FEATURES

- 0.05 - 3.5 GHz Frequency Range
- Flat Frequency Response With Direct Gain Control
- +22 dBm Output Power Capability
- Matched to 50 Ω

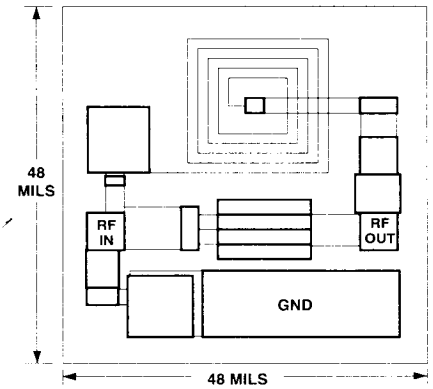
DAICO INDUSTRIES, INC.
VOLUME 4 • ISSUE #1

GaAs MMIC AMPLIFIERS I

In This Issue:

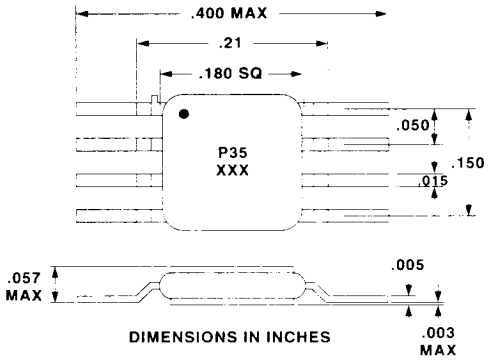
MODEL NO. P35-4100-0
GaAs MMIC Amplifier

BOND PAD CONFIGURATION



CHIP THICKNESS: 8 MILS

PIN	FUNCTION
1	GROUND
2	GROUND
3	RF INPUT
4	GROUND
5	GROUND
6	GROUND
7	RF OUTPUT
8	GROUND

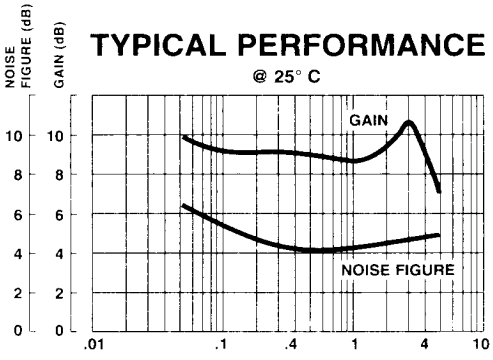


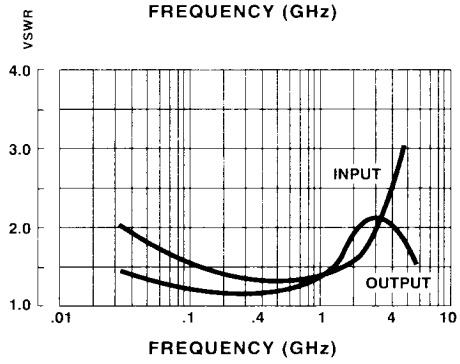
DIMENSIONS IN INCHES

.xx = .02
.xxx = .010

TYPICAL PERFORMANCE

@ 25° C





This product is manufactured by GEC Marconi Materials, UK, and is distributed by Daico Industries.

GUARANTEED PERFORMANCE

PARAMETER		MIN	TYP	MAX	UNITS	CONDITIONS
OPERATING FREQUENCY		0.05		3.5	GHz	
GAIN			9.0 10.0		dB dB	0.5 - 2.0 GHz 0.05 - 3.5 GHz
GAIN FLATNESS			±0.4 ±1.0		dB dB	0.5 - 2.0 GHz 0.05 - 3.5 GHz
VSWR:	INPUT		1.8/1 2.5/1	2.2/1 3.0/1		0.5 - 2.0 GHz 0.05 - 3.5 GHz
	OUTPUT		1.7/1 2.0/1	2.0/1 2.5/1		0.5 - 2.0 GHz 0.05 - 3.5 GHz
OUTPUT POWER		+20	+22		dBm	1 dB COMPRESSION
NOISE FIGURE			4.5 6.0		dB dB	0.5 - 2.0 GHz 0.05 - 3.5 GHz
VOLTAGES:	GATE	0	-0.6	-5.0	V	
	DRAIN	+4.5	+5.0	+6.0	V	
CURRENT Id		100	135	180	mA	V_g = 0V
OPERATING TEMPERATURE		-55	+25	+125	°C	

