

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

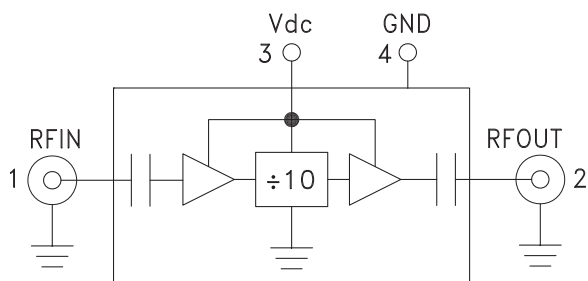


### Typical Applications

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

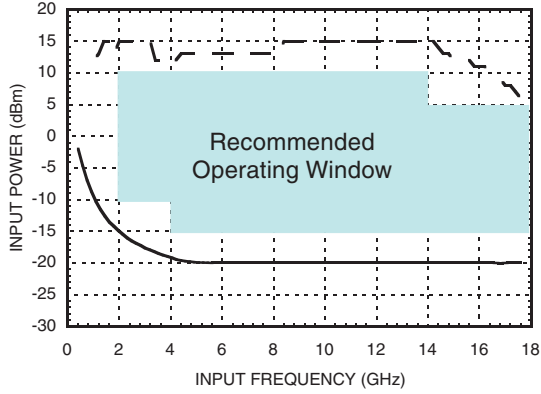
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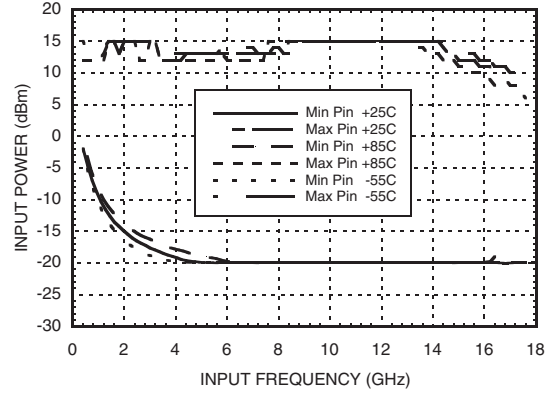


**DIVIDE-BY-10 PRESCALER  
MODULE, 0.5 - 17.0 GHz**

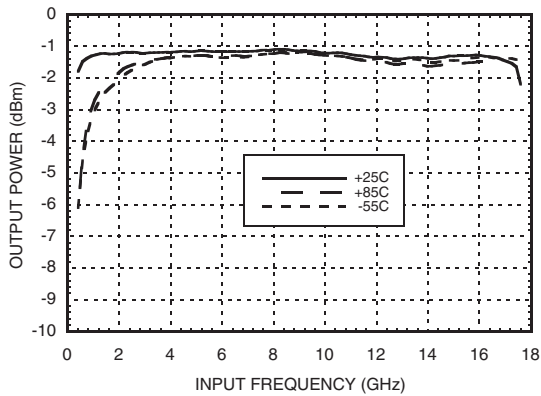
**Input Sensitivity Window,  $T = 25\text{ }^{\circ}\text{C}$**



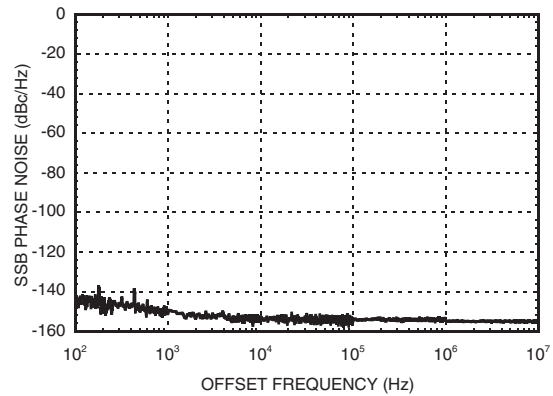
**Input Sensitivity vs. Temperature**



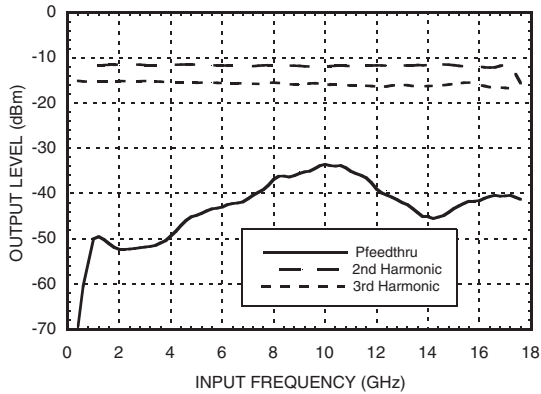
**Output Power vs. Temperature**



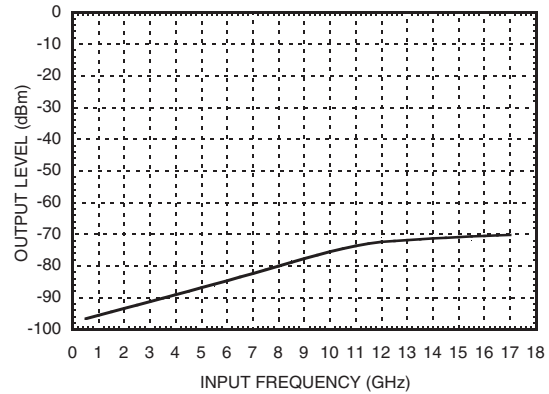
**SSB Phase Noise Performance,  
 $P_{in} = 0\text{ dBm}$ ,  $T = 25\text{ }^{\circ}\text{C}$**



