

DIVIDE-BY-10 PRESCALER MODULE, 0.5 - 17.0 GHz

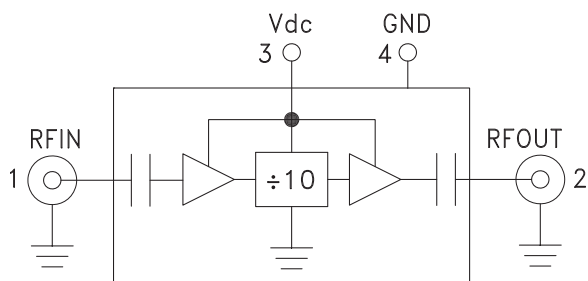


Typical Applications

Prescaler for 0.5 to 17 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: -155 dBc/Hz
- Very Wide Bandwidth
- Output Power: -1 dBm
- Single DC Supply: +5V @ 152mA
- RoHS Compliant Hermetically Sealed Module
- Field Replaceable SMA Connectors
- 55 to +85 °C Operating Temperature

General Description

The HMC-C040 is a low noise Divide-by-10 Static Divider utilizing InGaP GaAs HBT technology packaged in a miniature, hermetic module with replaceable SMA connectors. This device operates from 0.5 to 17 GHz input frequency from a single +5V DC supply. The low additive SSB phase noise of -155 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, $V_{dc} = +5V$

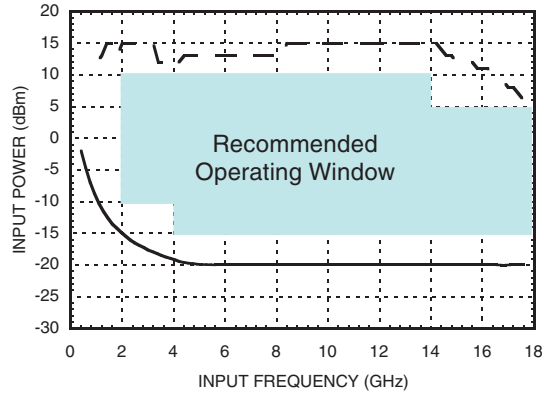
Parameter	Conditions	Min.	Typ.	Max.	Units
Maximum Input Frequency		17	18		GHz
Minimum Input Frequency	Sine Wave Input			0.5	GHz
Input Power Range	$F_{in} = 2$ to 4 GHz	-15	-10	+10	dBm
	$F_{in} = 4$ to 14 GHz	-20	-15	+10	dBm
	$F_{in} = 14$ to 17 GHz	-20	-15	5	dBm
Output Power	$F_{in} = 0.5$ to 17 GHz	-4	-1		dBm
Reverse Leakage	$F_{in} = 0.5$ to 9 GHz		85		dB
Reverse Leakage	$F_{in} = 9$ to 17 GHz		70		dB
SSB Phase Noise (100 kHz offset)	$P_{in} = 0$ dBm, $F_{in} = 4.8$ GHz		-155		dBc/Hz
Output Transition Time	$P_{in} = 0$ dBm, $F_{out} = 882$ MHz		100		ps
Supply Current (I_{dc})			152		mA

**DIVIDE-BY-10 PRESCALER
MODULE, 0.5 - 17.0 GHz**

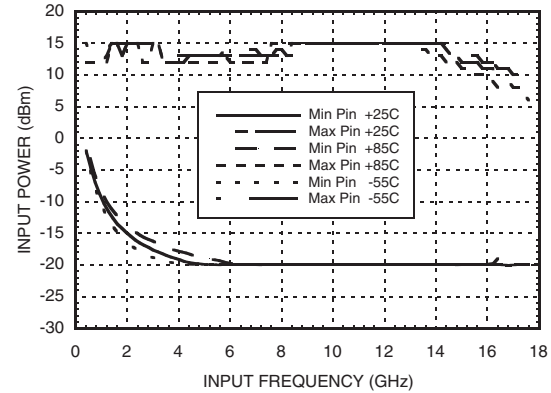
12

CONNECTORIZED MODULES - FREQUENCY DIVIDERS

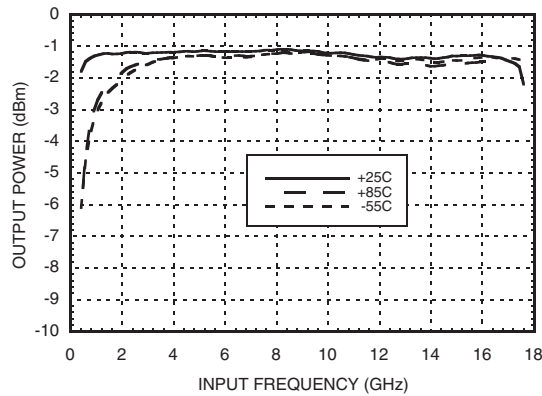
Input Sensitivity Window, $T = 25\text{ }^{\circ}\text{C}$



