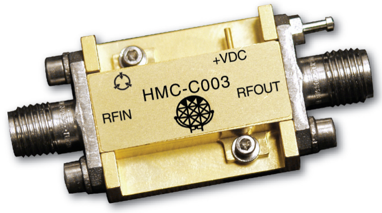
Hittite
MICROWAVE CORPORATION

v01.1105

HMC-C003

WIDEBAND POWER AMPLIFIER MODULE, 2 - 20 GHz

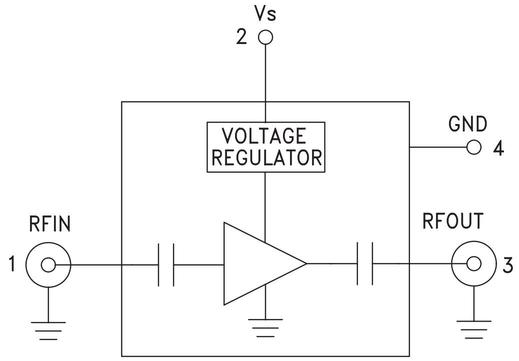


Typical Applications

The HMC-C003 Wideband PA is ideal for:

- Telecom Infrastructure
- Microwave Radio & VSAT
- Military & Space
- Test Instrumentation
- Fiber Optics

Functional Diagram



Features

P1dB Output Power: +26 dBm @ 10 GHz

Output IP3: +30 dBm

Gain: 15 dB

50 Ohm Matched Input/Output

Regulated Supply and Bias Sequencing

Hermetically Sealed Module

Field Replaceable SMA connectors

-55 to +85˚C Operating Temperature

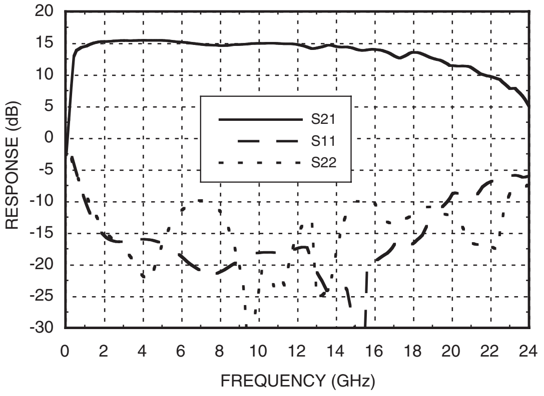
General Description

The HMC-C003 is a GaAs MMIC PHEMT Distributed Power Amplifier in a miniature, hermetic module with replaceable SMA connectors which operates between 2 and 20 GHz. The self-biased amplifier provides 15 dB of gain, +30 dBm output IP3 and up to +26 dBm of output power at 1 dB gain compression while requiring a single +12V supply. Gain flatness is excellent from 2 - 18 GHz making the HMC-C003 ideal for EW, ECM RADAR and test equipment applications. The wideband amplifier I/Os are internally matched to 50 Ohms and are internally DC blocked.

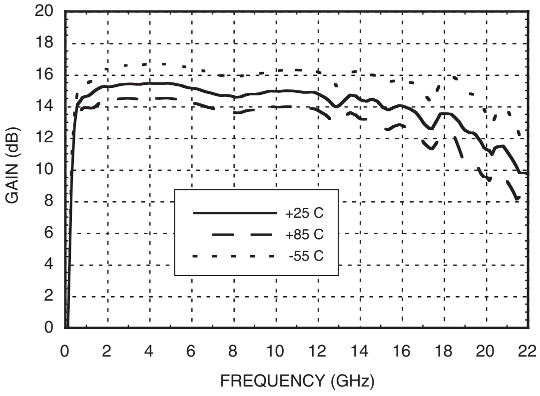
Electrical Specifications, T_A = +25° C, Vs= +11.6V to +12.4V

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range		2.0 - 6.0			6.0 - 18.0			18.0 - 20.0		GHz
Gain	13	15		11	14		9	12		dB
Gain Flatness		±.025			±0.75			±1.0		dB
Gain Variation Over Temperature		0.02	0.03		0.02	0.03		0.02	0.03	dB/ °C
Noise Figure		4.0			4.0			6.0		dB
Input Return Loss		17			18			10		dB
Output Return Loss		12			10			12		dB
Output Power for 1 dB Compression (P1dB)	23	26		20	24		19	22		dBm
Saturated Output Power (Psat)		27			25			23		dBm
Output Third Order Intercept (IP3)		34			30			25		dBm
Spurious Response		-50			-60			-60		dBc
Supply Current		310			310			310		mA

