



Planar Monolithics Industries, Inc.

*PMI Technical Capabilities & Facilities Presentation
On
RF/Microwave Components & Multifunction Modules/Subsystems*

January 23, 2014

**ISO 9001 : 2008
REGISTERED**

East Coast Division: 7311-F Grove Road, Frederick, MD 21704, USA.

West Coast Division: 4921 Robert J. Mathews Parkway, Suite 1, El Dorado Hills, CA 95762, USA.

Website: www.pmi-rf.com Sales: sales@pmi-rf.com

HISTORY

Planar Monolithics Industries, Inc. (PMI), an "S" Corporation, was founded on November 11th, 1989 to take advantage of the growing demand in monolithic based products using Hybrid MIC/MMIC technology. PMI offers its unique DC to 40GHz products for applications in space, military, telecommunications, communications and consumer electronics.

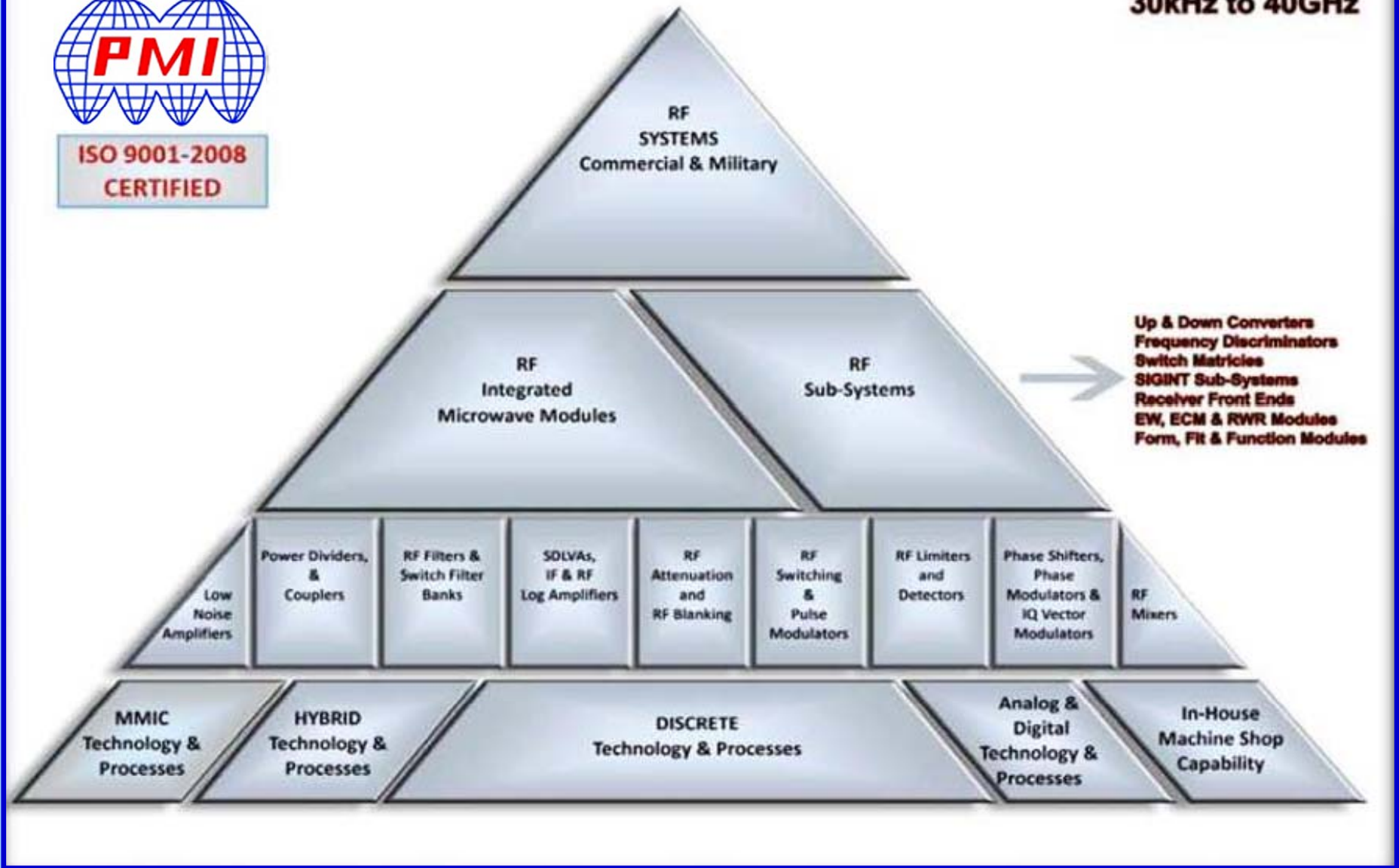
Today, PMI is being directed into the 21st Century by expanding the applications of RF/Microwave components and subsystems into new, low cost, RF/Microwave receiving and transmitting systems for both civilian and military customers.

Effective April 30 2013, Planar Monolithics Industries Inc. (PMI), 7311-F Grove Road, Frederick, Maryland, USA 21704, <http://www.pmi-rf.com> acquired 100% of all the assets & property of HARI, LLC, www.harillc.com (Formerly operating as Genesis Microwave Inc., www.genesismicrowave.com) located at 4980 Hillsdale Circle, Suite B, El Dorado Hills, CA 95762, USA. These assets include all the test and manufacturing equipment and machinery, designs, Documentation, drawings and Intellectual property in the form of hard copies and in computer format in servers, CD's, storage areas, etc. Also included in these assets are the Office Equipment & Machinery, etc. and Computers, Office furniture, Finished goods, In-process and Raw Materials & Inventories and other Miscellaneous items. In addition to these assets, included are, all the stock in trade, merchandise, fixtures, equipment, goodwill and trade of the known business as "HARI LLC". All the RF/MICROWAVE products, components, subsystems, etc. being designed, manufactured, serviced and produced by HARI, LLC www.harillc.com (Formerly operating as Genesis Microwave Inc., www.genesismicrowave.com) until 30th April 30 2013, will now be offered, provided, produced, manufactured and serviced by Planar Monolithics Industries Inc. (PMI), at its West Coast Facilities Operations located at 4921 Robert J. Mathews Parkway, Suite 1, El Dorado