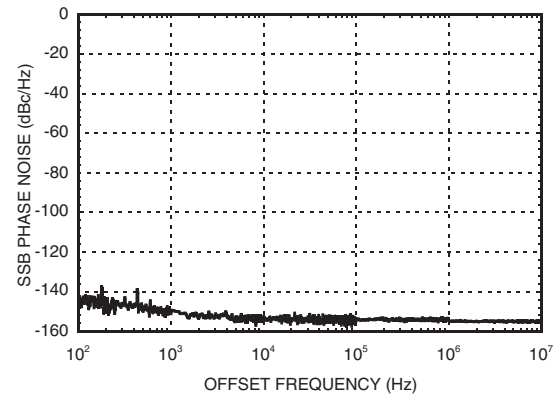
Input Sensitivity vs. Temperature



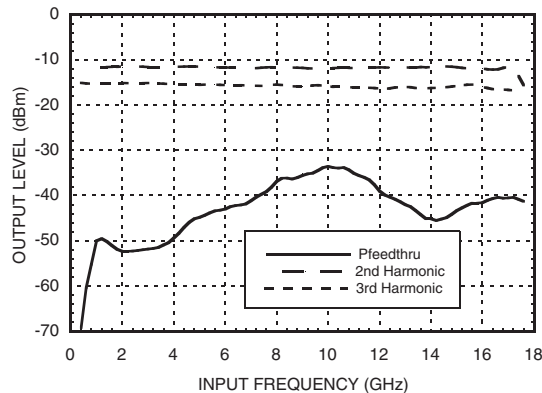
Output Power vs. Temperature



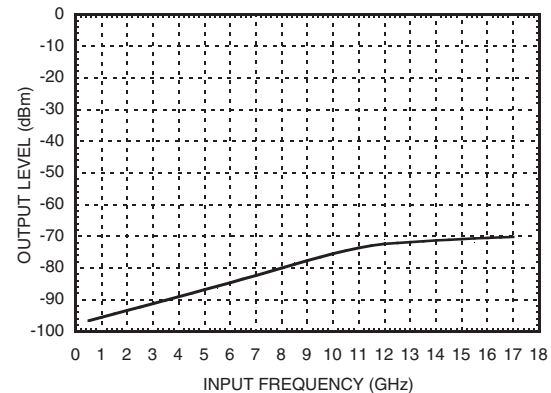
**SSB Phase Noise Performance,
 $P_{in} = 0\text{ dBm}$, $T = 25\text{ }^{\circ}\text{C}$**



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

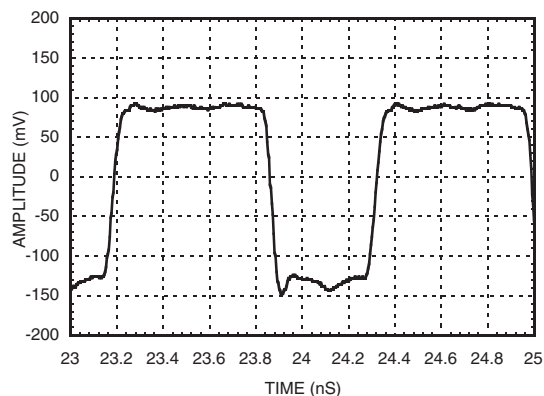


Reverse Leakage, $P_{in} = 0\text{ dBm}$, $T = 25\text{ }^{\circ}\text{C}$



**DIVIDE-BY-10 PRESCALER
MODULE, 0.5 - 17.0 GHz**


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


Absolute Maximum Ratings

Supply Voltage (Vdc)	+5.5V
RF Input (Vdc = +5V)	+13 dBm
Storage Temperature	-65 to +150 °C
Operating Temperature	-55 to +85 °C



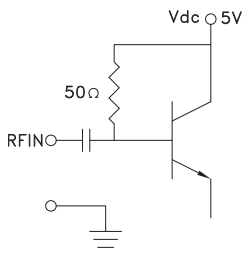
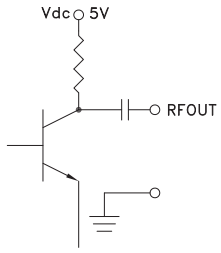
ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

