OBSOLETE PRODUCT

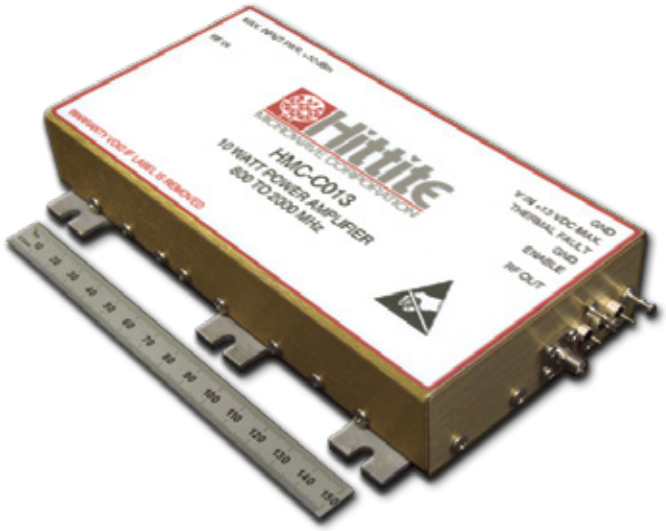
HMC-C013

v03.1007

10 WATT POWER AMPLIFIER MODULE, 800 - 2000 MHz

Features

P1dB Output Power: 10 Watts
Gain: 43 dB
Output IP3: +56 dBm
Single Positive Supply: +12V
Thermally Compensated and Protected
TTL DC Power Enable
Unconditionally Stable
Heat Sink/Fan Accessories Available



Typical Applications

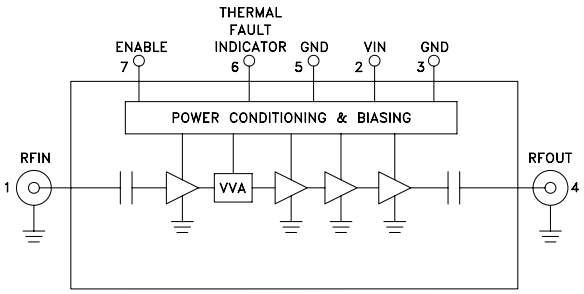
The HMC-C013 is ideal for:

- Cellular/PCS/3G Infrastructure
- Automated Test Equipment (ATE)
- Laboratory Use

General Description

The HMC-C013 is a 10 Watt Power Amplifier Module suitable for Cellular/3G repeaters, wireless data, laboratory use and ATE applications. This extremely robust PA module is DC blocked, internally regulated and over voltage protected. Thermal protection/fault circuitry automatically turns off DC power if base temperature exceeds +75 °C and restores power at < +55 °C.

Functional Diagram



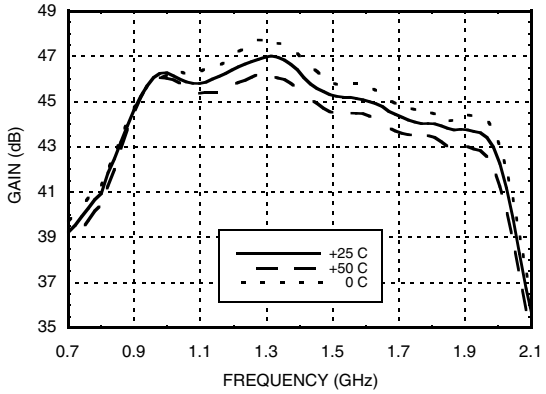
Electrical Specifications, T_A = +25° C, VIN = +12V

Parameter	Min.	Typ.	Max.	Units
Frequency Range		0.8 - 2.0		GHz
Gain	39	43		dB
Input Return Loss	9.5	12		dB
Output Return Loss	7.5	14		dB
Output Power for 1 dB Compression (P1dB)	9	10		W
Saturated Output Power (Psat)		42		dBm
Output Third Order Intercept (IP3) (Two-tone Input Power = -28 dBm each tone)		56		dBm
Channel Output Power for -60 dBc ACPR (CDMA-2000, 1.98 MHz offset)		38		dBm
Channel Output Power for -50 dBc ACPR (CDMA-2000, 885 kHz offset)		35		dBm
Second Harmonic at Output P1dB		-20		dBc
Third Harmonic at Output P1dB		-30		dBc
Spurious at Output P1dB		-65		dBc
Supply Current		6.5	7.0	A