CONDITION IS Vd = 5 VOLTS, Id = 90 mA

NOTES:

1. THE VALUE OF Vg TYPICAL FOR Id = 90 mA IS -0.6 VOLTS.
2. THE SMALL SIGNAL GAIN AND Id ARE BOTH REDUCED BY INCREASING THE MAGNITUDE OF Vg, THUS ALLOWING AGC CONTROL.
3. IT IS IMPORTANT THAT THE PAD DESIGNATED GROUND IS BONDED WITH MINIMUM INDUCTANCE TO A GOOD RF GROUND.
4. EXTERNAL BIAS CIRCUITRY IS REQUIRED AT RF IN AND RF OUT.
5. FOLLOW RECOMMENDED MOUNTING INSTRUCTIONS.
6. ORDER: P35-4100-0 FOR CHIP CONFIGURATION,
   P35-4100-2 FOR PACKAGE.

DAICOGRAM

From DAICO INDUSTRIES, INC.
2453 East Del Amo Blvd.
Rancho Dominguez, CA 90220
Phone 310/631-1143 • Fax 310/631-8078

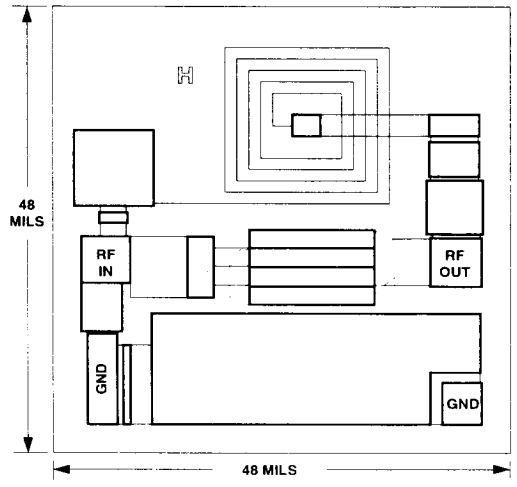
FEATURES

- 0.5 - 3.5 GHz Frequency Range
- Self Biased. No Separate Gate Supply Req.
- +22 dBm Output Power Capability
- Matched to 50 Ω

