

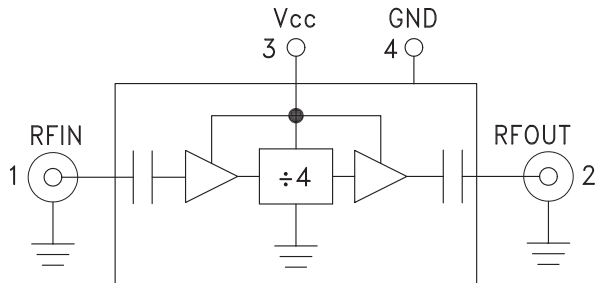


### Typical Applications

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.

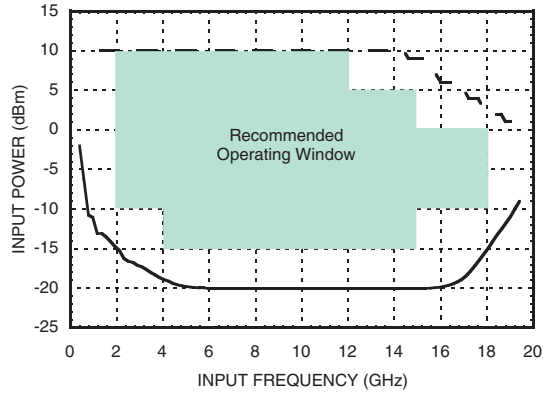
### Electrical Specifications, $T_A = +25^\circ\text{C}$ , 50 Ohm System, $V_{cc} = +5V$

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

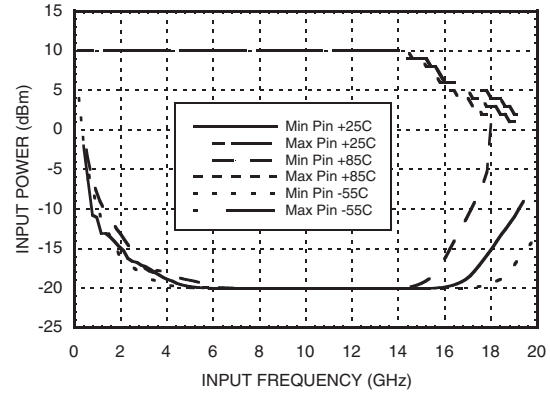


## DIVIDE-BY-4 PRESCALER MODULE, 0.5 - 18 GHz

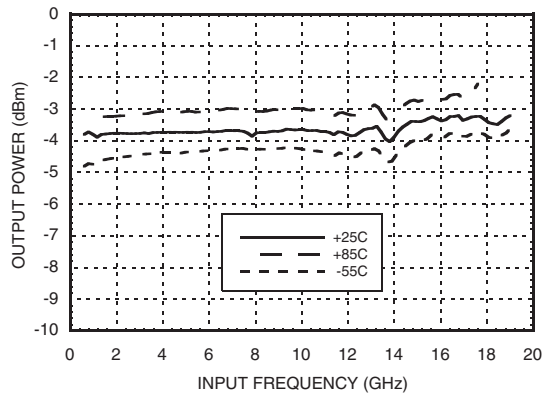
**Input Sensitivity Window,  $T = 25\text{ }^{\circ}\text{C}$**