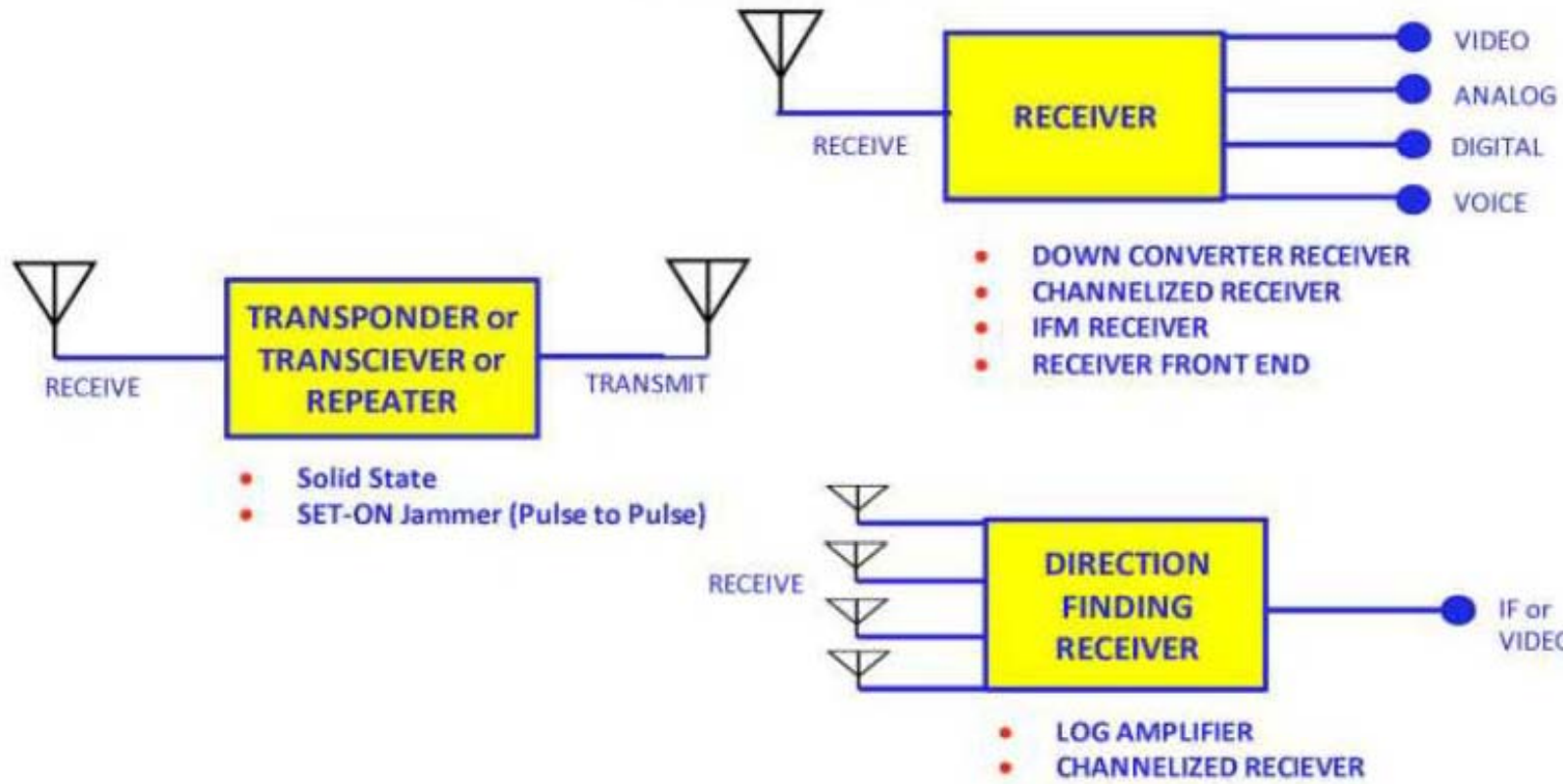


ISO 9001-2008
CERTIFIED

30kHz to 40GHz



RECEIVER THEORY

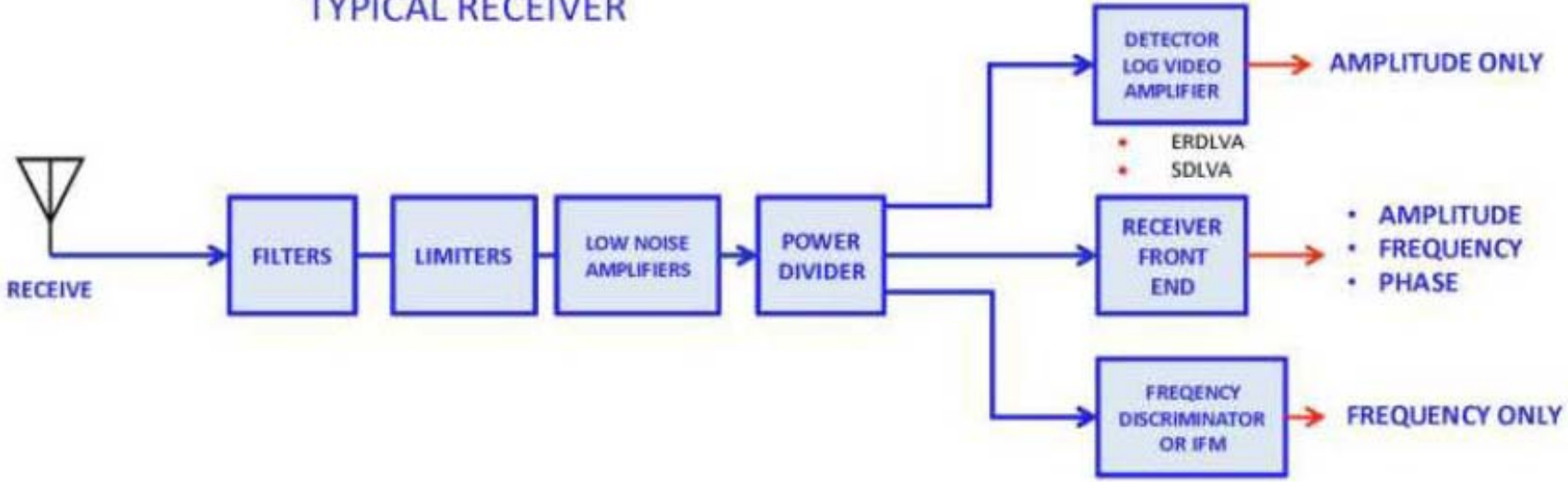


$$V_{\text{Input}} = A \cos(\omega_c \tau + \phi \tau)$$



RECEIVER THEORY PAGE 2

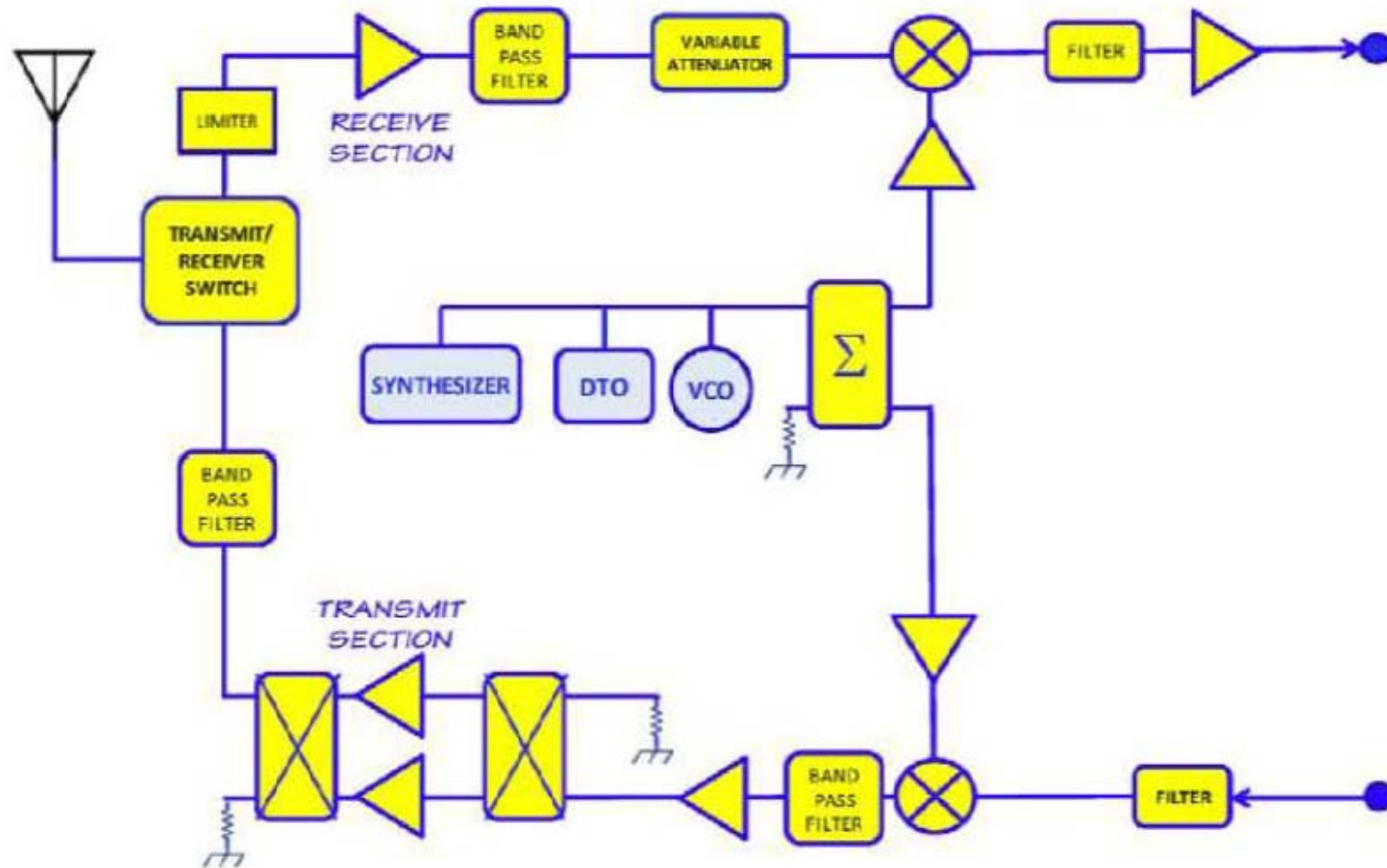
TYPICAL RECEIVER



$$V_{\text{Input}} = A \cos(\omega_c \tau + \phi \tau)$$

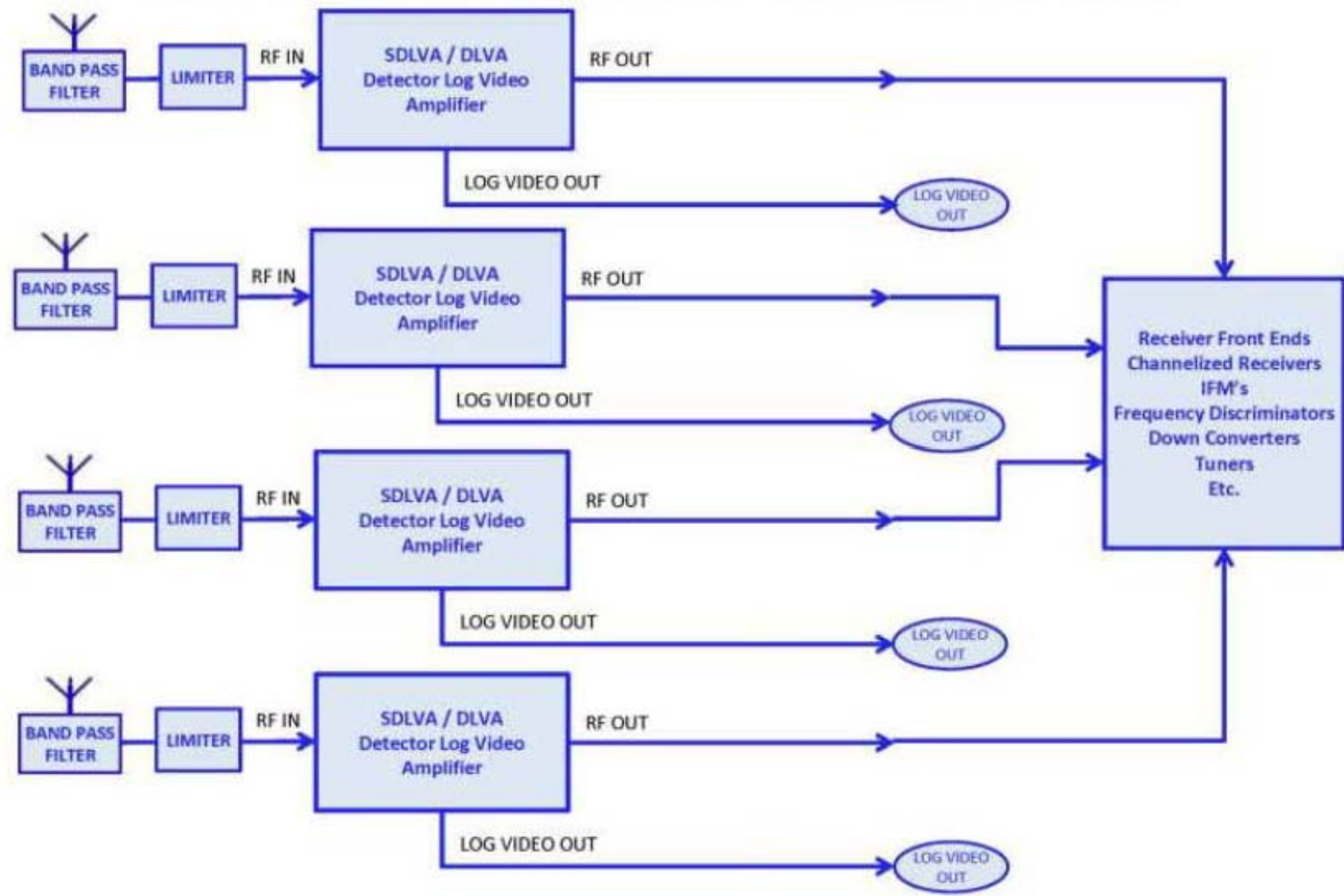
