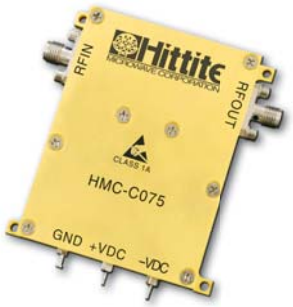
HMC-C075

v00.0709

TWO STAGE POWER AMPLIFIER MODULE, 10 MHz - 6 GHz



Features

Gain: 24 dB

High P1dB Output Power: +29.5 dBm

High Output IP3: +42 dBm

Excellent Gain Flatness: ±0.75 dB

Regulated Supply and Bias Sequencing

Field Replaceable SMA Connectors

Operating Temperature: -40°C to +85°C

Typical Applications

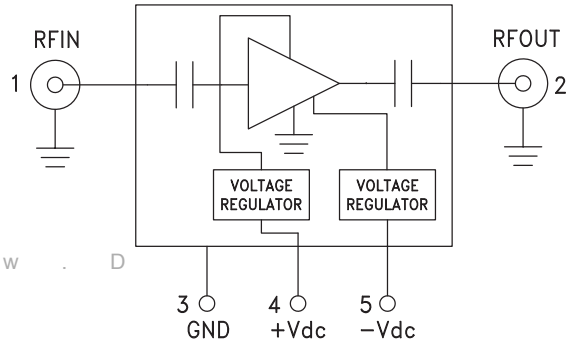
The HMC-C075 is ideal for:

- Telecom Infrastructure
- Test Instrumentation
- Military & Space

General Description

The HMC-C075 is a Two Stage Power Amplifier module which operates between 10 MHz and 6 GHz. The amplifier provides 24 dB of gain, +42 dBm output IP3 and +29 dBm of output power at 1 dB gain compression while consuming only 740 mA from a +15V supply. Gain flatness is excellent at ±0.75 dB from 10 MHz - 6 GHz making the HMC-C075 ideal for EW, ECM, Radar and test equipment applications. The amplifier I/Os are internally matched to 50 Ohms and are DC blocked. Integrated voltage regulators allow for flexible biasing of both the negative and positive supply pins, while internal bias sequencing circuitry allows robust operation.

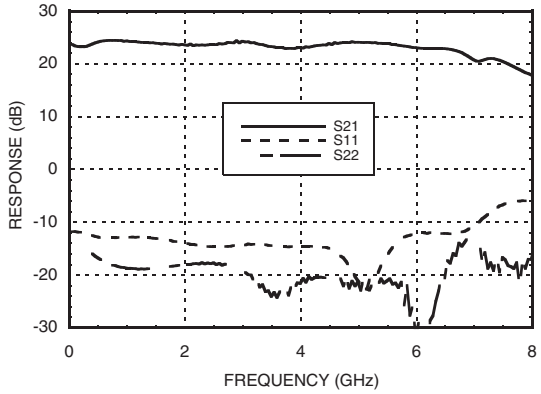
Functional Diagram



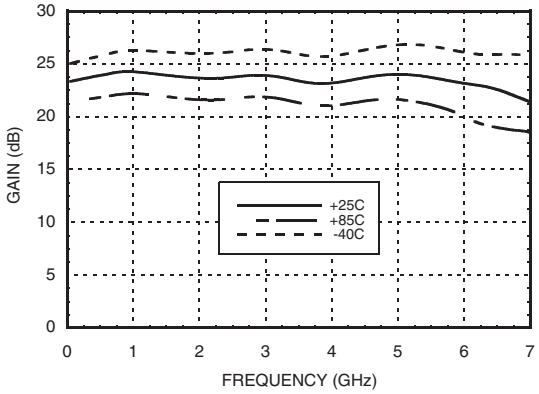
Electrical Specifications, T_A = +25° C, -Vdc = -5V, +Vdc = +15V

Parameter	Min.	Typ.	Max.	Units
Frequency Range		0.01 - 6		GHz
Gain	21	24		dB
Gain Flatness		+0.75		dB
Gain Variation Over Temperature		0.044		dB/ °C
Input Return Loss		15		dB
Output Return Loss		18		dB
Output Power for 1 dB Compression (P1dB)	27.5	29.5		dBm
Saturated Output Power (Psat)		30		dBm
Output Third Order Intercept (IP3)		42		dBm
Noise Figure		5		dB
Supply Current (+15V)		740	800	mA
Supply Current (-5V)		5		mA