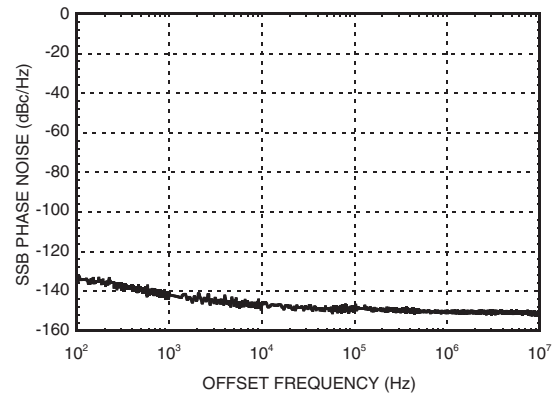
**Input Sensitivity vs. Temperature**



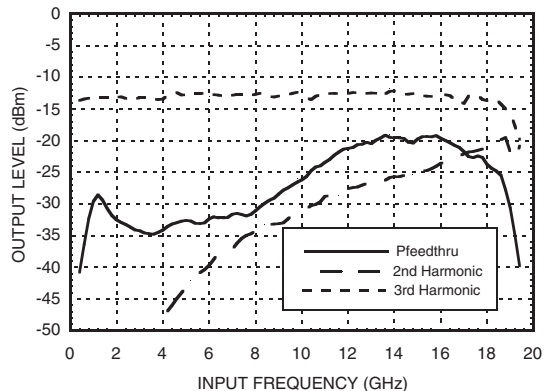
**Output Power vs. Temperature**



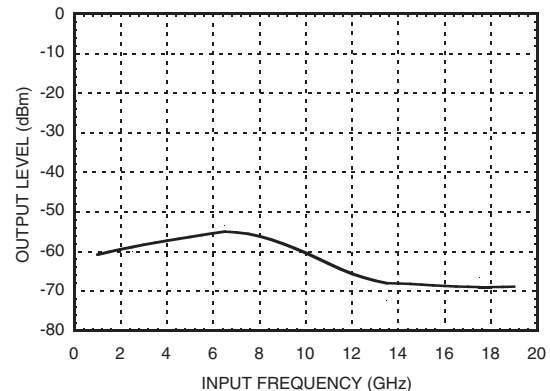
**SSB Phase Noise Performance,  $P_{in} = 0\text{ dBm}$ ,  $T = 25\text{ }^{\circ}\text{C}$**



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

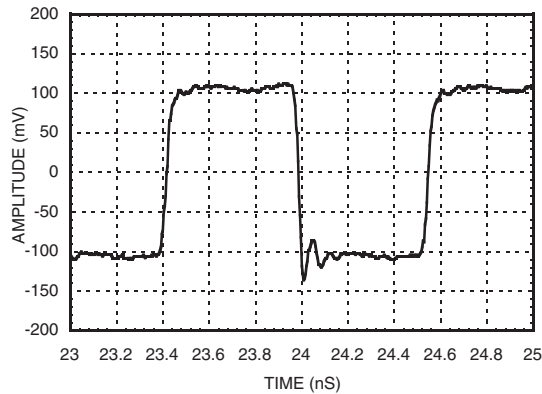


**Reverse Leakage,  $P_{in} = 0\text{ dBm}$ ,  $T = 25\text{ }^{\circ}\text{C}$**





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



### Absolute Maximum Ratings

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



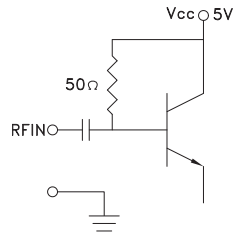
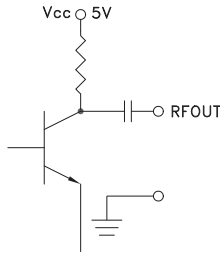