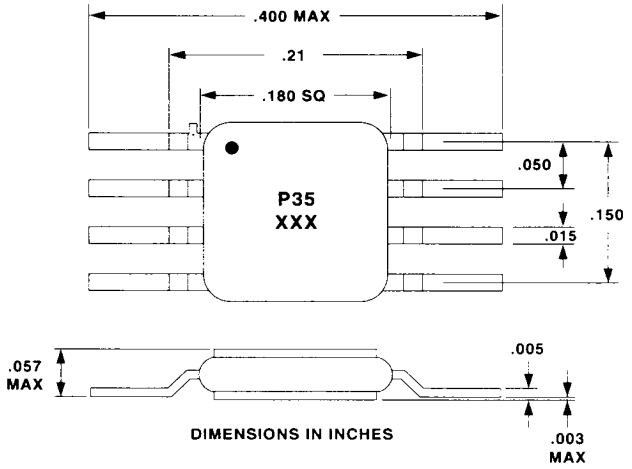
MODEL NO. P35-4101

GaAs MMIC Amplifier

BOND PAD CONFIGURATION



CHIP THICKNESS: 8 MILS



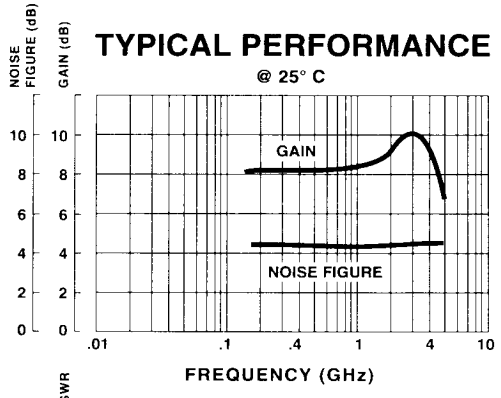
DIMENSIONS IN INCHES

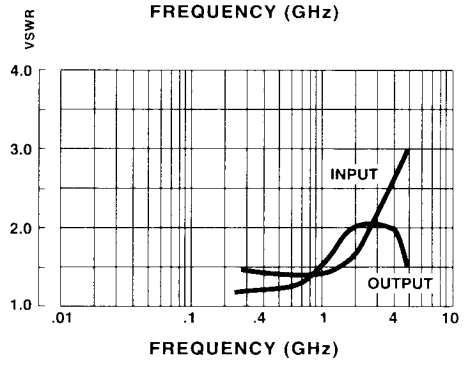
PIN	FUNCTION
1	GROUND
2	GROUND
3	RF INPUT
4	GROUND
5	GROUND
6	GROUND
7	RF OUTPUT
8	GROUND

.xx = .02
.xxx = .010

TYPICAL PERFORMANCE

@ 25° C





GUARANTEED PERFORMANCE

PARAMETER		MIN	TYP	MAX	UNITS	CONDITIONS
OPERATING FREQUENCY		0.5		3.5	GHz	
GAIN			8.7 9.0		dB dB	0.5 - 2.0 GHz 0.5 - 3.5 GHz
GAIN FLATNESS			±0.2 ±0.75		dB dB	0.5 - 2.0 GHz 0.5 - 3.5 GHz
VSWR:	INPUT		1.7/1 2.5/1	2.2/1 3.0/1		0.5 - 2.0 GHz 0.5 - 3.5 GHz
	OUTPUT		1.7/1 2.0/1	2.0/1 2.5/1		0.5 - 2.0 GHz 0.5 - 3.5 GHz
OUTPUT POWER		+20	+22		dBm	1 dB COMPRESSION
NOISE FIGURE			4.5		dB	
VOLTAGES:	DRAIN	+4.5	+5.0	+6.0	V	
CURRENT DRAIN			90		mA	
OPERATING TEMPERATURE		-55	+25	+125	°C	

CONDITION IS Vd = 5 VOLTS, Id = 90 mA

NOTES:

1. THE VALUE OF Id = 90 mA IS TYPICAL WHEN Vd = 5 VOLT.
2. IT IS IMPORTANT THAT THE PADS DESIGNATED GROUND ARE BONDED WITH MINIMUM INDUCTANCE TO A GOOD RF GROUND.
3. EXTERNAL BIAS CIRCUITRY IS REQUIRED AT RF OUT AND A DC BLOCKING CAPACITOR AT RF IN.
4. FOLLOW RECOMMENDED MOUNTING INSTRUCTIONS.
5. ORDER: P35-4101-0 FOR CHIP CONFIGURATION,
   P35-4101-2 FOR PACKAGE.

This product is manufactured by GEC Marconi Materials, UK, and is distributed by Daico Industries.

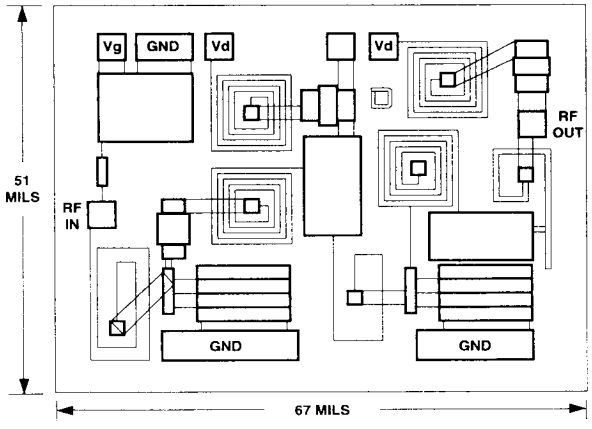
FEATURES

- 0.05 - 3.0 GHz Frequency Range
- 18 dB Gain
- 35 dB Reverse Isolation
- +13 dB Output Power Capability
- Cascadable
- Matched to 50Ω