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



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



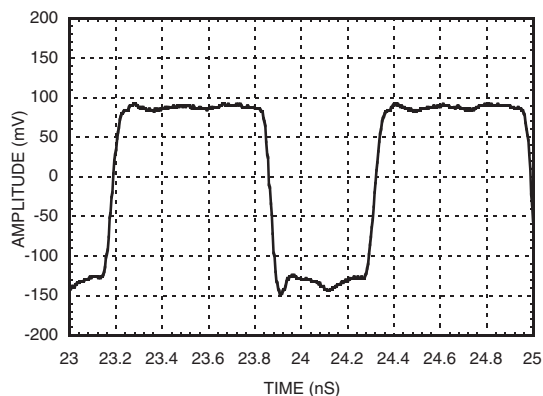
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**Output Voltage Waveform,**  
*Pin= 0 dBm, Fout= 882 MHz, T= 25 °C*



### 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.	

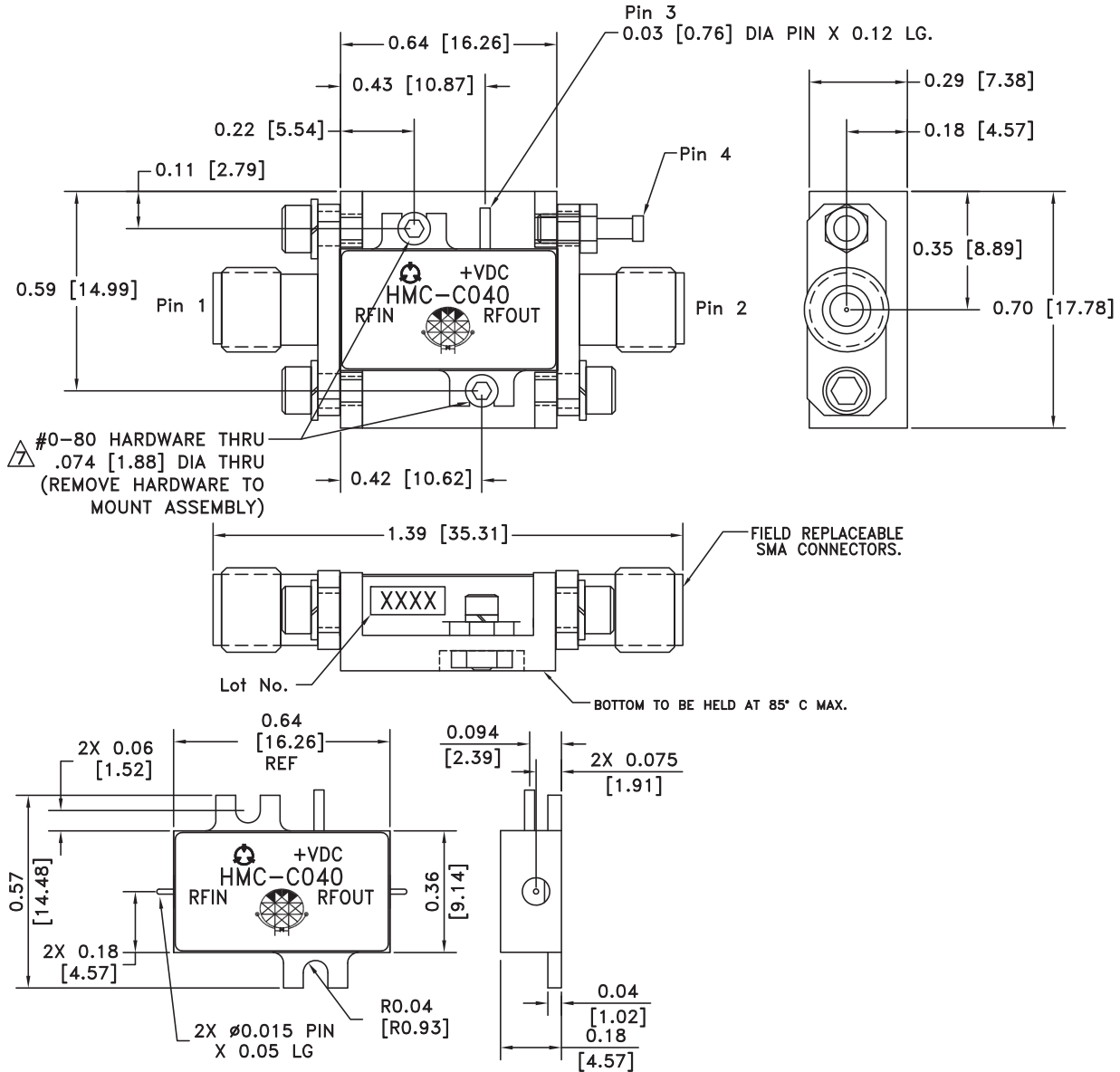
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### Outline Drawing



### Package Information

Package Type	C-1
Package Weight <sup>[1]</sup>	10.2 gms <sup>[2]</sup>
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.