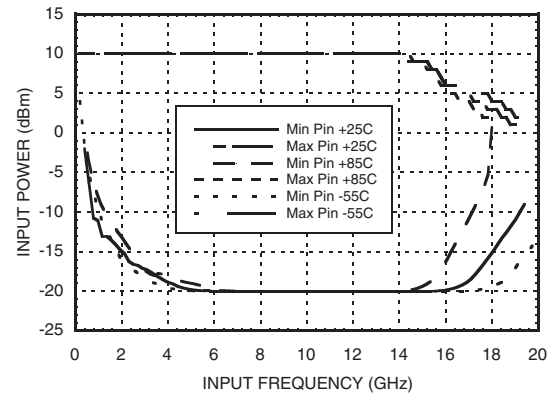
**DIVIDE-BY-4 PRESCALER  
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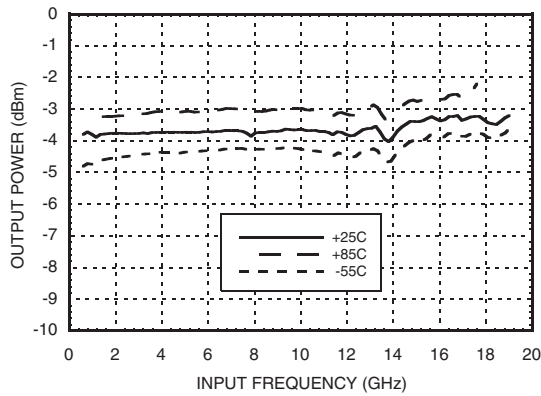
**Input Sensitivity Window,  $T = 25\text{ }^{\circ}\text{C}$**



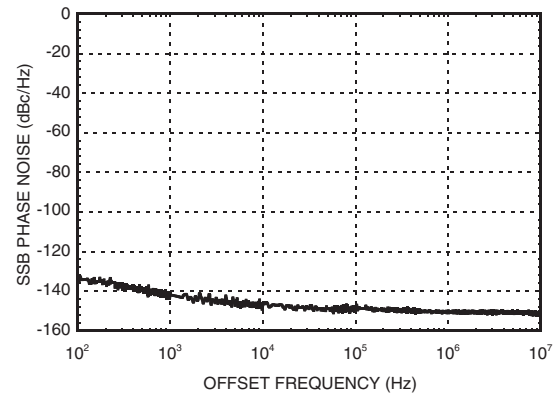
**Input Sensitivity vs. Temperature**



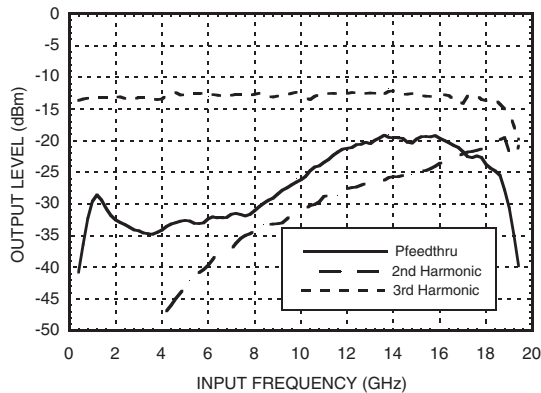
**Output Power vs. Temperature**



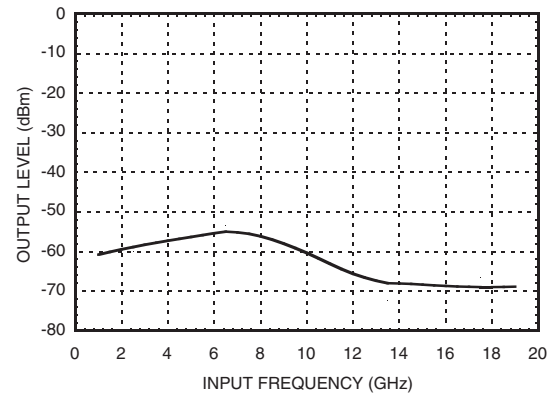
**SSB Phase Noise Performance,  
 $P_{in} = 0\text{ dBm}$ ,  $T = 25\text{ }^{\circ}\text{C}$**



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

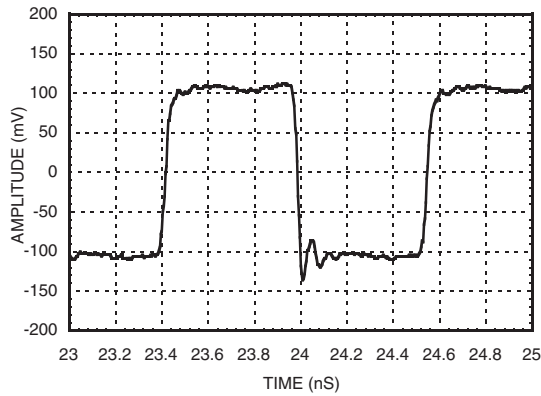


**Reverse Leakage,  $P_{in} = 0\text{ dBm}$ ,  $T = 25\text{ }^{\circ}\text{C}$**



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**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