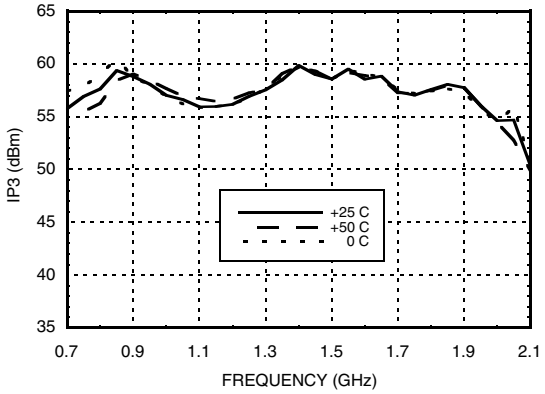
For price, delivery, and to place orders: Analog Devices, Inc., One Technology Way, P.O. Box 9106, Norwood, MA 02062-9106
Phone: 781-329-4700 • Order online at www.analog.com
Application Support: Phone: 1-800-ANALOG-D

10 WATT POWER AMPLIFIER MODULE, 800 - 2000 MHz

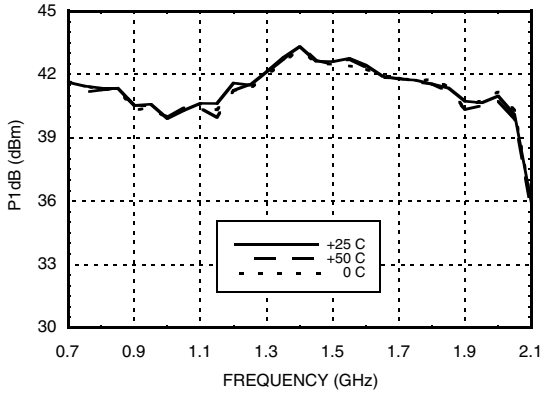
Gain vs. Temperature



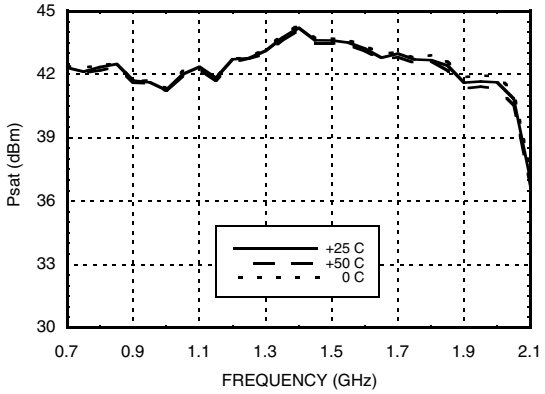
Output IP3 vs. Temperature



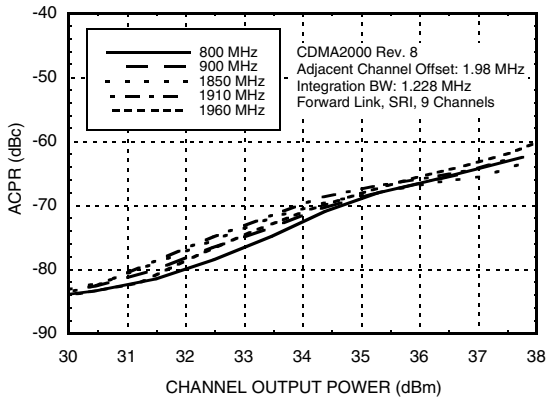
P1dB vs. Temperature



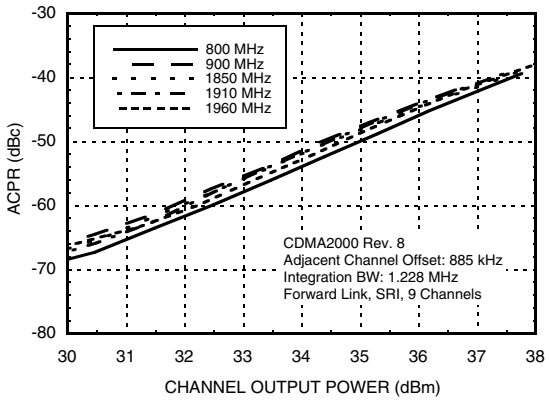
Psat vs. Temperature



ACPR, CDMA-2000, 1.98 MHz Offset



ACPR, CDMA-2000, 885 kHz Offset



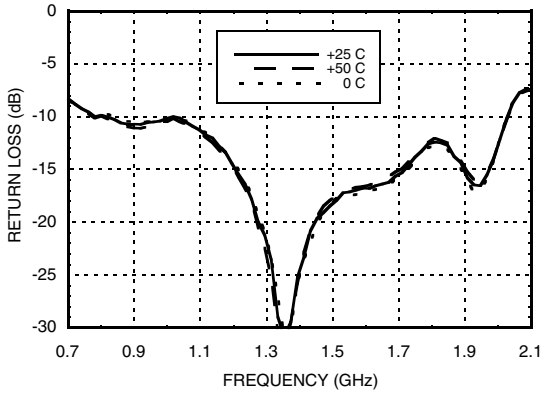
For price, delivery, and to place orders: Analog Devices, Inc., One Technology Way, P.O. Box 9106, Norwood, MA 02062-9106
Phone: 781-329-4700 • Order online at www.analog.com
Application Support: Phone: 1-800-ANALOG-D

HMC-C013

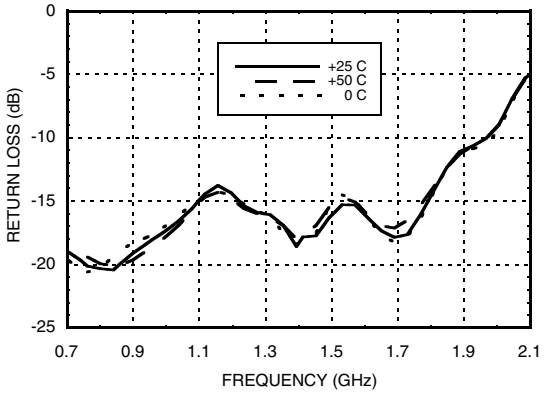
v03.1007

10 WATT POWER AMPLIFIER MODULE, 800 - 2000 MHz

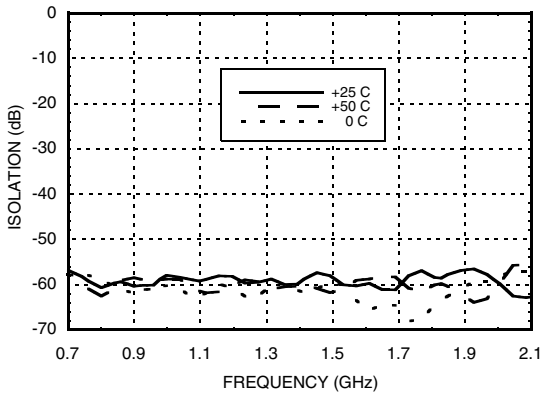
Input Return Loss vs. Temperature



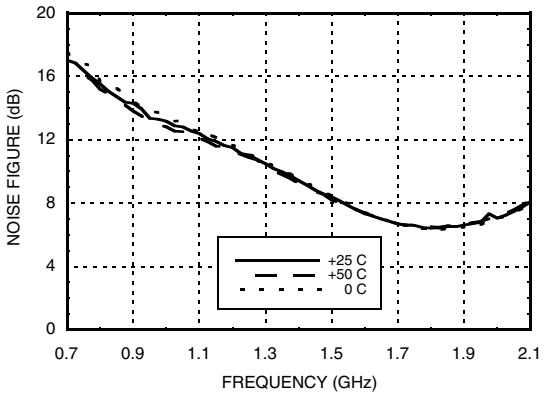
Output Return Loss vs. Temperature



Reverse Isolation vs. Temperature



Noise Figure vs. Temperature



Absolute Maximum Ratings

Supply Voltage (VIN)	+13 Vdc
RF Input Power (RFIN)	+10 dBm
Storage Temperature	-40 to +85 °C
Operating Temperature	0 to +50 °C
Thermal Fault Indicator Max Pdiss (derate 1.8 mW/°C above 50 °C)	180 mW
Enable	-0.5 to +6.0 Vdc

ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

Thermal Fault Indicator Characteristics

Parameter	Min.	Typ.	Max.	Units
I_{OUT} (V_{OUT} > 2V)		350		mA
R_{ON} (I_{OUT} = 50 mA)			7.5	Ohms
R_{OFF} (V_{OUT} = 30 V)		1		MOhm