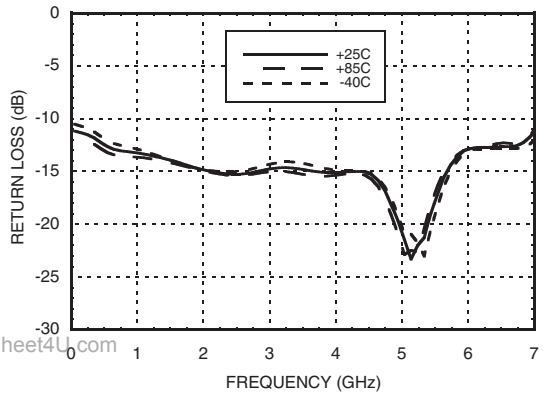
Gain & Return Loss



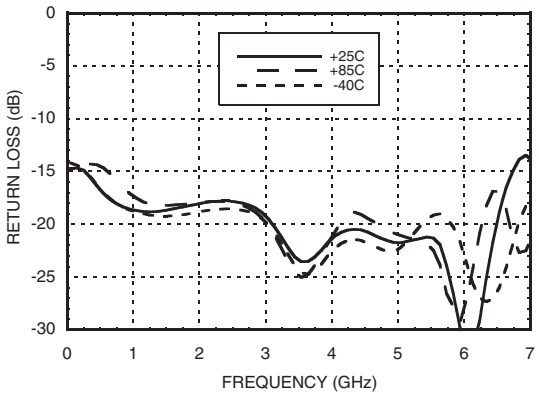
Gain vs. Temperature



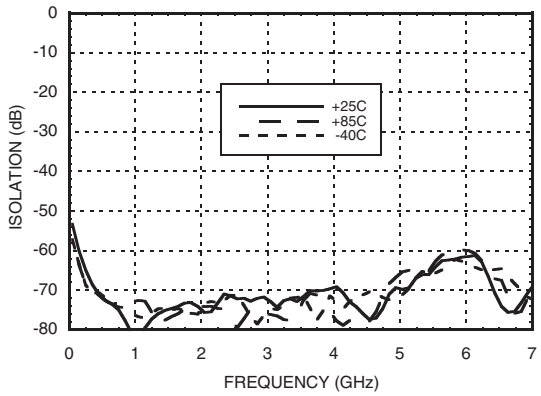
Input Return Loss vs. Temperature



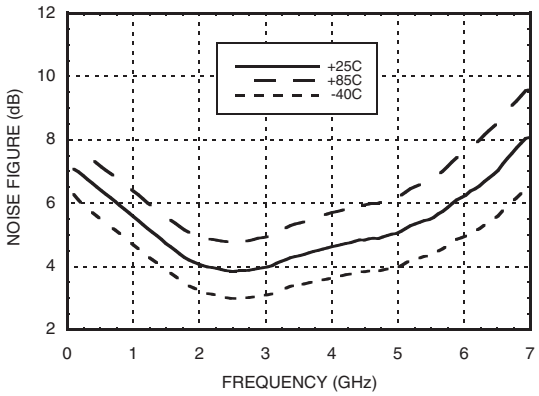
Output Return Loss vs. Temperature



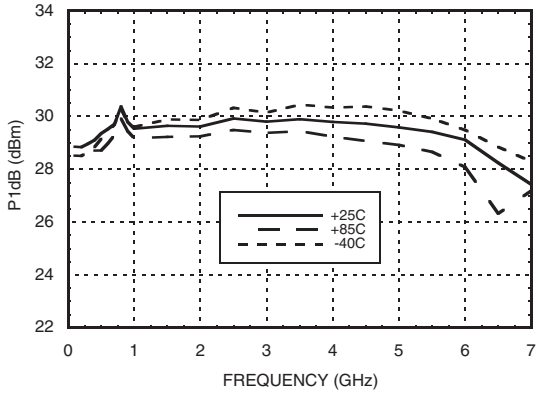
Reverse Isolation vs. Temperature



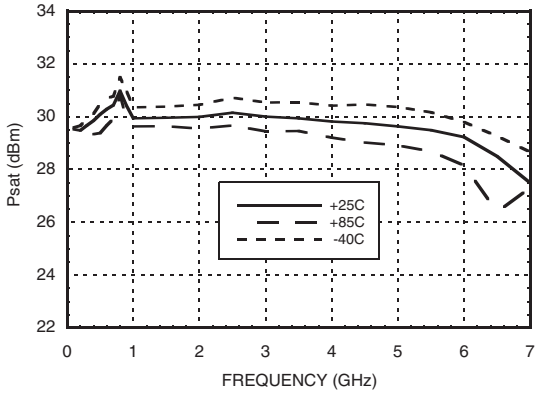
Noise Figure vs. Temperature



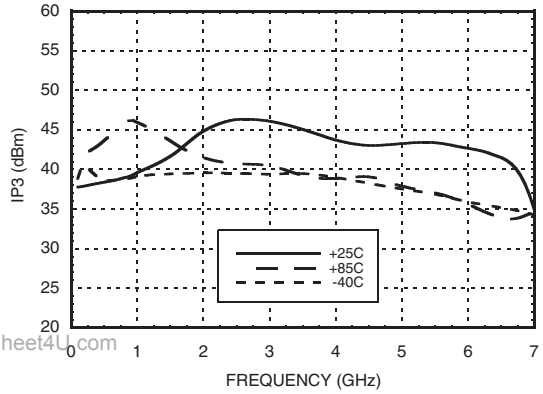
Output P1dB vs. Temperature



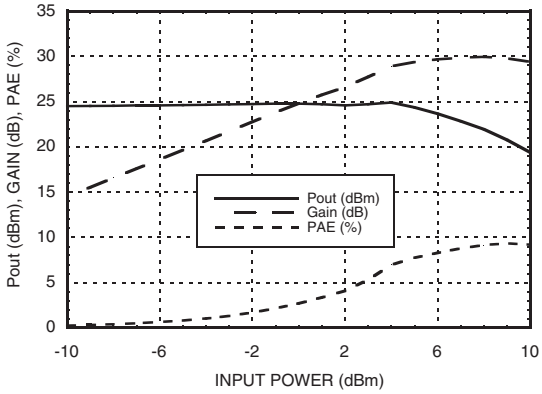
Output Psat vs. Temperature



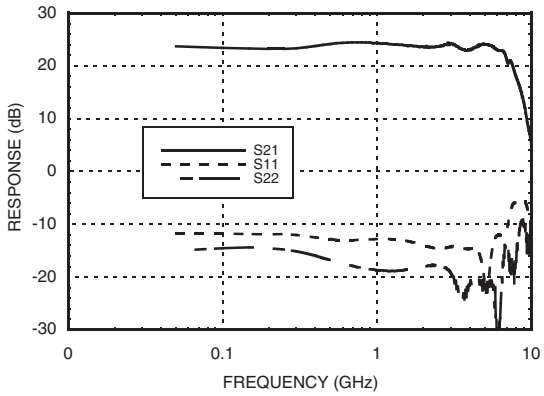
