



2.0 to 22.0 GHz GaAs MMIC Power Amplifier

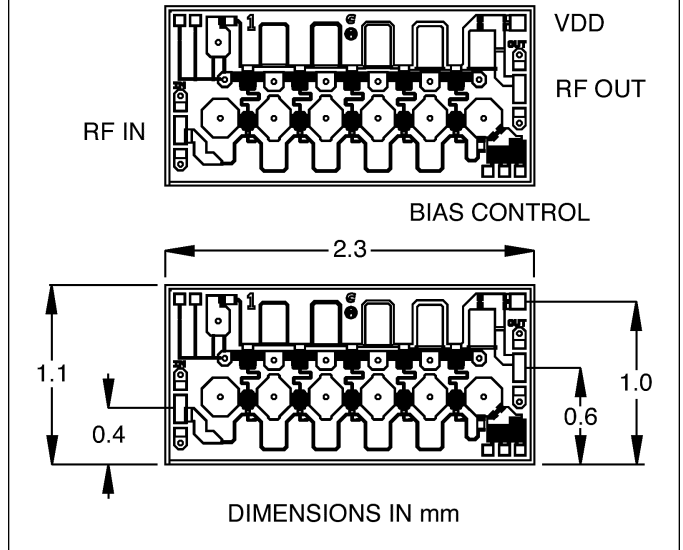
**Advanced Product Information
October 2003**

(1 of 2)

Features

- ❑ Small Size: 45 x 92 mils
- ❑ High Gain: 11.5 dB
- ❑ Medium Power: +25 dBm, Typ P1dB
- ❑ Directly Cascadable – Fully Matched
- ❑ Unconditionally Stable
- ❑ Single Supply
- ❑ Bias Control
- ❑ pHEMT Technology
- ❑ Silicon Nitride Passivation

Chip Diagram



Specifications ($T_A = 25^\circ\text{C}$, $V_{dd} = 8\text{V}$)				
Parameters	Units	Min	Typ	Max
Frequency Range	GHz	2.0		22.0
Small Signal Gain	dB	10.0		13.5
Gain Flatness	$\pm\text{dB}$			1.6
Return Loss	dB		-10	
P1dB Variation (over operating frequency)	dBm			4.5
Power Output (@1 dB Gain Compression) ¹	dBm	22.5		27.5
Saturated Output Power	dBm	24.0		29.0
Second Order Intercept Point	dBm		40.0	
Third Order Intercept Point	dBm		30.0	
Current	mA	250	300	350
Stability ²	Unconditionally Stable			

Notes: 1. Power may be increased by 1 dB if Bias of 7V and 350 mA is used (all source resistors bonded to ground).
 2. Stability factor measured on-wafer.