Enable Input Characteristics

Parameter	Min.	Typ.	Max.	Units
V_{IH}	3.5			V
V_{IL}			1.6	V
I_{IL} @ VIN = 0V		-0.5		mA
I_{IH} @ 5V		< ± 50		µA

For price, delivery, and to place orders: Analog Devices, Inc., One Technology Way, P.O. Box 9106, Norwood, MA 02062-9106
Phone: 781-329-4700 • Order online at www.analog.com
Application Support: Phone: 1-800-ANALOG-D

Recommended Biasing Procedure

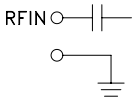
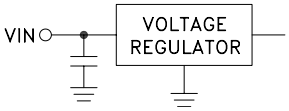
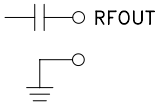
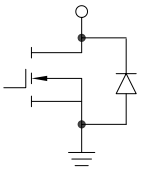
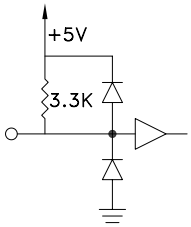
TURN-ON

1. Connect RF input and output
2. Apply Supply Voltage VIN (+12 Vdc)
3. Set Enable low
4. Apply RF input signal

TURN-OFF

1. Remove RF input signal
2. Remove Supply Voltage VIN

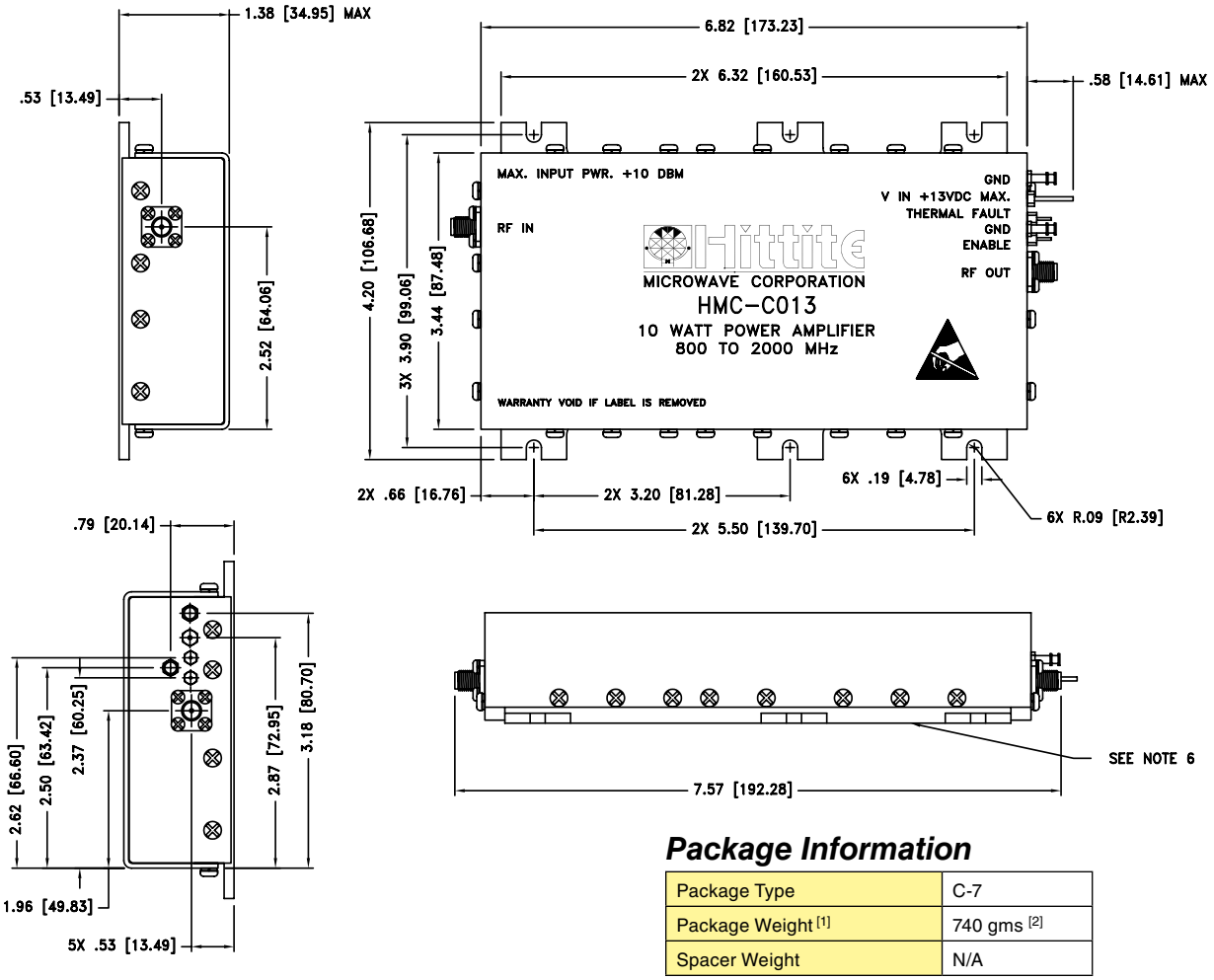
Pin Descriptions

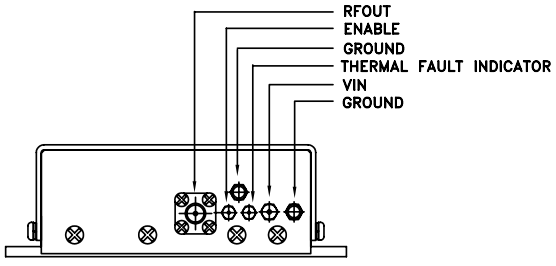
Pin Number	Function	Description	Interface Schematic
1	RFIN & RF Ground	RF input connector, SMA female. This pin is AC coupled and matched to 50 Ohms.	
2	VIN	Power supply voltage for the amplifier.	
3	GND	Power supply ground.	
4	RFOUT & RF Ground	RF output connector, SMA female. This pin is AC coupled and matched to 50 Ohms.	
5	GND	Ground for thermal fault indicator and enable circuit.	
6	Thermal Fault Indicator	Open drain output. High impedance for base plate temperatures less than 55 °C. Low impedance for base plate temperatures exceeding 75 °C.	
7	Enable	TTL compatible supply voltage (VIN) shutdown. If enable feature is not required, short this pin to DC ground. TTL “High” Disable TTL “Low” Enable	

For price, delivery, and to place orders: Analog Devices, Inc., One Technology Way, P.O. Box 9106, Norwood, MA 02062-9106
Phone: 781-329-4700 • Order online at www.analog.com
Application Support: Phone: 1-800-ANALOG-D

