

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

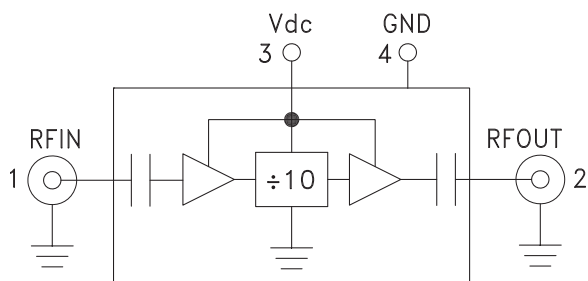


Typical Applications

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 |

HMC-C040* PRODUCT PAGE QUICK LINKS

Last Content Update: 02/23/2017

COMPARABLE PARTS

View a parametric search of comparable parts.

DOCUMENTATION

Data Sheet

- HMC-C040 Data Sheet

REFERENCE MATERIALS

Technical Articles

- Hittite's Connectorized Modules Extend HMC-T2000 Synthesizer Performance

DESIGN RESOURCES

- HMC-C040 Material Declaration
- PCN-PDN Information
- Quality And Reliability
- Symbols and Footprints

DISCUSSIONS

View all HMC-C040 EngineerZone Discussions.

SAMPLE AND BUY

Visit the product page to see pricing options.

TECHNICAL SUPPORT

Submit a technical question or find your regional support number.

DOCUMENT FEEDBACK

Submit feedback for this data sheet.

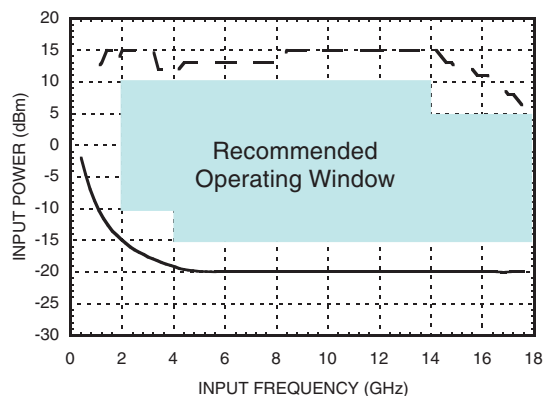


**DIVIDE-BY-10 PRESCALER
MODULE, 0.5 - 17.0 GHz**

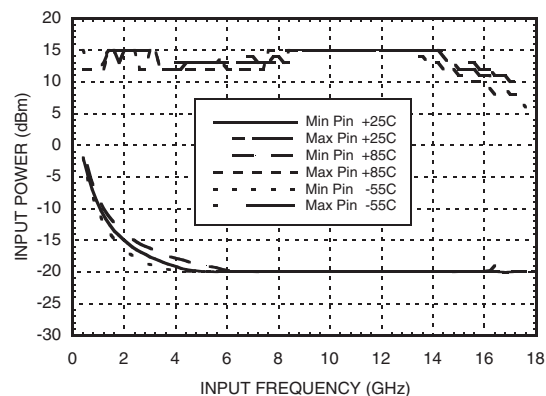
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CONNECTORIZED MODULES - FREQUENCY DIVIDERS

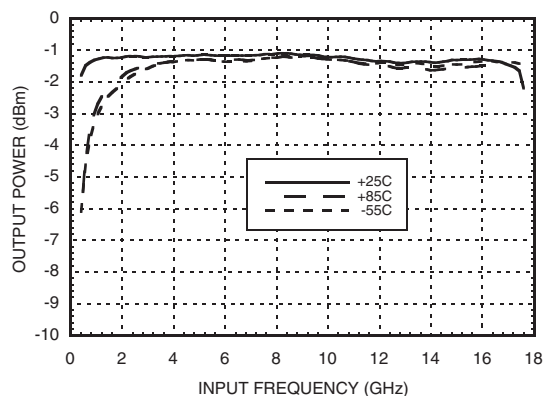
Input Sensitivity Window, $T = 25\text{ }^{\circ}\text{C}$