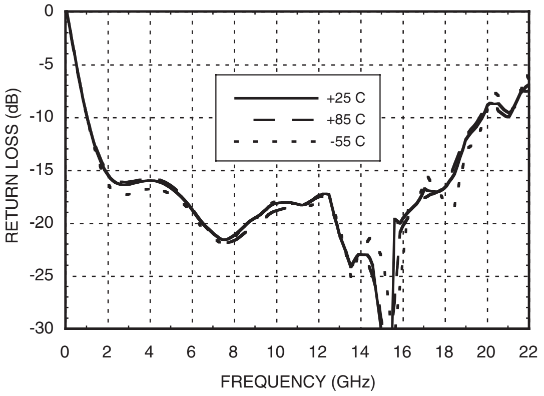
Gain & Return Loss



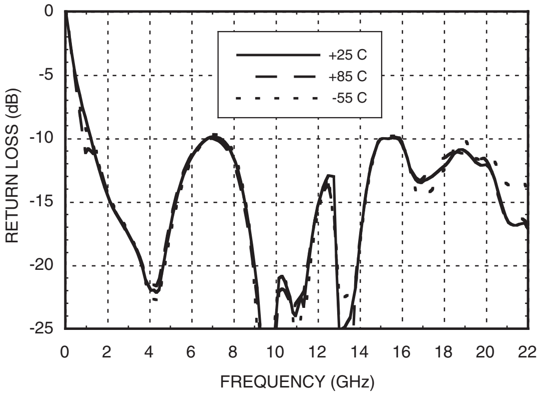
Gain vs. Temperature



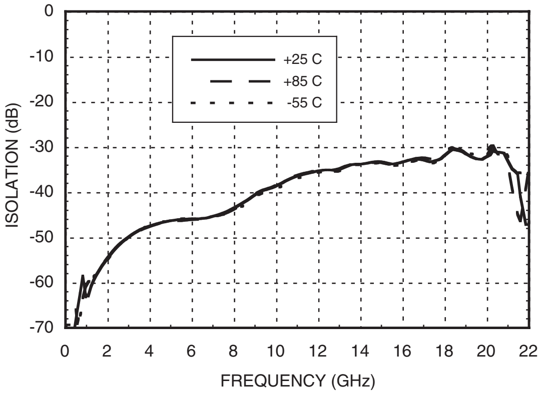
Input Return Loss vs. Temperature



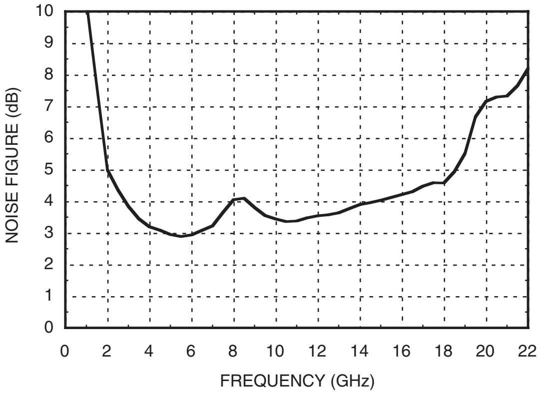
Output Return Loss vs. Temperature



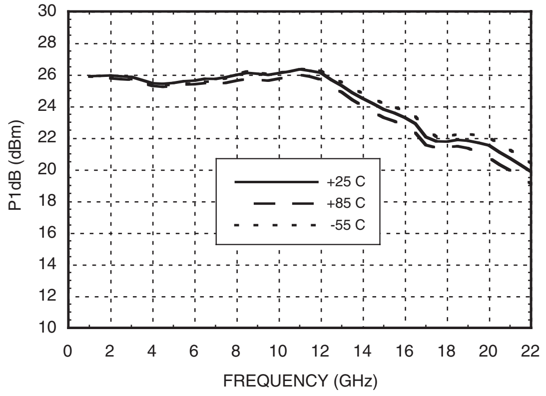
Reverse Isolation vs. Temperature



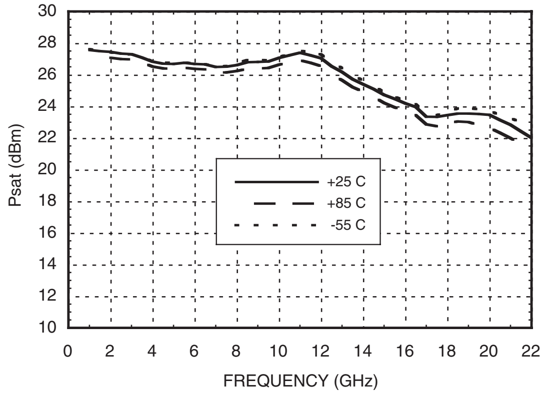
Noise Figure



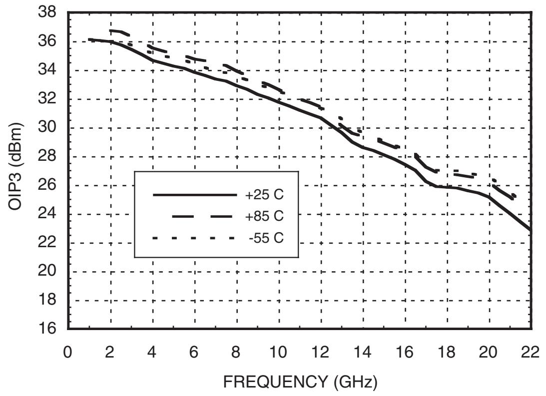
P1dB vs. Temperature



Psat vs. Temperature



Output IP3 vs. Temperature

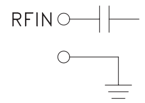
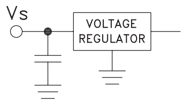
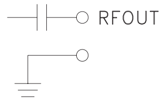