**ELECTROSTATIC SENSITIVE DEVICE**  
OBSERVE HANDLING PRECAUTIONS

### Typical Supply Current vs. Vcc

Vcc	Icc (mA)
4.75	82
5.00	93
5.25	104

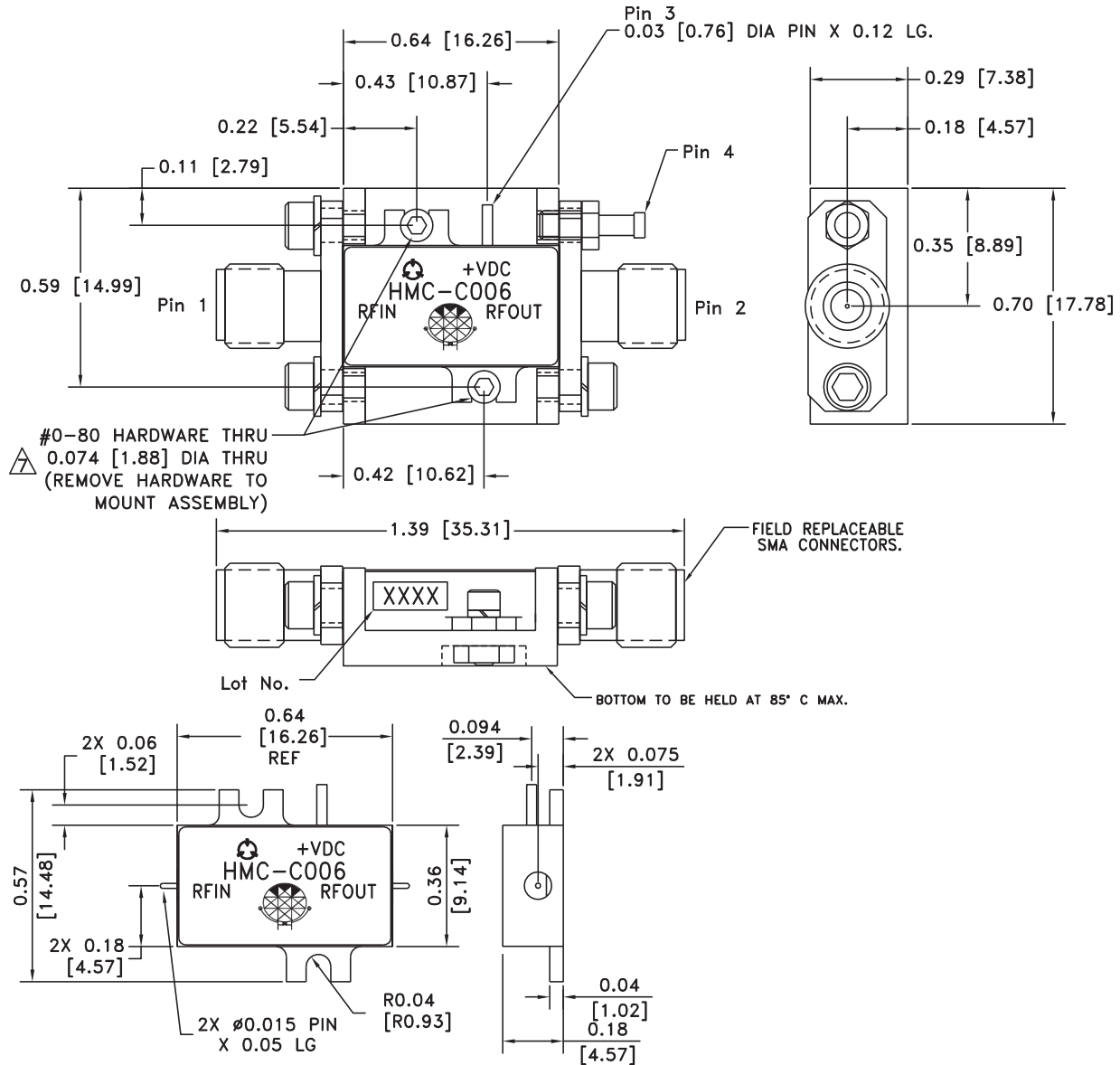
Note: Divider will operate over full voltage range shown above

### 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	Vcc	Supply voltage 5V ± 0.25V.	
4	GND	Power supply ground.	

For price, delivery, and to place orders, please contact Hittite Microwave Corporation:  
20 Alpha Road Chelmsford, MA 01824 Phone: 978-250-3343 Fax: 978-250-3373  
Order Online at [www.hittite.com](http://www.hittite.com)

### Outline Drawing



### Package Information

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

[1] Includes the connectors

[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  $\pm$ .005 [0.13] UNLESS OTHERWISE SPECIFIED.
  6. FIELD REPLACEABLE SMA CONNECTORS.  
TENSOLITE 5602 - 5CCSF OR EQUIVALENT.
- $\Delta$  TO MOUNT MODULE TO SYSTEM PLATFORM REPLACE 0-80 HARDWARE WITH DESIRED MOUNTING SCREWS.