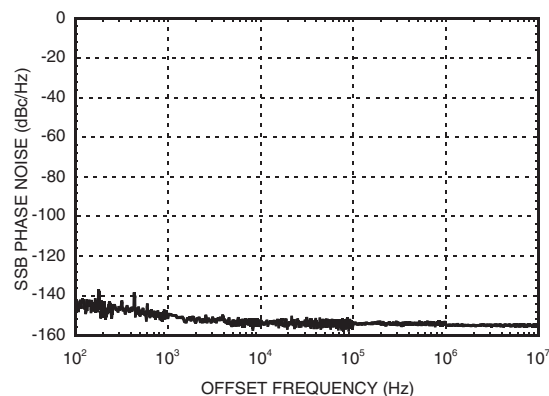
Input Sensitivity vs. Temperature



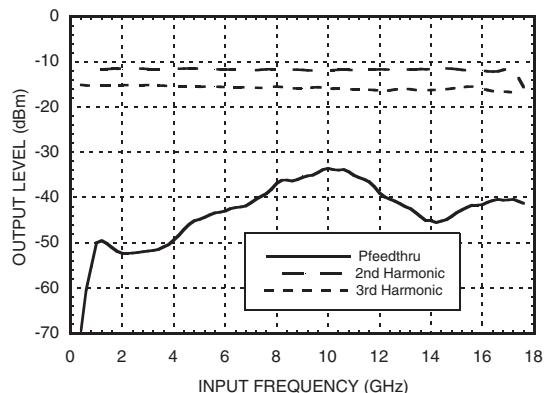
Output Power vs. Temperature



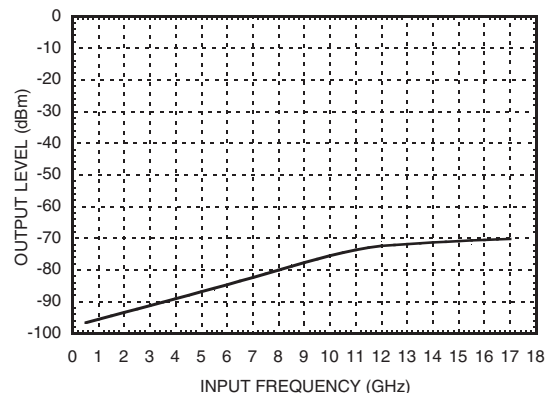
**SSB Phase Noise Performance,
 $P_{in} = 0\text{ dBm}$, $T = 25\text{ }^{\circ}\text{C}$**



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

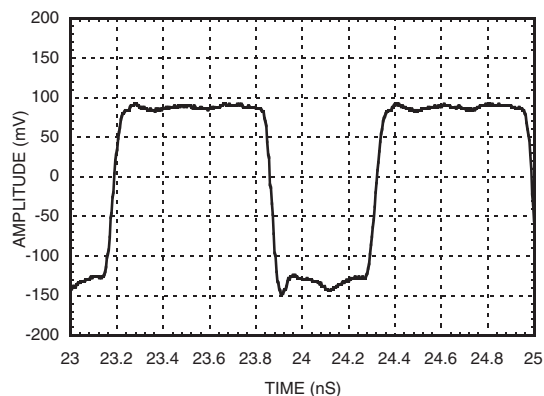


Reverse Leakage, $P_{in} = 0\text{ dBm}$, $T = 25\text{ }^{\circ}\text{C}$



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



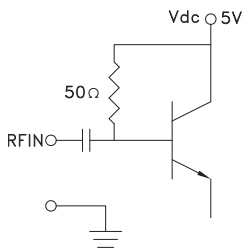
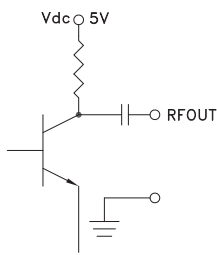

ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

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. |  |

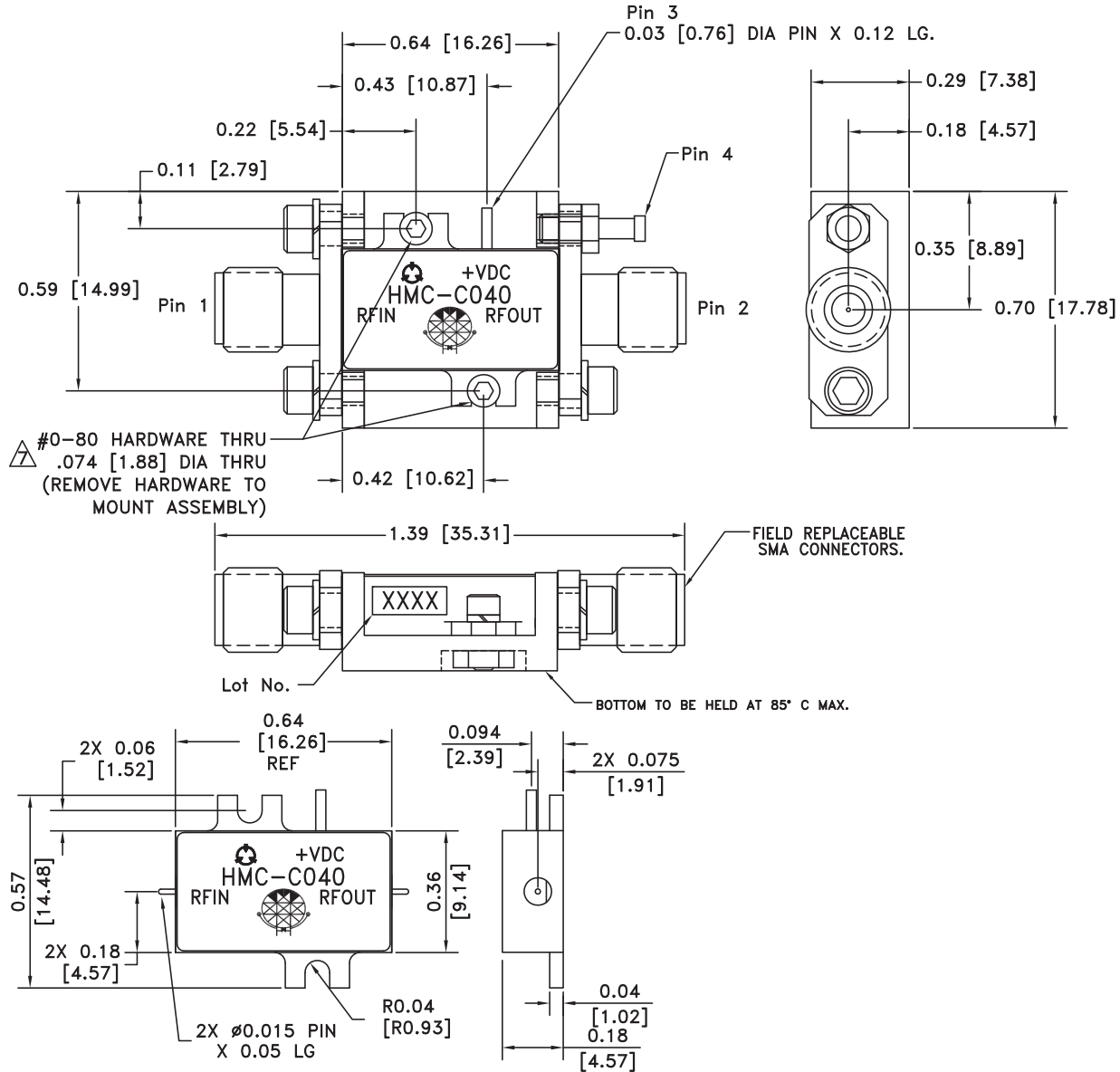
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Outline Drawing



Package Information

| | |
|-------------------------------|-------------------------|
| Package Type | C-1 |
| Package Weight ^[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.