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AMPLITUDE FREQUENCY PHASE & MODULATION

Typical Transceiver Block Diagram



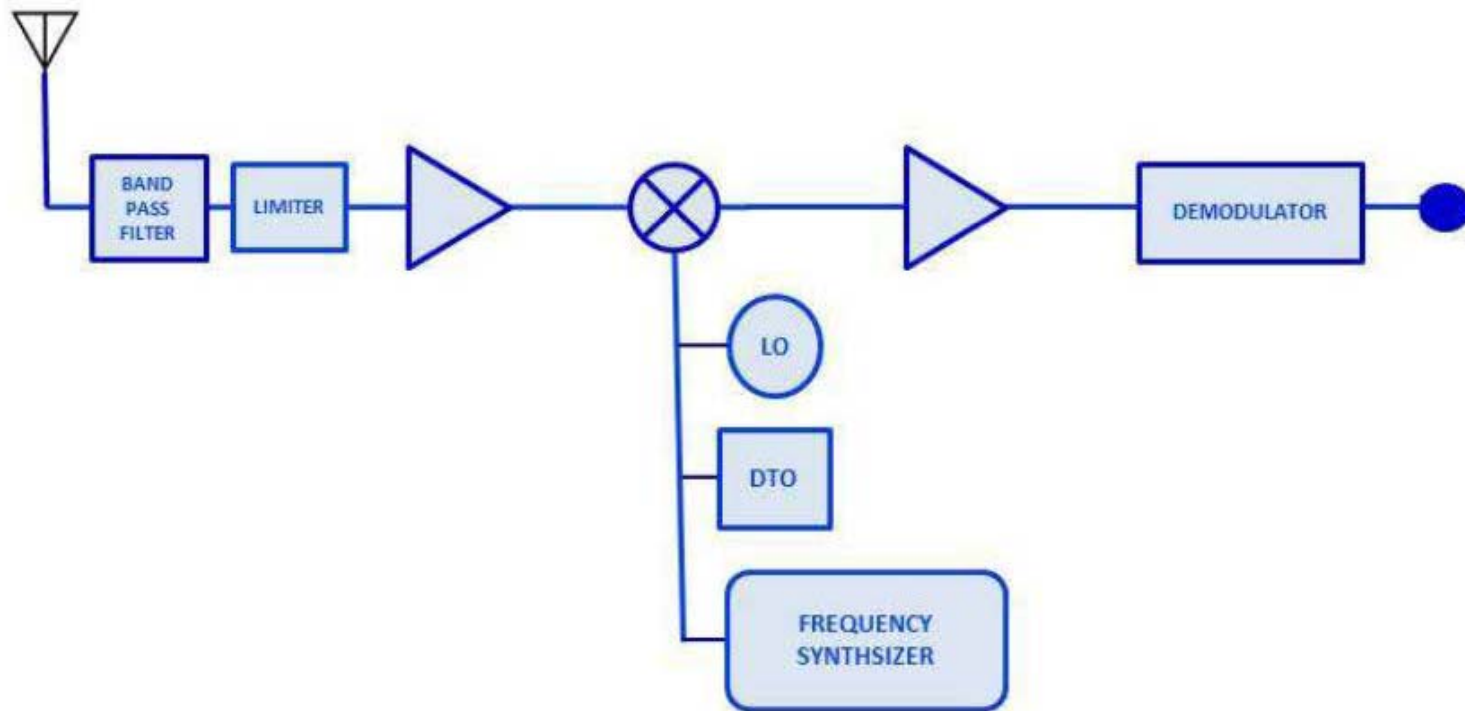
All Components except Mixers manufactured by PMI. Integrated Transceivers can be manufactured by PMI to your specifications. For more information please contact PMI via email at: sales@pmi-rf.com or via telephone at: 301-662-5019