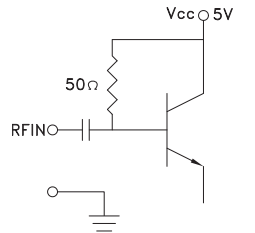
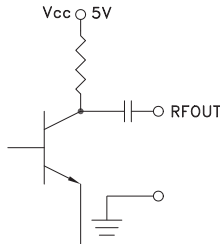

**ELECTROSTATIC SENSITIVE DEVICE**  
**OBSERVE HANDLING PRECAUTIONS**

**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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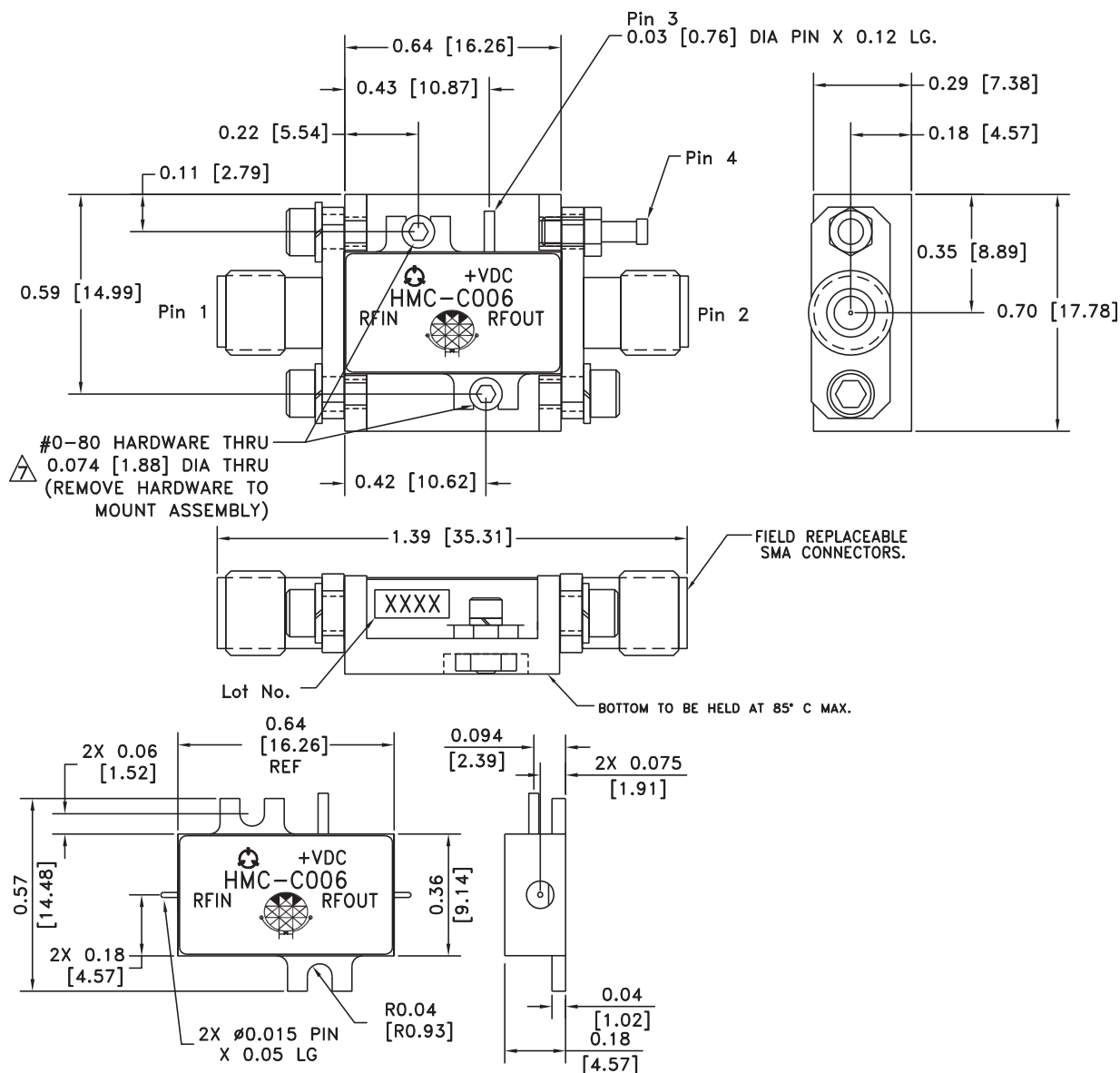
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# HMC-C006

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

## Outline Drawing



## Package Information

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

[2]  $\pm 1$  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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