

DIVIDE-BY-5 PRESCALER MODULE, 0.5 - 8.0 GHz

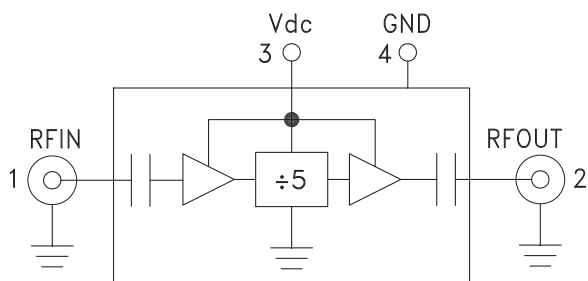


Typical Applications

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
- Wide Bandwidth
- Output Power: -1 dBm
- Single DC Supply: +5V @ 80mA
- RoHS Compliant Hermetically Sealed Module
- Field Replaceable SMA Connectors
- 55 to +85 °C Operating Temperature

General Description

The HMC-C039 is a low noise Divide-by-5 Static Divider utilizing InGaP GaAs HBT technology packaged in a miniature, hermetic module with replaceable SMA connectors. This device operates from 0.5 to 8GHz 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		8	9		GHz
Minimum Input Frequency	Sine Wave Input			0.5	GHz
Input Power Range	$F_{in} = 0.5$ to 7 GHz	-20	-15	+15	dBm
	$F_{in} = 7$ to 8 GHz	-20	-15	+10	dBm
Output Power	$F_{in} = 0.5$ to 8 GHz	-4	-1		dBm
Reverse Leakage	$F_{in} = 0.5$ to 8 GHz		58		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})			80		mA

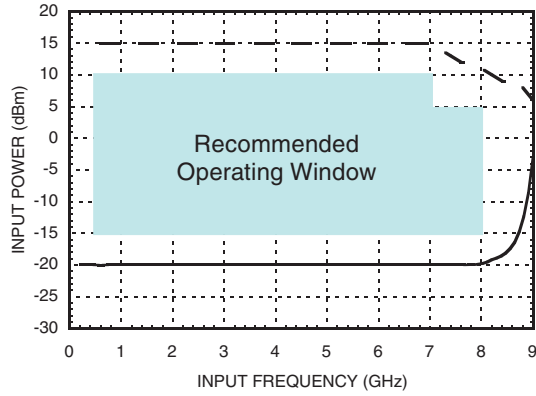
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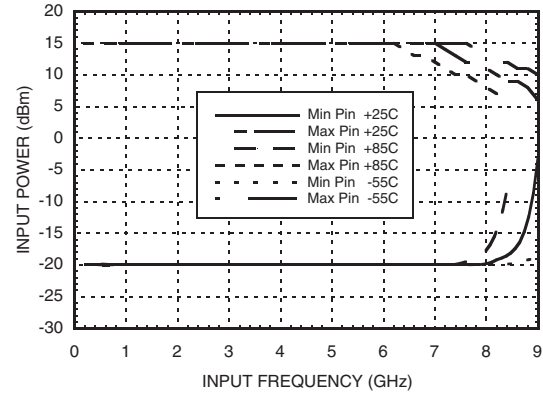


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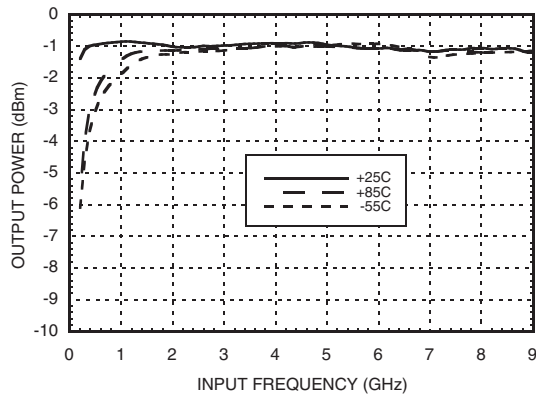
Input Sensitivity Window, $T = 25\text{ }^{\circ}\text{C}$



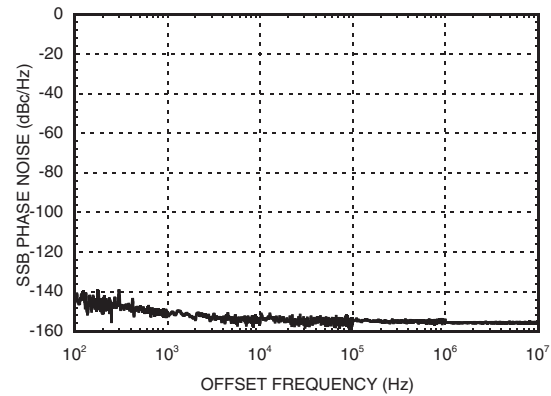
Input Sensitivity vs. Temperature



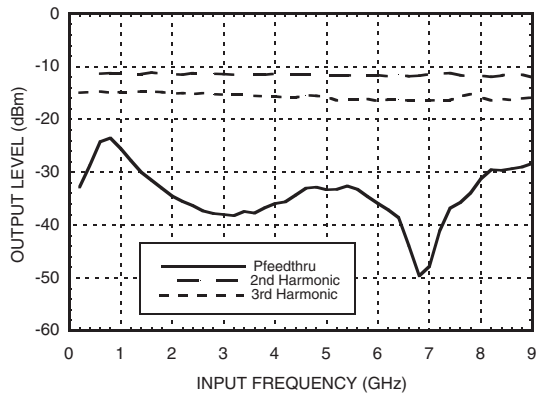
Output Power vs. Temperature



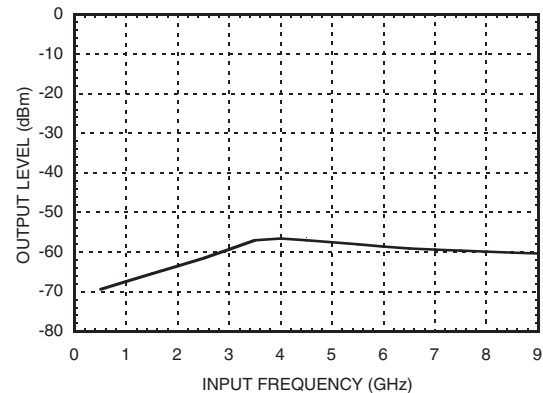
SSB Phase Noise Performance, $P_{in} = 0\text{ dBm}$, $T = 25\text{ }^{\circ}\text{C}$



