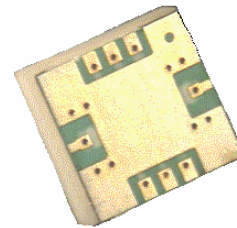


Preliminary Information
Agilent AMMP-5024
 100 kHz – 40 GHz
 Traveling Wave Amplifier
 Data Sheet



Features

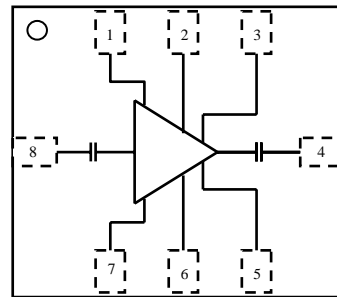
- 5x5mm Surface Mount Package
- Wide Frequency Range 100kHz - 40GHz
- P-1dB of 23dBm
- High Gain of 15 dB
- 50 Ω match on Input and Output
- Integrated Output Power Detector

Applications

- Communication Systems
- Microwave Instrumentation
- Optical Systems
- Broadband applications requiring flat gain group delay

Description

Agilent's AMMP-5024 is a broadband PHEMT GaAs MMIC TWA designed for medium output power and high gain over the full 100 KHz to 40 GHz frequency range. The design employs a 9-stage, cascade-connected FET structure to ensure flat gain and power as well as uniform group delay. E-beam lithography is used to produce uniform gate lengths of 0.15 μ m and MBE technology assures precise semiconductor layer control.



Pin	Function
1	V_g
2	V_d
3	DET _O
4	RF _{Out}
5	DET _R
6	V_d
7	V_g
8	RF _{In}

PACKAGE
 BASE
 GND

AMMP-5024 Absolute Maximum Ratings⁽¹⁾

Symbol	Parameters/Conditions	Units	Min.	Max.
V_d	Positive Drain Voltage	V		8
V_g	Gate Supply Voltage	V	-3	0.5
i_d	First Stage Drain Current	mA		1500
P_{in}	CW Input Power	dBm		23
T_{ch}	Operating Channel Temp.	$^{\circ}$ C		+150
T_{stg}	Storage Case Temp.	$^{\circ}$ C	-65	+150
T_{max}	Maximum Assembly Temp (60 sec max)	$^{\circ}$ C		+300

Note:

1. Operation in excess of any one of these conditions may result in permanent damage to this device.

This preliminary data is provided to assist you in the evaluation of product(s) currently under development. Until Agilent Technologies releases this product for general sales, Agilent Technologies reserves the right to alter prices, specifications, features, capabilities, functions, release dates, and remove availability of the product(s) at anytime.

Revision Date: 28 Sept 2005

Revision Number: 1

AMMP-5024 DC Specifications/Physical Properties ^[1]

Symbol	Parameters and Test Conditions	Units	Min.	Typ.	Max.
I_d	Drain Supply Current [$V_d=7\text{ V}$, $V_g=$ set for I_d Typical]	mA		200	
$\theta_{2(ch-bs)}$	Thermal Resistance ^[2] [Channel-to-Backside at $T_{ch}=150\text{ °C}$]	°C/W		14.5	

Notes:

1. Ambient operational temperature $T_A=25\text{ °C}$ unless otherwise noted.
2. Thermal resistance (°C/Watt) at a channel temperature $T(\text{°C})$ can be estimated using the equation:
 $\theta(T) \cong \theta_{ch-bs} \times [T(\text{°C}) + 273] / [150\text{ °C} + 273]$.

AMMP-5024 RF Specifications ^[3,4]

$T_A=25\text{ °C}$, $V_d=7\text{ V}$, $I_{d(Q)}=200\text{ mA}$, $Z_{in}=Z_o=50\ \Omega$

Symbol	Parameters and Test Conditions	Units	Specifications		
			Min.	Typ.	Max.
Freq	Operational Frequency	GHz	0.000001		40
Gain	Small-signal Gain ^[3, 4]	dB		15	
P_{-1dB}	Output Power at 1dB Gain Compression ^[4]	dBm		22	
IP_3	Third Order Intercept Point ^[4] ; $\Delta f=0.1\text{ GHz}$; $P_{in}=-6\text{ dBm}$	dBm		30	
RLin	Input Return Loss ^[4]	dB		10	
RLout	Output Return Loss ^[4]	dB		10	
Isolation	Min. Reverse Isolation	dB		28	

3. Small/Large -signal data measured in wafer form $T_A=25\text{ °C}$.

This preliminary data is provided to assist you in the evaluation of product(s) currently under development. Until Agilent Technologies releases this product for general sales, Agilent Technologies reserves the right to alter prices, specifications, features, capabilities, functions, release dates, and remove availability of the product(s) at anytime.

Revision Date: 28 Sept 2005

Revision Number: 1