Typical Supply Current vs. Vdc

Vdc	Idc (mA)
4.75	138
5.00	152
5.25	138

Note: Divider will operate over full voltage range shown above

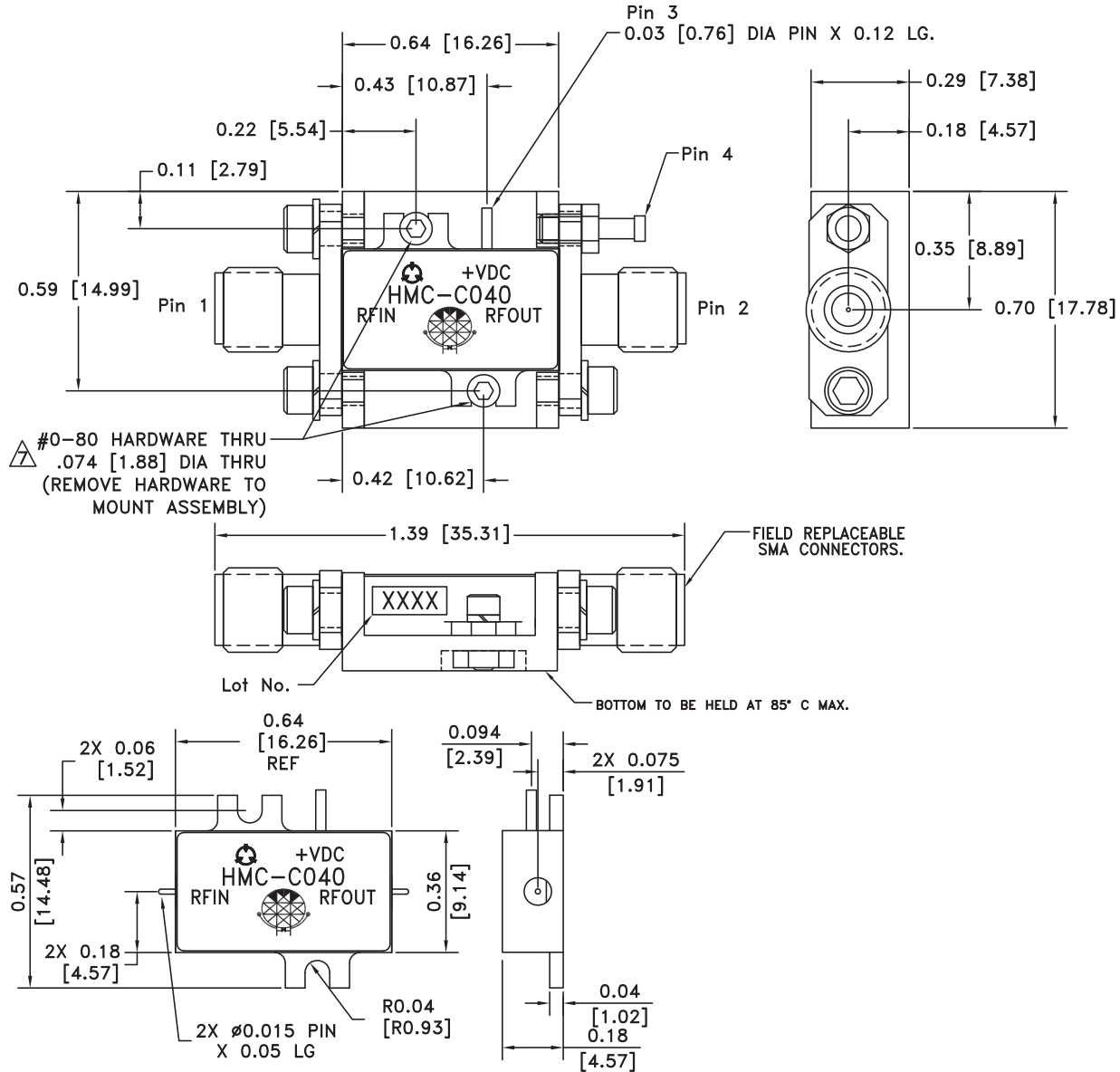
Pin Description

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

Information furnished by Analog Devices is believed to be accurate and reliable. However, no responsibility is assumed by Analog Devices for its use, nor for any infringements of patents or other rights of third parties that may result from its use. Specifications subject to change without notice. No license is granted by implication or otherwise under any patent or patent rights of Analog Devices. Trademarks and registered trademarks are the property of their respective owners.

For price, delivery, and to place orders: Analog Devices, Inc.,
One Technology Way, P.O. Box 9106, Norwood, MA 02062-9106
Phone: 781-329-4700 • Order online at www.analog.com
Application Support: Phone: 1-800-ANALOG-D

**DIVIDE-BY-10 PRESCALER
MODULE, 0.5 - 17.0 GHz**

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.