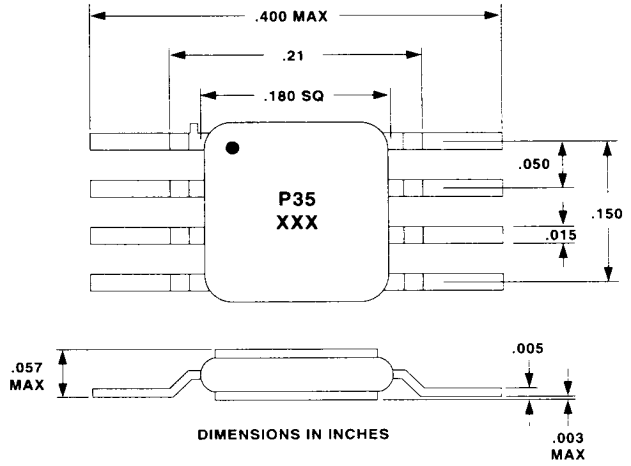
MODEL NO. P35-4104

GaAs MMIC Amplifier

BOND PAD CONFIGURATION



CHIP THICKNESS: 8 MILS



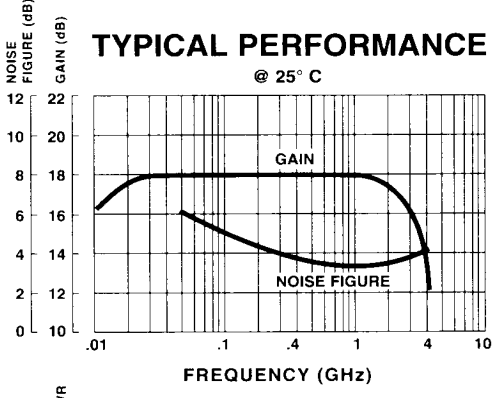
DIMENSIONS IN INCHES

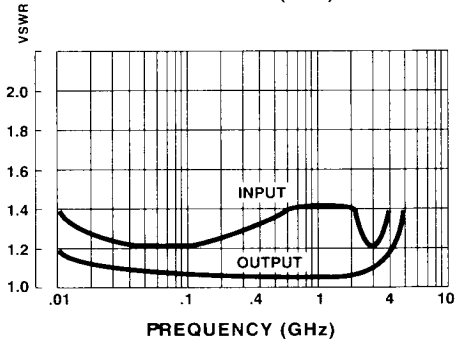
PIN	FUNCTION
1	DRAIN VOLTAGE, Vd
2	GATE VOLTAGE, Vg
3	RF INPUT
4	GROUND
5	GROUND
6	GROUND
7	RF OUTPUT
8	DRAIN VOLTAGE, Vd

.xx = .02
.xxx = .010

TYPICAL PERFORMANCE

@ 25° C





This product is manufactured by GEC Marconi Materials, UK, and is distributed by Daico Industries.

GUARANTEED PERFORMANCE

PARAMETER		MIN	TYP	MAX	UNITS	CONDITIONS
OPERATING FREQUENCY		0.05		3	GHz	
GAIN		16.5	18		dB	SEE NOTE 1
GAIN FLATNESS			±1.0	±1.5	dB	
VSWR	INPUT OUTPUT		1.8/1 1.3/1	2.0/1 1.5/1		
OUTPUT POWER		12	13		dBm	1 dB COMPRESSION
NOISE FIGURE			4 6	4.5 7	dB dB	0.5 - 3.0 GHz 0.05 - 3.0 GHz
VOLTAGES	GATE DRAIN	-0.5 6	-1 8	-1.5 9	V V	SEE NOTE 2
REVERSE ISOLATION		30	35		dB	
OPERATING TEMPERATURE			25		°C	

CONDITION IS Vd = 8 VOLTS, Id = 60 mA

NOTES:

1. THE NOMINAL OPERATING CURRENT, Id, IS 60 mA SET BY Vg, TYPICALLY -1 VOLT.
2. THE RANGE OF Vg TO SET Id = 60 mA.
3. ORDER: P35-4104-0 FOR CHIP CONFIGURATION,
   P35-4104-2 FOR PACKAGE

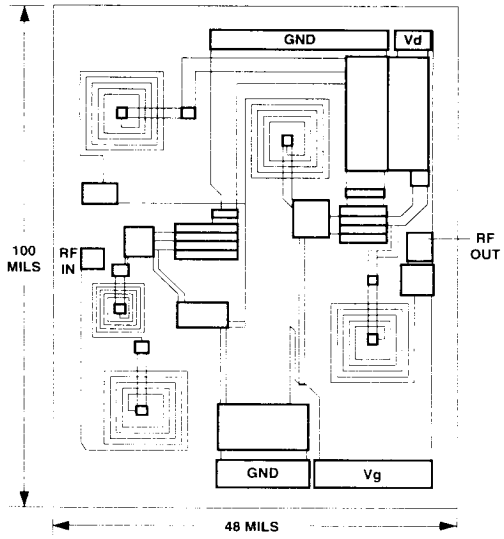
FEATURES

- 0.8 - 1.8 GHz Frequency Range
- 21 dB Gain
- 3.5 dB Noise Figure
- Usable Gain From 0.5 to 2 GHz
- +8 dBm Output Power Capability
- 35 dB Reverse Isolation
- Matched to 50Ω
- No External Bias Chokes Or Blocking Capacitors Required

MODEL NO. P35-4105-0

GaAs MMIC Amplifier

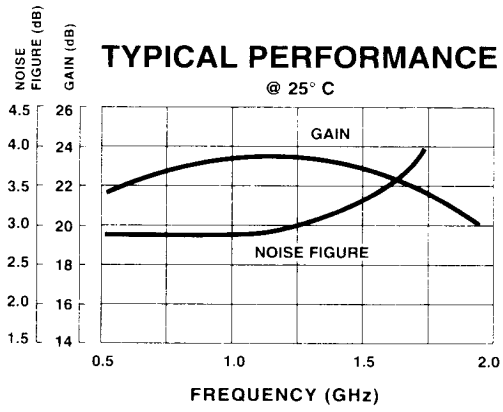
BOND PAD CONFIGURATION



CHIP THICKNESS: 8 MILS

TYPICAL PERFORMANCE

@ 25° C



GUARANTEED PERFORMANCE

PARAMETER		MIN	TYP	MAX	UNITS	CONDITIONS
OPERATING FREQUENCY		0.8		1.8	GHz	
GAIN			21		dB	SEE NOTE 1
GAIN FLATNESS			±1.0		dB	
VSWR	INPUT		2.7/1	3.2/1		
	OUTPUT		1.7/1	2.0/1		
OUTPUT POWER			8		dBm	1 dB COMPRESSION
NOISE FIGURE			3.5	4.5	dB	
VOLTAGES	GATE	0	-1	-5	V	
	DRAIN	6	7	9	V	
REVERSE ISOLATION		30	35		dB	
OPERATING TEMPERATURE		-55	+25	+85	°C	

CONDITION IS Id = 45 mA

NOTES:

1. THE SPECIFIED VALUE OF Id = 45 mA IS TYPICAL WHEN Vg = -1 VOLT, Vd = 7 VOLT.
2. IT IS RECOMMENDED THAT Vd AND Vg ARE APPLIED TO THE P35-4105-0 VIA OFF-CHIP DECOUPLING CAPACITORS OF 470 pF.
3. IT IS IMPORTANT THAT THE PADS DESIGNATED GROUND ARE BONDED WITH MINIMUM INDUCTANCE TO A GOOD RF GROUND.
4. FOLLOW RECOMMENDED MOUNTING INSTRUCTIONS.

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