Absolute Maximum Ratings

Bias Supply Voltage (Vs)	+11 Vdc to +13 Vdc
RF Input Power (RFin)	+23 dBm
Storage Temperature	-65 to +150 °C
Operating Temperature	-55 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 from 2.0 - 20.0 GHz.	
2	Vs	Power supply voltage for the amplifier.	
3	RFOUT & RF Ground	RF output connector, SMA female. This pin is AC coupled and matched to 50 Ohms from 2.0 - 20.0 GHz.	
4	GND	Power supply ground.	

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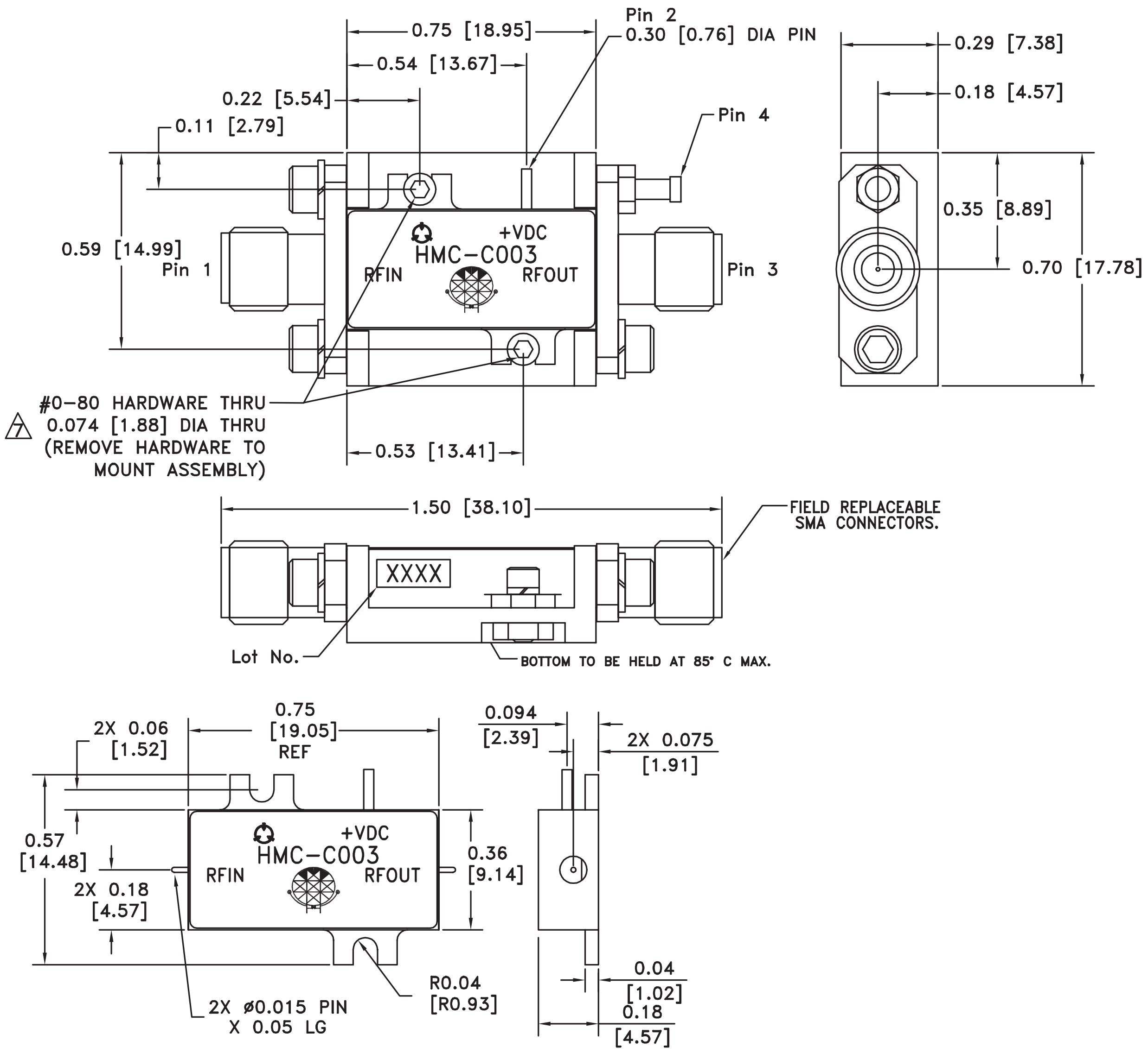
Outline Drawing



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.
△7 TO MOUNT MODULE TO SYSTEM PLATFORM REPLACE 0 -80 HARDWARE WITH DESIRED MOUNTING SCREWS.