RADAR WARNING RECEIVER (RWR), DIRECTION FINDING (DF)



All Components Manufactured by PMI, Band Pass Filters, Limiters, Pre-Amps etc. may be internal or external to the DLVA.
For more information please contact PMI via email at: sales@pmi-rf.com or via telephone at: 301-662-5019

SUPERHETERODYNE RECEIVER



All Components except mixers are Manufactured by Planar Monolithics Industries, Inc (PMI)
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PLANAR MONOLITHICS INDUSTRIES, INC.

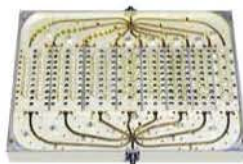
A TRADITION OF EXCELLENCE SINCE 1989

ISO9001-2000 CERTIFIED

Hybrid MIC/MMIC RF & Microwave Components, Subsystems, and Systems

MILITARY & INDUSTRIAL PRODUCTS TO 40GHz

- AIRBORNE SIGINT & DF RF DISTRIBUTION UNITS
- ATTENUATORS - ANALOG & DIGITAL
- DIRECTIONAL DETECTORS
- SWITCHED FILTER BANKS & FILTERS
- PIN DIODE SWITCHES
- FREQUENCY SYNTHESIZERS
- FREQUENCY & POLAR DISCRIMINATORS AND IFM's
- INTEGRATED SUPER COMPONENTS & RECEIVER FRONT ENDS
- IQ VECTOR MODULATORS
- LIMITERS & DETECTORS
- LOG RF/IF AMPLIFIERS
- LOW NOISE AMPLIFIERS
- PASSIVE & ACTIVE DOUBLER MODULES
- PHASE SHIFTERS & BI-PHASE MODULATORS
- POWER DIVIDERS & COMBINERS
- QUADRATURE & DIRECTIONAL COUPLERS
- SUBSYSTEMS & CUSTOM ASSEMBLIES
- DLVA's / ERDLVA's / SDLVA's
- THRESHOLD DETECTORS



SCREENING TO MIL-STD-883 AVAILABLE

PLANAR MONOLITHICS INDUSTRIES, INC

7311-F Grove Road, Frederick, MD 21704 USA Tel: 301-662-5019 Fax: 301-662-1731

Email: sales@pmi-rf.com

Web: www.pmi-rf.com



Planar Monolithics Industries, Inc.

EAST COAST OPERATIONS

Offering a complete line of Components & Integrated Assemblies to 40GHz

Amplifiers

Attenuators - Variable

DLVA & ERDLVA & SDLVA's

DTO's

Filters

Form, Fit & Function Products

Hybrids, Dividers & Couplers

IFM's & Frequency Discriminators

Integrated MIC/MMIC Modules

I/Q Vector Modulators

Limiters & Detectors

Log Amplifiers

Pulse & Bi-Phase Modulators

Phase Shifters

Rack & Chassis Mount Products

Receiver Front Ends

Single Sideband Modulators

SMT & QFN Products

Solid-State Switches

Switch Matrices

Switch Filter Banks

Threshold Detectors

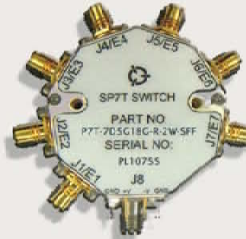
USB Products



Digitally Tuned Oscillators (DTO)



40GHz Solid-State Switches



High Power Switches



Limiting Amplifiers



40GHz USB Products



Filters



40GHz DLVA's, ERDLVA's & SDLVA's



40GHz Limiters



40GHz Analog & Digital Phase Shifters



40 GHz Analog & Digital Attenuators

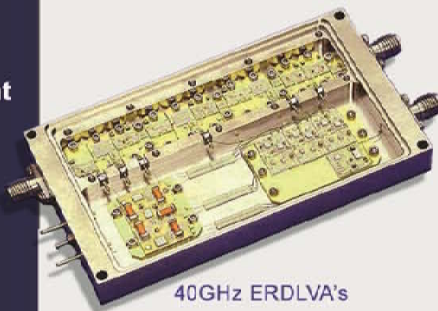


40GHz Threshold Detectors

7311-F Grove Road, Frederick, Maryland 21704 USA
Tel: 301-662-5019 | Fax: 301-662-1731

WEST COAST OPERATIONS

Assets of Hari, LLC (Formally Genesis Microwave) Acquired By PMI
Specializing in Log Amplifiers, SDLVA's, DLVA's, ERDLVA's
and Threshold Detectors to 40GHz



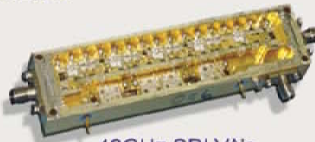
40GHz ERDLVA's



40GHz Amplifiers



40GHz DLVA's



40GHz SDLVA's



40GHz Threshold Detectors

4921 Roberts J. Mathews Parkway, Suite 1 El Dorado Hills, CA 95762 USA
Tel: 916-542-1401 | Fax: 301-662-1731
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Hermetic Sealing, High Reliability to Mil-Std-883, Small Quantity Requirements accepted.
We offer Custom Designs at low prices.

ISO9001:2008 Certified

Programs

CUSTOMER	PROGRAM
NORTHROP GRUMMAN CORPORATION BALTIMORE, MD & ROLLING MEADOWS, IL	CORVAIR EA-18G ICAP-III LR-100 FALCON EDGE ALQ-186 PDF
BAE SYSTEMS, NH	DEWS, F15 KNIGHT Program
TRANSFORMATIONAL SECURITY	CUSTOM THRESHOLD DETECTORS
MITSUBISHI AIRCRAFT (JAPAN)	SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVAs), F-2
NAVAL RESEARCH LAB, WASH, DC	AMPLIFIER DETECTOR PRE-AMPLIFIER RF MONITOR FOR ANACHOIC CHAMBER TRANCIEVER
RAYTHEON MISSILE SYSTESM, AZ	SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER (SDLVAs)
L-3 COMMUNICATIONS, TX	SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER (SDLVAs)
LOCKHEED MARTIN CO, TX	MK92 FIRE CONTROL SYSTEM (FORM, FIT & FUNCTION SPARES)
MIKES, TURKEY	SPEWS-II (F16) Turkey
ARGONST, VA	RF DISTRIBUTION UNIT
IDF (ISRAELI AIR FORCE)	GUNN DIODE OSCILLATORS
WARNER ROBINS AFB, GA	IF LOG AMPLIFIERS (FORM, FIT & FUNCTION SPARES), B-1B
L-3 COMMUNICATIONS, UT	CUSTOM LIMITERS
MECTRON, BRAZIL	SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER (SDLVAs) MARS-1, BRAZILIAN AF

TRYING TO MAINTAIN AN OLD SYSTEM?



OBSOLETE PARTS A PROBLEM?

If you cannot find the required components due to parts obsolescence please contact us. We offer form, fit, and function replacement parts for any system. If a Source Control Drawing (SCD) is available we can offer a complete solution to meet all of the given electrical, mechanical and environmental specifications. We have designed, manufactured, and delivered many of these replacement components such as:

- IF & RF LOG AMPLIFIERS
- LOW NOISE AMPLIFIERS
- VARIABLE GAIN AMPLIFIERS
- SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA's)
- BI-PHASE MODULATORS
- PHASE SHIFTERS
- I & Q VECTOR MODULATORS
- FREQUENCY DISCRIMINATORS
- FILTERS
- DIPLEXERS & MULTIPLEXERS
- SWITCH FILTER BANKS
- SUPERCOMPONENTS, SUBSYSTEMS AND SYSTEMS



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Select Product Photos (Page 1 - Components)

Low Noise Amplifier



Bi-Directional Amplifier



Limiter



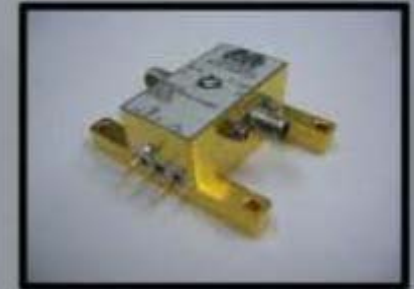
Laboratory Amplifier



SDLVA



Solid-State Switch 40GHz



Switched Output Amplifier



SDLVA



Broadband Amplifier



Phase Shifter



Band-Pass Filter

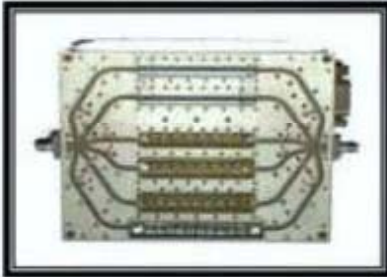


High Power Switch



Select Product Photos (page2 - Modules & Assemblies)

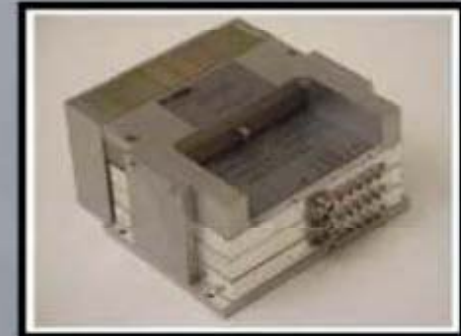
Switch Filter Assembly



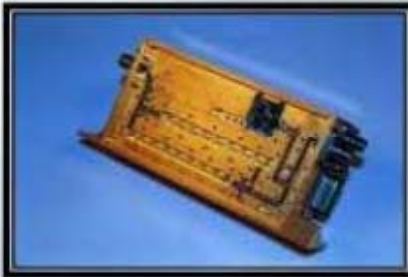
Integrated Multifunction Modules



Switch Matrix Assembly



Switch Filter Assembly



Delta Rocket LNA/Filter Module



IFM Assembly



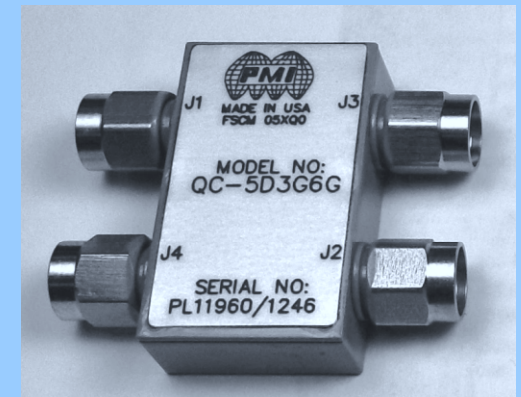
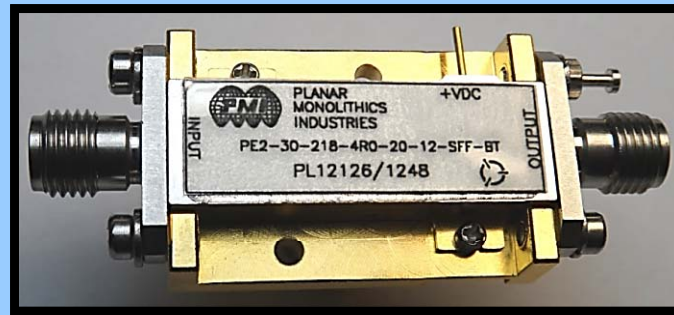
Integrated Airborne Assembly



P3 Orion Notch Filter Assembly



More Select Products, page 3



FACILITIES, ACCOUNTING & CORPORATE INFORMATION

7311-F GROVE ROAD, FREDERICK, MD:

- 5,000 sq. ft. Facility
- Components Manufacturing
- Sub-Assembly Manufacturing
- Hybrid Assembly
- Filter Manufacturing
- 1,000 sq. ft. Class 10,000 Clean Room
- Engineering Department
- Test Department
- Production Officer
- QA/QC Office
- Sales & Marketing
- Executive Offices
- Conference Room

4921 Robert J. Mathews Pkwy, El Dorado Hills, CA:

- 5,100 sq. ft. Facility
- Components Manufacturing
- Hybrid Assembly
- Test and Engineering Departments
- Production and Quality Departments
- Continued Manufacturing Previous HARI, LLC (formally Genesis Microwave) Products as listed at www.harillc.com and www.genesismicrowave.com

6590 WATERS EDGE CT, NEW MARKET, MD:

- 4,000 sq. ft. Facility
- CORPORATE HQ
- Conference Rooms & Executive Offices

5715 INDUSTRY LANE, FREDERICK, MD:

- 2,500 sq. ft. Facility
- Accounting Offices
- Machine Shop
- 600 sq. ft. 10,000 Clean Room

ACCOUNTING & CORPORATE INFO:

- Type "S" Corporation, Pennsylvania
- Peachtree Sage 50, 2013
- EXACT Alliance MRP
- Accrual Basis Accounting Practice
- Fiscal Year is December 31st
- GAAP Guidelines Followed
- Monthly Internal Financial Reports
- Weekly Cash Flow Analysis Reports

Manufacturing and Standards – PMI East Coast Operations

Frederick, MD

➤ Network Analyzers:

- (3) Agilent N5230A PNA (10MHz to 40GHz)
- (2) Agilent N5230A PNA (10MHz to 20GHz)
- (1) Agilent 8720ES VNA (50MHz to 20GHz)
- (1) Agilent N4691 E-CAL (10MHz to 20GHz)
- (1) Agilent N4692 E-CAL (10MHz to 40GHz)
- (1) HP Network Analyzer (10kHz to 300MHz)
- (1) HP 5100 Network Analyzer (0.5 to 26.5GHz)
- (1) Agilent N5230C-420 PNA Network Analyzer (10MHz to 40GHz)

➤ Noise Figure Meter:

- (1) Agilent N8975A (10MHz to 26.5GHz)

➤ Spectrum Analyzer:

- (1) HP 8593E
- (1) HP E4448A PSA Spectrum Analyzer (3Hz to 50GHz)

➤ Power Meter:

- (1) Gigatronics 85418
- (1) Agilent E4418B

➤ Pulse/Signal Generators:

- Agilent E8257D
- HP 8015A
- HP 8350B Sweep Oscillator
- HP Arbitrary Waveform Generator 33120A
- Agilent 33522A Arbitrary Waveform Generator

➤ Oscilloscopes:

- Tektronix TES 210 (60MHz BW)
- Agilent DSO6034A (300MHz BW)

➤ Manufacturing Equipment:

- TSE-11-A ESPEC Thermal Shock Chamber
- JEN410 IR Reflow Oven
- Thermo Electron Oven
- Anatech Plasma Cleaner
- Metallurgical Microscope MT1000
- (3) Westbond 747677E Convertible Wire Bonder
- (1) Westbond 747630E-79 Wire Bonder
- (1) Westbond 7400A Welder
- (1) Westbond Bond Pull Center
- (1) Dage Bond Puller
- (1) Mech-EI Ribbon Bonder
- (1) Unitek Unibond-II Parallel Gap Welder
- (1) HAAS VF0 CNC Milling Machine
- (1) HAAS DT1 CNC Milling Machine
- (1) Hardinge Turret Lathe
- (1) Di-Acro Power Shear
- (1) Brady Label Machine BP-THT-600-11

➤ CAD Software:

- AutoCAD 2005
- AutoCAD 2013
- Altium Designer
- Microwave Office
- Gibbs Cam

➤ Standards:

- ISO9001-2008
- MIL-STD-454
- MIL-STD-202
- MIL-STD-883
- MIL-E-5400
- MIL-I-45208
- IPC-A-610 Workmanship Standard
- IPC-J-STD-001 Soldering Standard
- MIL-STD-45662 Calibration Standard

Manufacturing and Standards – PMI West Coast Operations

El Dorado Hills, CA

➤ Network & Spectrum Analyzers:

- (5) HP 8757D Scalar Analyzers
- (1) HP 8720D Network Analyzer
- (1) HP 8563E Spectrum Analyzer
- (1) HP 8592L Spectrum Analyzer

➤ Noise Figure Meters:

- (1) HP 8970A Noise Meter
- (1) HP 8970B Noise Meter
- (1) Agilent 346C Noise Source

➤ Power Meters:

- (1) HP EPM-442 Power Meter
- (2) HP E4412A Power Meter
- (1) HP 437B Power Meter

➤ Pulse/Signal Generators:

- (1) HP 83731B Signal Generator
- (1) HP 83620A Signal Generator
- (1) HP 8013B Pulse Generator
- (4) HP 83620A Sweep Generators

➤ Oscilloscopes:

- (1) HP 54503A Digital Scope & Probe
- (1) Agilent 54624A 100MHz BW
- (1) Tektronix 2246 100MHz BW
- (1) Tektronix 2465A 350MHz BW

➤ Manufacturing Equipment:

- (1) Quincy Model 40 Oven
- (1) Sym-Tek P162P5J Oven
- (1) Cole/Parm 05015-50 Oven
- (1) Branson 821D Ultrasonic Cleaner
- (1) Pronto 474 Label Maker
- (4) UNITEK Gap Welders
- (1) March Plasmod Plasma Cleaner
- (4) Westbond 7400A Wedge Bonders
- (1) Westbond 70PT-M Bond Pull Center
- (4) Westbond1200A Die Attach Stations

➤ CAD Software:

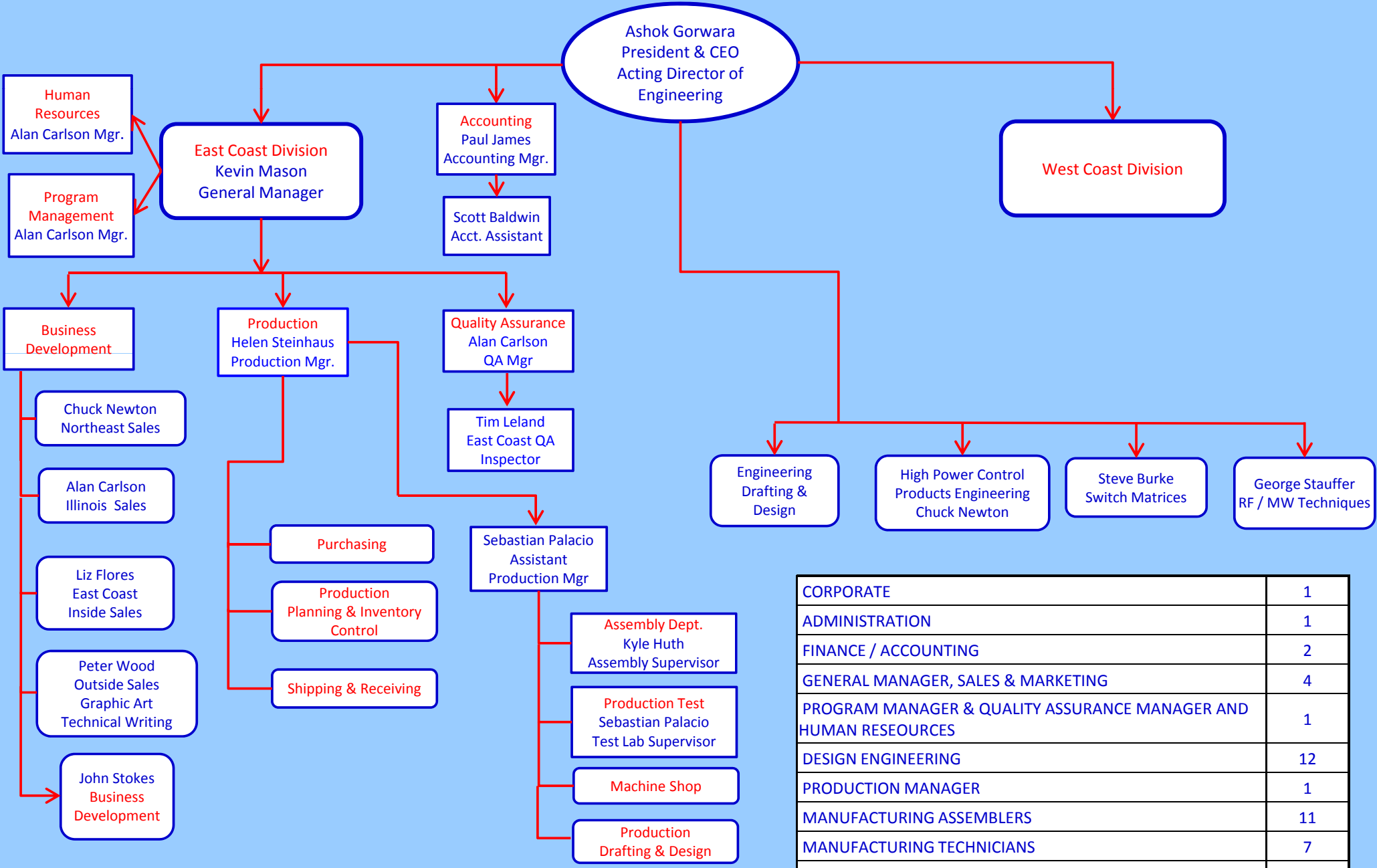
- AutoCAD 2005
- AutoCAD 2013

➤ Standards:

- ISO9001-2008
- MIL-STD-454
- MIL-STD-202
- MIL-STD-883
- MIL-E-5400
- MIL-I-45208
- IPC-A-610 Workmanship Standard
- IPC-J-STD-001 Soldering Standard
- MIL-STD-45662 Calibration Standard

PMI ISO9001:2008 REGISTRATION CERTIFICATE

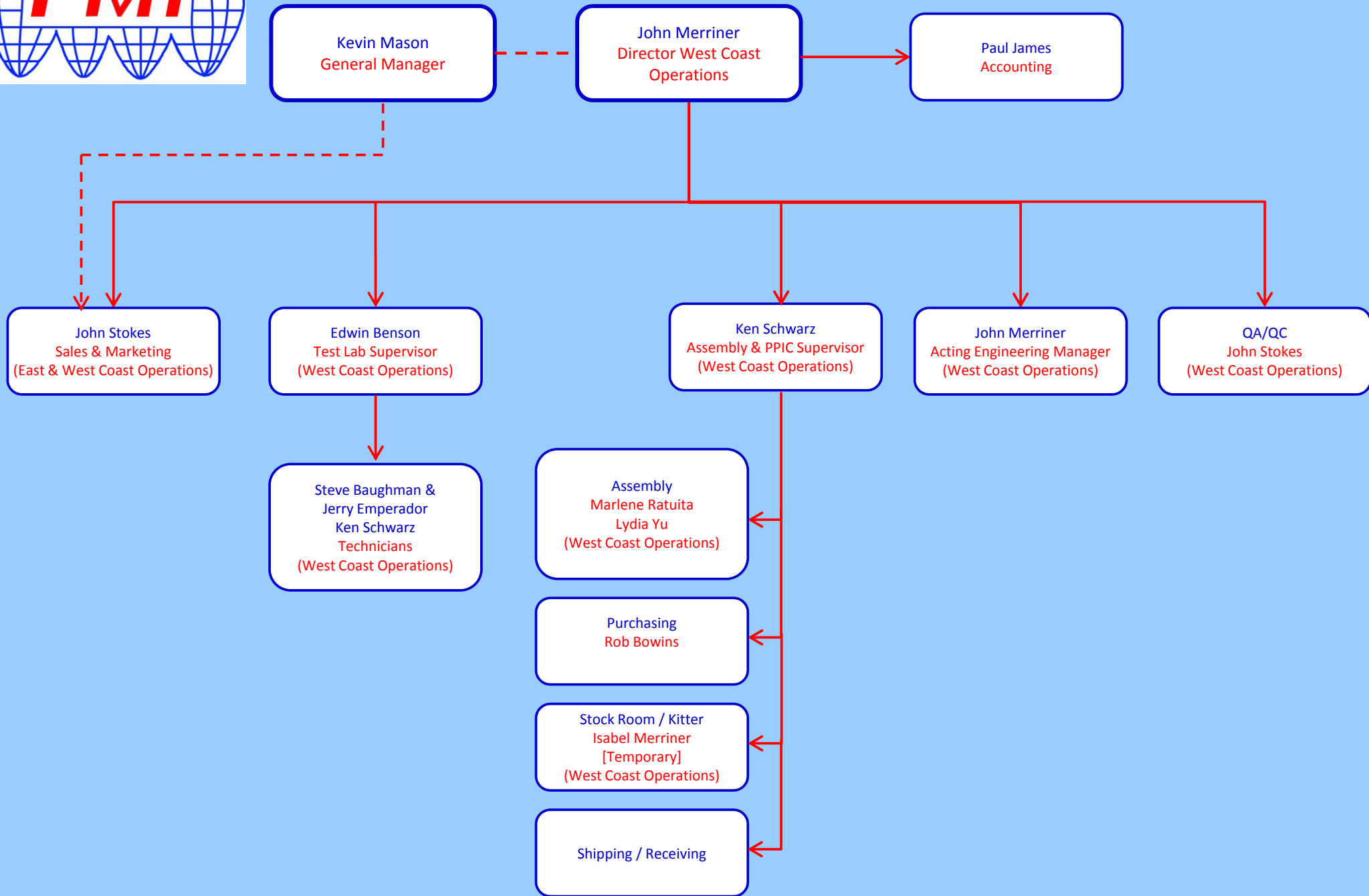


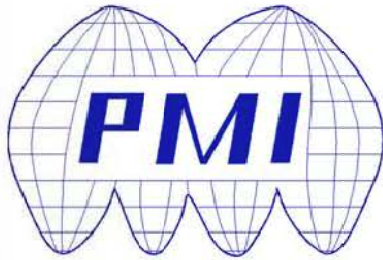


CORPORATE	1
ADMINISTRATION	1
FINANCE / ACCOUNTING	2
GENERAL MANAGER, SALES & MARKETING	4
PROGRAM MANAGER & QUALITY ASSURANCE MANAGER AND HUMAN RESEOURCES	1
DESIGN ENGINEERING	12
PRODUCTION MANAGER	1
MANUFACTURING ASSEMBLERS	11
MANUFACTURING TECHNICIANS	7
MACHINE SHOP	3
PURCHASING, SHIPPING & INVENTORY CONTROL	3
QUALITY CONTROL INSPECTOR	1
TOTAL	47



Organizational Chart – PMI West Coast Operations





PLANAR MONOLITHICS INDUSTRIES, INC.

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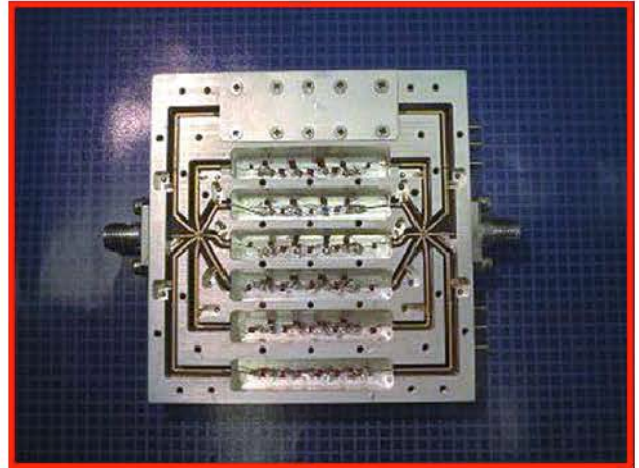
7 CHANNEL SWITCH FILTER BANK PFC MODEL NUMBER: 7SFB-0R258R3-5-15-SFF

KEY FEATURES:

- 60dBc REJECTION TO 20GHz
- BROADBAND (0.25 TO 8.30 GHz)
- ULTRA-SMALL PACKAGE
- LOW PASSBAND LOSS

SPECIFICATION:

FREQUENCY	0.25 TO 8.30 GHz
7 CHANNELS	SEE TABLE BELOW
RF POWER	+15 dBm Max.
INSERTION LOSS	5.0 dB Max. (within the Passband)
DIFFERENTIAL GROUP DELAY	10nS Max. (for any 500 MHz segment)
3rd ORDER INTERCEPT (input)	+30 dBm Min.
SWITCHING SPEED	0.8 μ S Max.
VSWR	2.0:1 Max. for Filters F1-F6 2.1:1 Max. for Filter F7
OPERATING TEMP.	-10°C to +70°C
STORAGE TEMP.	-30°C to +100°C
POWER SUPPLY	+5V \pm 5% @ 195mA Max. -12V \pm 5% @ 75mA Max.
SIZE	2.6" X 2.5" X 0.41"

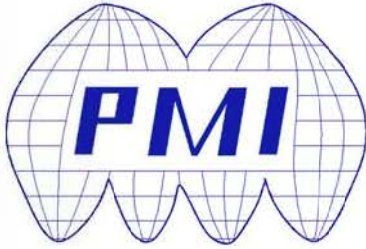


Filter Path	-65dBc Reject Band	Low Loss Passband (GHz)	-60dBc Reject Band (GHz)
No. 1		0.25 to 1.50	2.25 to 20.00
No. 2	DC to 200 MHz	0.95 to 1.70	2.45 to 20.00
No. 3	DC to 300 MHz	1.15 to 2.00	2.85 to 20.00
No. 4	DC to 350 MHz	1.45 to 2.55	3.65 to 20.00
No. 5	DC to 500 MHz	2.00 to 3.50	5.00 to 20.00
No. 6	DC to 700 MHz	2.95 to 5.20	7.45 to 20.00
No. 7		4.65 to 8.30	11.95 to 20.00