Output IP3 vs. Temperature



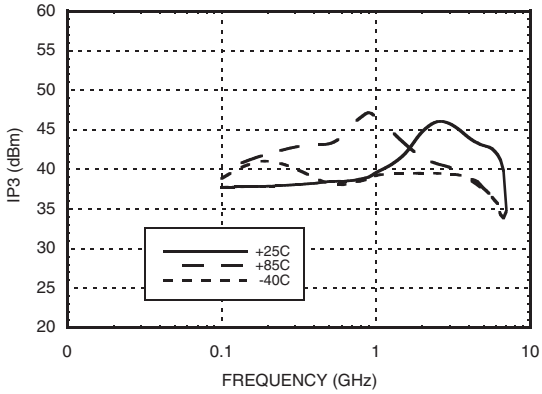
Power Compression @ 3 GHz



Gain & Return Loss vs. Frequency Log Scale



Output IP3 vs. Temperature Log Scale



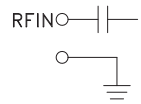
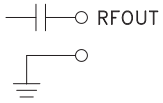
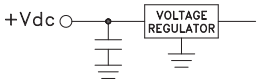
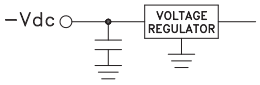
TWO STAGE POWER AMPLIFIER MODULE, 10 MHz - 6 GHz

Absolute Maximum Ratings

Positive Bias Supply Voltage (+Vdc)	+16V Max
Negative Bias Supply (-Vdc)	-16V Min.
RF Input Power (RFIN)	12 dBm
Thermal Resistance	16.7 °C/W
Storage Temperature	-55 to +150 °C
Operating Temperature	-40 to +85 °C

ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

Pin Descriptions

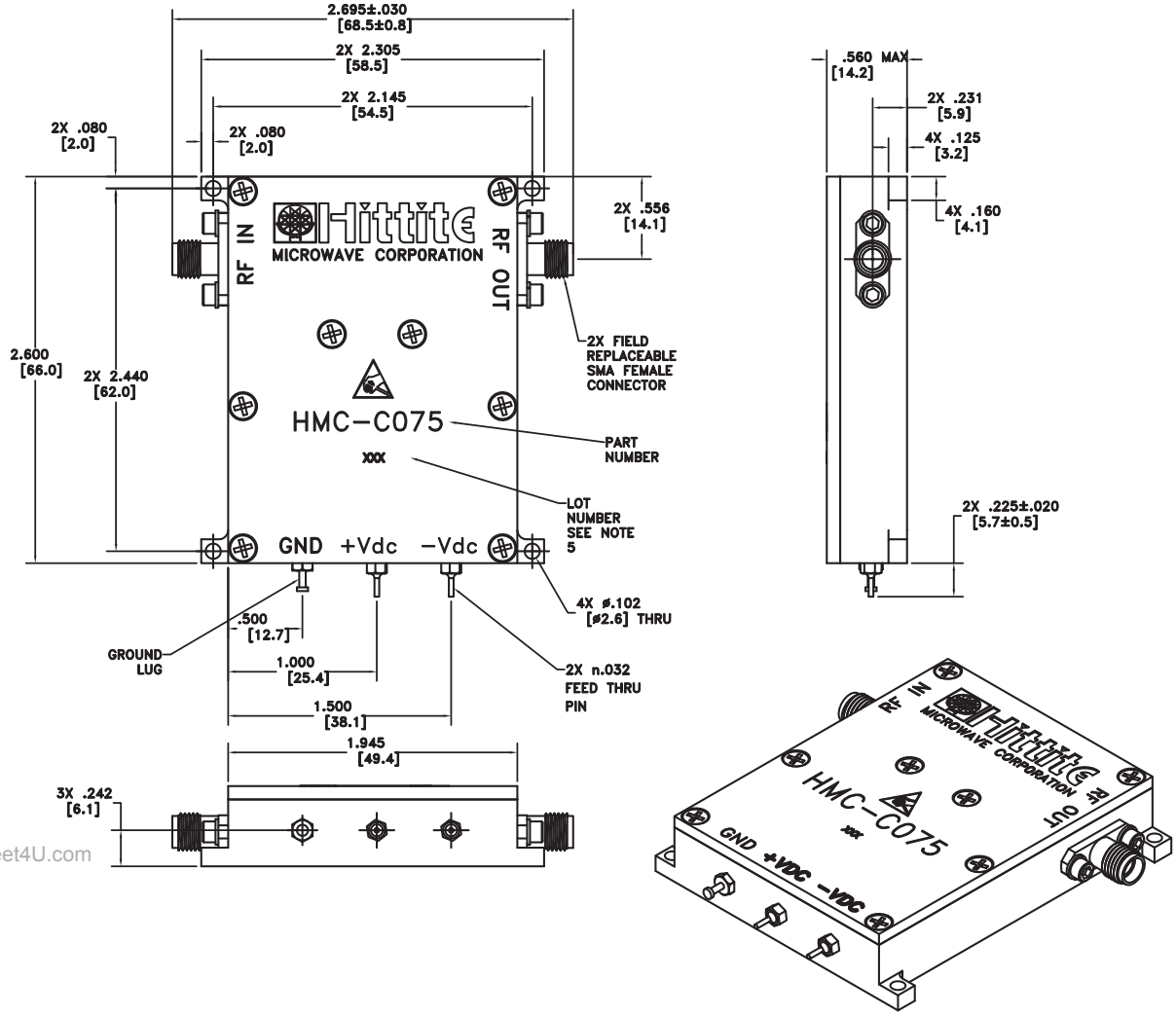
Pin Number	Function	Description	Interface Schematic
1	RFIN & RF Ground	RF input connector, SMA female, field replaceable. This pin is AC coupled and matched to 50 Ohms.	
2	RFOUT & RF Ground	RF output connector, SMA female. This pin is AC coupled and matched to 50 Ohms.	
3	GND	Power supply ground.	
4	+Vdc	Positive power supply voltage for the amplifier. (+14V to +16V)	
5	-Vdc	Negative power supply voltage for the amplifier. (-5V to -16V)	

HMC-C075

v00.0709

TWO STAGE POWER AMPLIFIER MODULE, 10 MHz - 6 GHz

Outline Drawing



Package Information

Package Type	C-17

NOTES:

1. PACKAGE, COVER MATERIAL: ALUMINUM
2. FINISH: GOLD PLATE OVER NICKEL PLATE.
3. ALL DIMENSIONS ARE IN INCHES [MILLIMETERS].
4. TOLERANCES:
   4.1 .XX = ±.02
   4.2 .XXX = ±.010
5. MARK LOT NUMBER ON 0.080 X 0.250 LABEL WHERE SHOWN, WITH 0.030" MIN TEXT HEIGHT.

Notes: