



An Introduction

to

PLANAR MONOLITHICS INDUSTRIES, INC.

"A Tradition of Excellence Since 1989"

March 9, 1999

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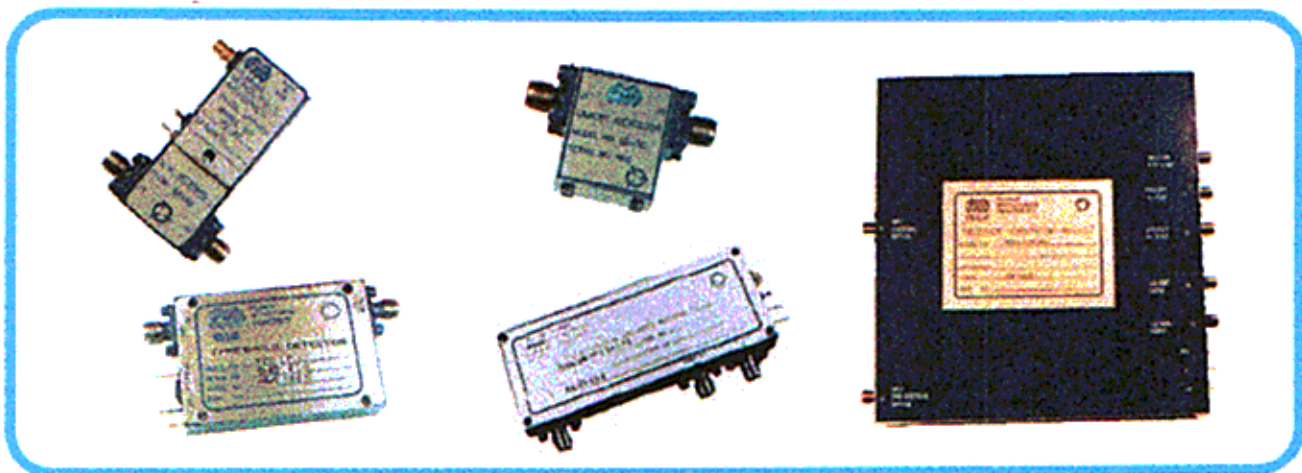


A Tradition of Excellence

Morris Garages, designers and manufacturers of the MGB line of classic roadsters like this 1977 model began a tradition of design excellence for a line of roadster class autos in the 1930's which other marques have continued to this day.

Planar's tradition began in the mid 1970's as Planar Microwave and is also continuing to this date as Planar Monolithics Industries, Inc., a recognized leader in the application of advanced Microwave Monolithics Circuits to modern microwave radar warning receiver technology. From our line of wideband, high dynamic range SDLVA's through current day work on low cost instantaneous frequency discriminators, PMI is continuing the tradition of excellence in modern receiver design.

Call our Applications Engineering today for modern solutions to your radar warning receiver design tasks.



*PLANAR
MONOLITHICS
INDUSTRIES
INCORPORATED*

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INTRODUCTION

Founded by Ash Gorwara in 1989 to meet a growing demand for monolithic based microwave assemblies for the Defense Electronics, Instrumentation and Communications Markets Worldwide.

The company's technology extends from that of Planar Microwave in the 1970's that was also founded by Mr. Gorwara and subsequently became a division of Raytheon Company. It has been updated significantly by recent work sponsored by DARPA on Microwave Monolithic Integrated Circuit (MMIC) Technology.

In 1990, the PMI teamed with American Microwave Corporation in Frederick, Maryland begin manufacturing its first product, a MMIC based Successive Detection Logarithmic Video Amplifier having 70dB dynamic range and covering the frequency band from 0.1 to 2.0 GHz. Since that time, phase shifters, low noise amplifiers, threshold detector and frequency discriminator products have been delivered to the market.

Today the company is a recognized leader in the application of MMIC technology into microwave receiving systems featuring the lower cost and significantly improved reliability that MMIC technology has to offer.

The company is dedicated to the idea of expanding the application of MMIC technology into other areas of microwave systems design requiring cost reduction and reliability enhancement.

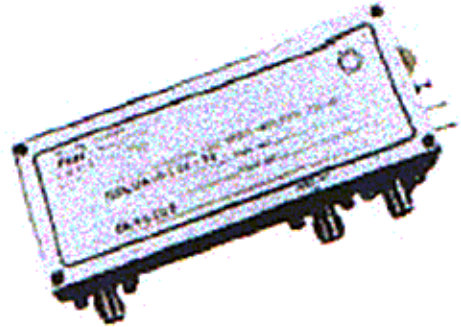
HISTORY

- 1989** ***Founded by Ash Gorwara to produce MMIC based products***
- 1990** ***Developed 0.1 TO 2.0 GHz MMIC SDLVA***
- 1992** ***Limiter-Detector Products produced.***
- 1993** ***Phase shifter development completed***
- 1995** ***Low Noise Amplifier Product line Introduced***
- 1996** ***Threshold Detectors Products Developed and Delivered***
- 1997** ***Low Cost Frequency Discriminator Product Delivered***

PRODUCTS OFFERED

SUCCESSIVE DETECTION LOG AMPS

Frequency Range: 0.1 to 2.0 GHz
Dynamic Range: 70 dB
High Speed: 25/30 nS Rise/Fall Times
MMIC Reliability
Connectorized Units
Drop-In Packages
Testing Available to MIL-STD-883B



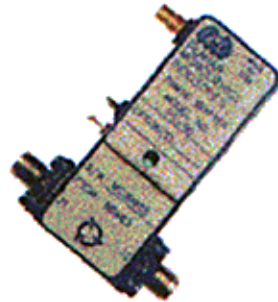
LOW NOISE AMPLIFIERS

Frequency Range: 0.1 to 20 GHz
Gain: 35 dB
Noise Figure: 4 dB
Gain Flatness: +/-2 dB
Connectorized Package



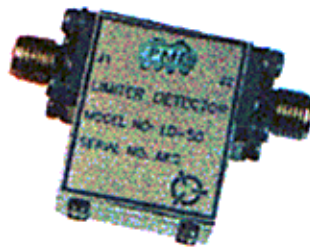
PHASE SHIFTERS

Frequency Range: 2 to 18 GHz
(Octave Bandwidths)
Range: +/- 90 Degrees
Control: Analog Voltage,
Programmable



THRESHOLD DETECTORS

High Speed: 10nS
ECL, TTL Logic Compatible
Outputs



LIMITER/DETECTORS

Frequency Range: 0.1 to 20 GHz
Limiting Levels: -5 to +10 dBm
Limiting Types: Hard, Soft



OTHER PRODUCTS

Low Cost Frequency
Discriminators
High Dynamic Range Receiver
Front Ends

QA PROGRAM COMPLIANCE

SPECIFICATIONS

MIL-I-45208

MIL-STD-2000

MIL-E-5400

MIL-STD-461

MIL-M-38510

MIL-C-45662

MIL-STD-883

APPROVALS

**LITTON AMECOM, RAYTHEON, CELSIUS
TECH, HUGHES, LOCKHEED-MARTIN,
NORTHROP GRUMMAN**

NAWC

**AAI CORPORATION, NORTHROP-
GRUMMAN**

LOCKHEED-SANDERS, NAWC

LOCKHEED-SANDERS

**CALIBRATION SYSTEM REQUIRE-
MENTS FOR MIL-I-45208**

HUGHES AIRCRAFT COMPANY

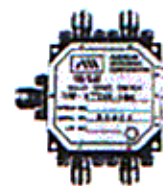
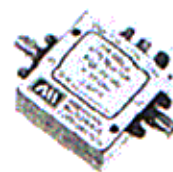
MAJOR CUSTOMERS

<u>CUSTOMER</u>	<u>PRODUCT DESCRIPTION</u>
CONDOR SYSTEMS	SDLVA
SYRACUSE RESEARCH	SDLVA
RESEARCH ASSOCIATES	SDLVA
CELSIUS TECHNOLOGY	SDLVA
LOCKHEED MARTIN	100dB VARIABLE ATTENUATORS
NRAD	SDLVA
RAYTHEON E-SYSTEMS DIV.	SDLVA
NORTHROP GRUMMAN(ESSD)	SDLVA
NORTHROP GRUMMAN (NORDEN SYSTEMS)	100dB VARIABLE ATTENUATORS
NAVAL RESEARCH LABORATORY	SDLVA, 100dB VARIABLE ATTENUATORS
HRB SYSTEMS	SDLVA
LOCKHEED MARTIN	PHASE SHIFTERS AND ATTENUATORS
KOR ELECTRONICS	THRESHOLD DETECTORS
NAVAL AIR WARFARE CXENTER (CHINA LAKE, CA)	SDLVA
ITT AVIONIC	SDLVA
TRW	LIMITER DETECTORS
NEARSON	DIRECTIONAL DETECTORS
THERMO-TREX	SDLVA
DASSAULT ELECTRONIQUE	SDLVA

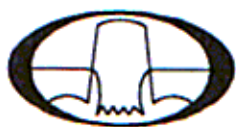
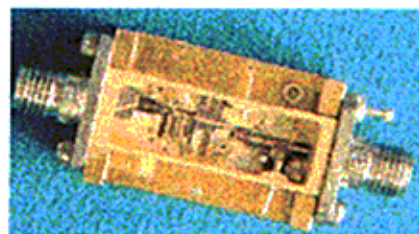
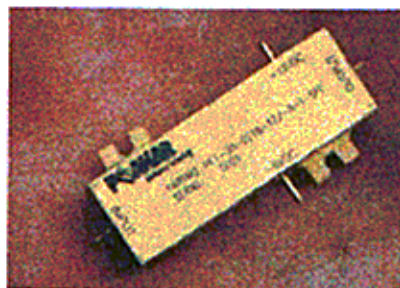
AFFILIATED COMPANIES



AMERICAN MICROWAVE CORP



Planar Electronics Technology



Planar Filter Company



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