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



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



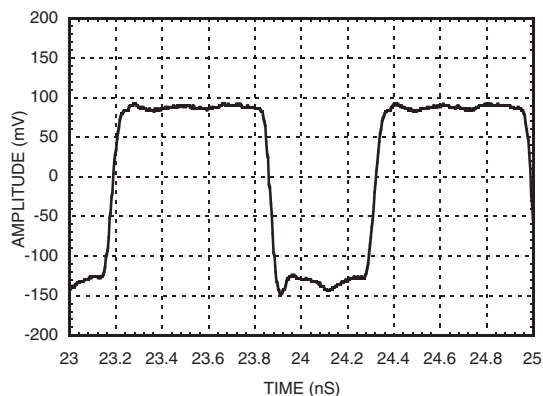
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Output Voltage Waveform,
Pin= 0 dBm, Fout= 882 MHz, T= 25 °C



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	74
5.0	80
5.25	86

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.	

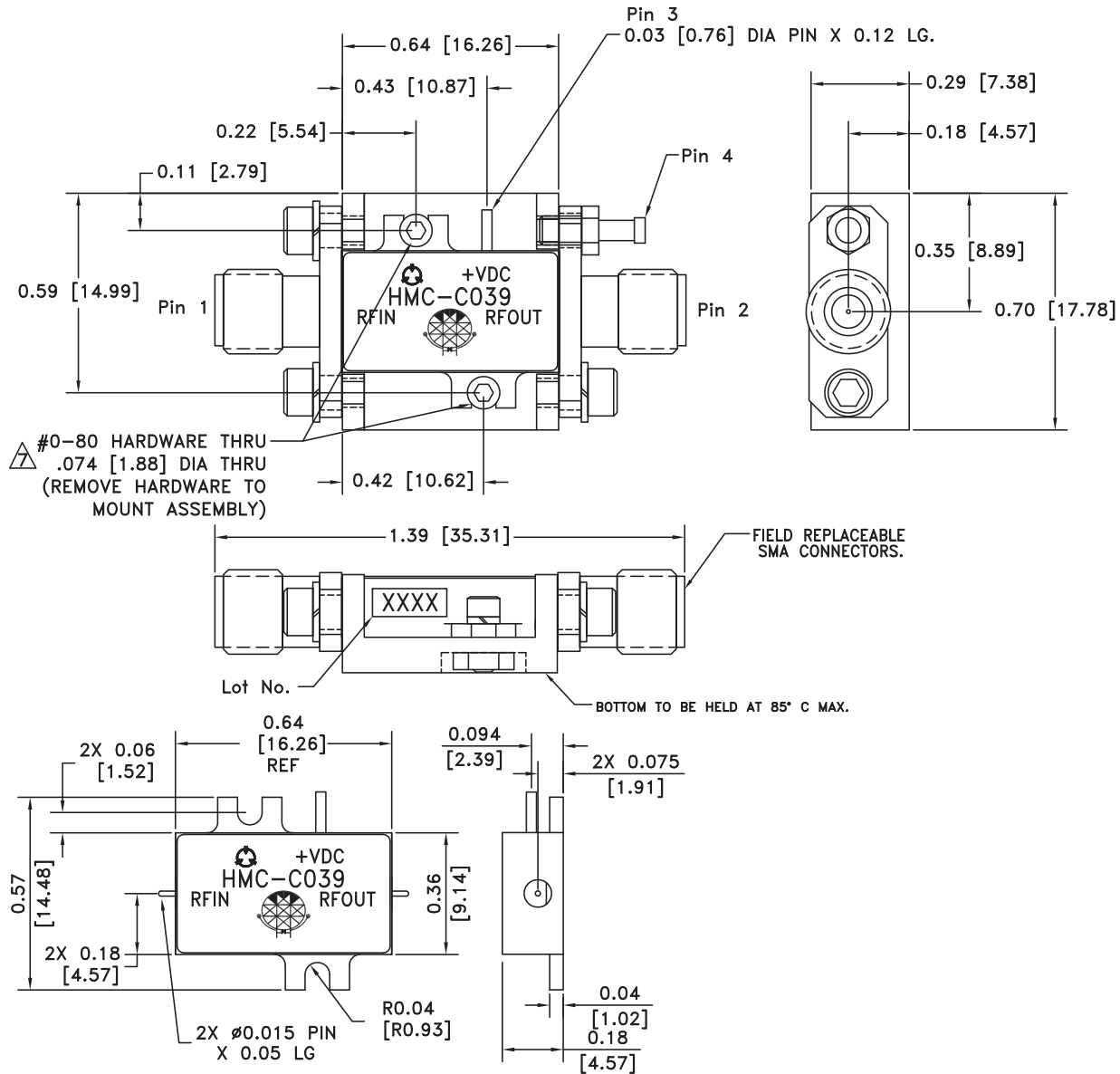
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Outline Drawing



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.