Absolute Maximum Ratings

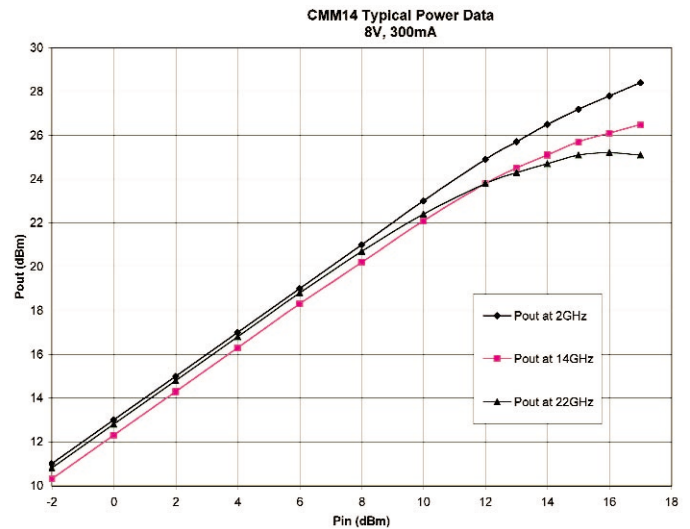
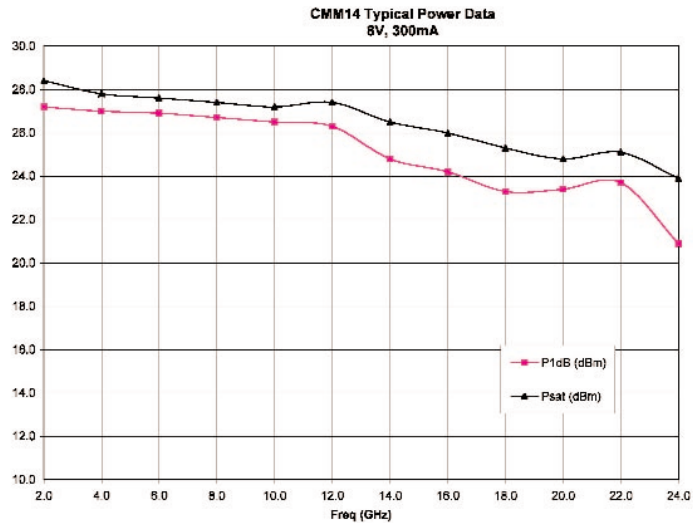
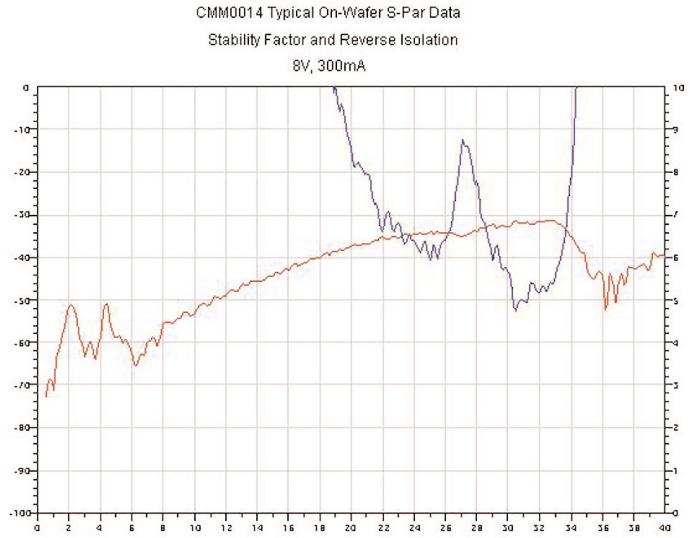
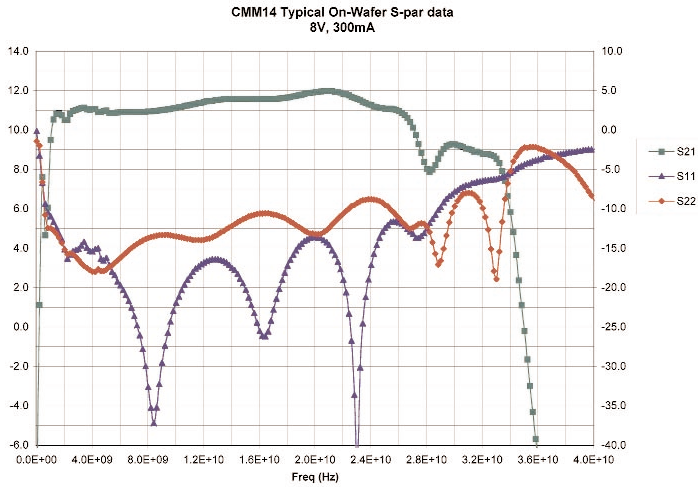
Parameter	Rating
Drain Voltage	12V
Drain Current	375 mA
Continuous Power Dissipation	3.0 W
Channel Temperature	+175°C
Storage Temperature	-65°C to +175°C
Mounting Temperature	+320°C
Input Power	+23 dBm

Die Attach and Bonding Procedures

Die Attach: Eutectic die attach is recommended. For eutectic die attach: Preform: AuSn (80% Au, 20% Sn); Stage Temperature: 290°C, $\pm 5^\circ\text{C}$; Handling Tool: Tweezers; Time: 1 min or less.

Wire Bonding: Wire Size: 0.7 to 1.0 mil in diameter (pre-stressed); Thermocompression bonding is preferred over thermosonic bonding. For thermocompression bonding: Stage Temperature: 250°C; Bond Tip Temperature: 150°C; Bonding Tip Pressure: 18 to 40 gms depending on size of wire.

Typical Performance (V_{dd} = 8V, 300 mA)



Ordering Information

The CMM-0014-BD is available in bare die and is shipped in Gel Pak.

Part Number for Ordering
CMM0014-BD

Package
Bare Die

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