10 WATT POWER AMPLIFIER MODULE, 800 - 2000 MHz

Outline Drawing





Package Information

Package Type	C-7
Package Weight [1]	740 gms [2]
Spacer Weight	N/A

[1] Includes the connectors

[2] ±10% Tolerance

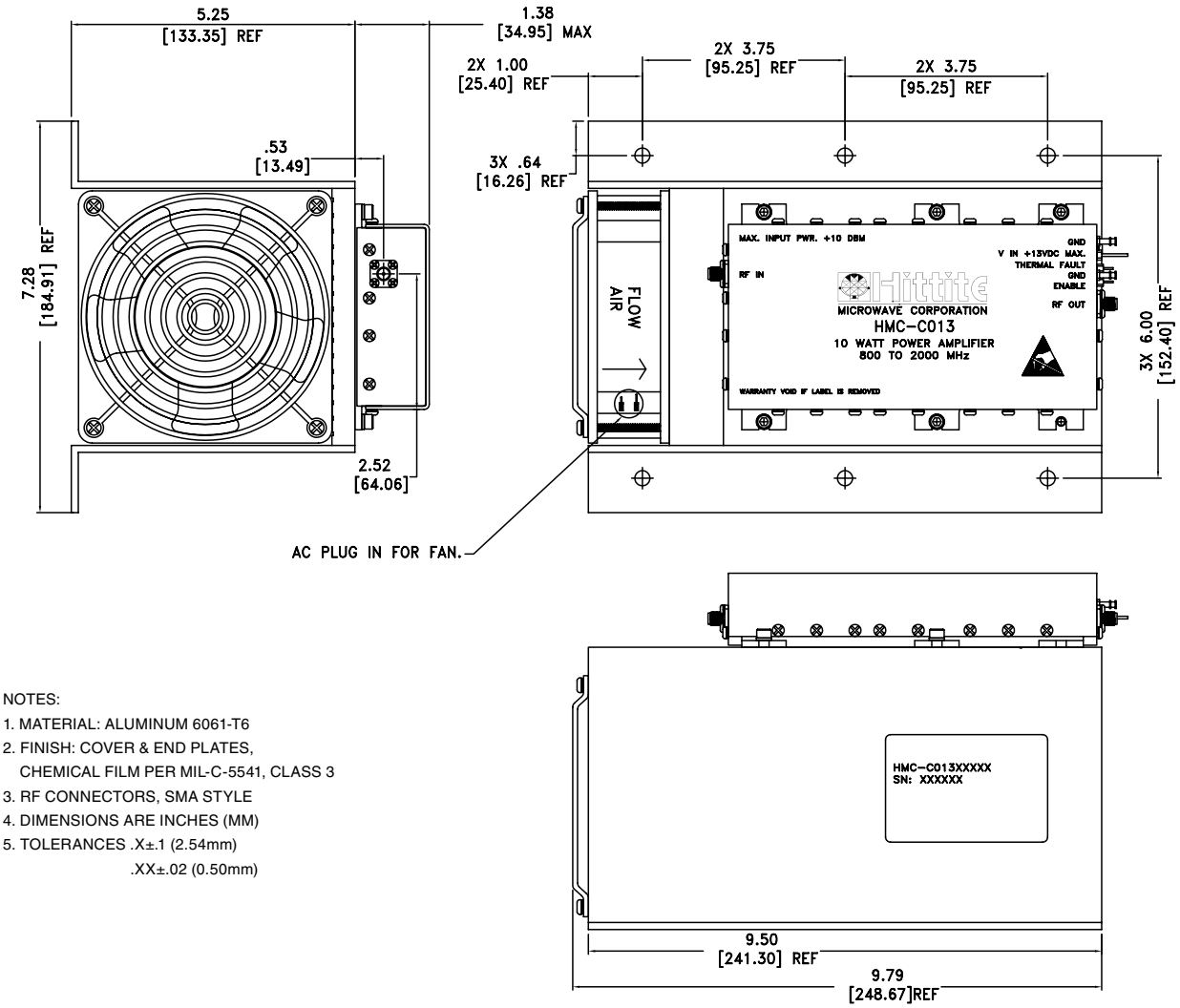
NOTES:

1. MATERIAL: ALUMINUM 6061-T6
2. FINISH
   a. COVER & END PLATES, CHEMICAL FILM PER MIL-C-5541, CLASS 3
   b. BASE, TIN
3. RF CONNECTORS, SMA STYLE
4. DIMENSIONS ARE INCHES (MM)
5. TOLERANCES .X±.1 (2.54mm)
   .XX±.02 (0.50mm)
6. DRAWING TO CHANGE AS REQUIRED.
7. BASE MUST BE GROUNDED AND MOUNTED TO HEAT SINK CAPABLE OF DISSIPATING 100W (65 °C)

For price, delivery, and to place orders: Analog Devices, Inc., One Technology Way, P.O. Box 9106, Norwood, MA 02062-9106
Phone: 781-329-4700 • Order online at www.analog.com
Application Support: Phone: 1-800-ANALOG-D

10 WATT POWER AMPLIFIER MODULE, 800 - 2000 MHz

HMC-C013 Heatsink/Fan Outline Drawing



NOTES:

1. MATERIAL: ALUMINUM 6061-T6
2. FINISH: COVER & END PLATES,
   CHEMICAL FILM PER MIL-C-5541, CLASS 3
3. RF CONNECTORS, SMA STYLE
4. DIMENSIONS ARE INCHES (MM)
5. TOLERANCES .X±.1 (2.54mm)
   .XX±.02 (0.50mm)

HMC-C008 Ordering Information

Part Number	Description
HMC-C013	10 Watt Power Amplifier Module, 800 - 2000 MHz
HMC-C013HV115	10 Watt Power Amplifier Module with heat sink, 115 Vac fan and power cord.
HMC-C013HV230	10 Watt Power Amplifier Module with heat sink, 230 Vac fan and power cord.

For price, delivery, and to place orders: Analog Devices, Inc., One Technology Way, P.O. Box 9106, Norwood, MA 02062-9106
Phone: 781-329-4700 • Order online at www.analog.com
Application Support: Phone: 1-800-ANALOG-D