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A TRADITION OF EXCELLENCE SINCE 1989

ISO9001-2000 CERTIFIED

- 0.1 TO 2.5 GHz • TSS OF -65 dBm • TRULY DC COUPLED • DYNAMIC RANGES UP TO 78dB
- CONNECTORIZED AND FLAT-PACK MODELS

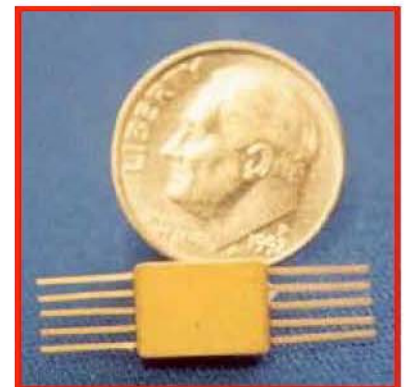
PMI MODEL No: SDLVA-0120-70

This is a SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER (SDLVA), which operates over the 0.1 to 2.0 GHz range (it is useful up to 2.5 GHz). This unit has a Dynamic Range of 65 to 70dB and a TSS of -67dBm and a nominal video bandwidth of 20MHz. These SDLVA's offer typically fast Rise and Fall times as well as superior delay times of only 8nS. The standard SDLVA-0120-70 is commercially screened and characterized from -55°C to +85°C. Military Screenings up to Mil-Std-883 are available for extra cost, please contact the factory for a quotation.



TYPICAL SPECIFICATIONS ON PMI SDLVA'S:

FREQUENCY RANGE	: 0.1 to 2.0 GHz Wideband or Narrow Band Models (Usable up to 2.5 GHz)
DYNAMIC RANGE	: ≥65 dB (Models available up to 78 dB)
LOG LINEARITY	: ±1.2 dB Maximum (-60 dBm to 0 dBm) : ±1.5 dB Maximum (-65 dBm to +5 dBm)
INPUT VSWR	: 1.8:1 Maximum (1.5:1 Typical)
MINIMUM LOGGING RANGE	: -60 dBm (-65 dBm Typical)
MAXIMUM LOGGING RANGE	: +5 dBm (+8 dBm Typical)
TANGENTIAL SENSITIVITY (TSS)	: -62 dBm Minimum
LIMITED IF OUTPUT	: -15 dBm
MAXIMUM RF INPUT POWER	: +15 dBm
LOG VIDEO OUTPUT:	
OUTPUT COUPLING	: DC
MAXIMUM OUTPUT VOLTAGE	: 2.7 vdc
RISE TIME	: 25 nS Maximum
FALL TIME	: 30 nS Maximum
SETTLING TIME	: 40 nS Maximum
DC OFFSET	: 0.1 vdc Nominal (Adjustable)
SLOPE	: 25 mV/dB Nominal (Adjustable to 30 mV/dB)
LOG SLOPE VARIATION OVER FREQUENCY	: ±0.5 mV/dB (Over 80 MHz RF Bandwidth)
LOG SLOPE VARIATION OVER TEMPERATURE	: ±1 mV Maximum
PROPAGATION DELAY	: 10 nS Maximum, 7 nS Typical
VIDEO LOAD	: 100 ohms ±10%
DC POWER SUPPLY	: +15 vdc @ 100 mA (Other Voltages Available) : -15 vdc @ 190 mA
SIZE	: 3.75" x 1.50" x 0.40" (Shown at Right) : 0.395" x 0.280" x 0.090" (Shown at Right) : 0.750" x 0.750" x 0.135" (Shown at Right)



7311-F Grove Road, Frederick, MD 21704 USA Tel: 301-662-5019 Fax: 301-662-1731

Email: sales@pmi-rf.com

Web: www.pmi-rf.com



SUBSYSTEMS & SUPERCOMPONENTS

PLANAR MONOLITHICS INDUSTRIES, INC.



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SUBSYSTEMS & SUPERCOMPONENTS

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Configurable System Platform

PMI Model No: PET-VI is a highly configurable computer controlled systems platform. The PET-VI uses an integrated ARCOM SBC-GX533 400 MHz single board computer, 6 inch VGA touch screen LCD user interface, with front panel troubleshooting, internal noise source calibration and plug & play modular design. It is capable of many applications including RF Distribution, Broadband Switch Matrices, High Speed Frequency Synthesizer or Log Amplification with selectable Log Slopes. Commercial, Industrial and Military versions are available.



19" Rack Mount Systems & Subsystems

PMI can now supply products in a 19 inch Rack Mount chassis. These units all feature a built I 115 VAC, 60 Hz, power supply (other power supply voltages and conditions available). Any of our standard amplifiers, components, integrated assemblies or a custom designed item for your specific requirement can be supplied. Commercial, Industrial and Military versions are available.



Signal Processing Subsystem

PMI Model No: RFOC-811-QRC is an 8.0 to 11.0 GHz RF Subsystem with integrated Pulse and Amplitude Modulation. It consists of three (3) independent subsystems, eight (8) 60dB Voltage Controlled Attenuators, eight (8) High Speed PIN Diode Switches and a total of 29 integrated components inside an 8.50" X 3.90" X 1.85" custom designed drawer assembly.





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Signal Modulation Subsystem

PMI Model No: LSP-0518-SK is a 500 MHz to 18.0 GHz Analog, Level, Scan and Pulse Modulation Module which uses highly reliable digital processing techniques.



Digitally Switched Attenuator

PMI Model No: SAA-218-6-093-013542 is an Array of Six Octave Band Attenuators which covers the Frequency Range of 2.0 to 18.0 GHz. The Assembly provides Switchable RF Attenuator thru the six signal paths. Digital Control of the Analog output is provided.



Detection / Amplification Module

PMI Model ADP-140M-51DR-TD with Options HS, NRL and LOG is a Detection and Amplification Module which provides Amplification, Video Detection and Video Amplification with an input of 140 MHz Pulsed RF with a 25 MHz Bandwidth. The RF Power Input sensitivity is from -59dBm to $+5\text{dBm}$ with a Log Slope of 0.014 Volt/dB (adjustable) and an adjustable Threshold Level from -55dBm to -30dBm . The size is only $3.50'' \times 3.00'' \times 0.50''$.



Direction Finding Receiver Front End

PMI Model RFE-218-70-BB with Option JT is a 2.0 to 18.0 GHz High Sensitivity, High Dynamic Range, Direction Finding Receiver Front End which utilizes a matched pair of Extended Range Detector Logarithmic Video Amplifiers. The Logging Range is -60 to $+5\text{dBm}$ minimum and the TSS is -63dBm minimum while the Log Slope is $50\text{mV/dB} \pm 10\%$ maximum.





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IFM Subsystem

PMI Model No: RSM-618-65 is a 6.0 to 18.0 GHz Receiver Front End, IFM Subsystem with Analog Output through three DC-Coupled Frequency Discriminators. The Logging Range is -65dBm to 0dBm with a TSS of -68dBm minimum.



Broadband Frequency Discriminator

PMI Model No: FD-0518-10 with Option 118 is a Custom Designed 1.0 to 18.0 GHz, 6 channel Frequency Discriminator that is 8.50" X 5.00" X 3.75".



Low Band Direction Finding Module

PMI Model No: LBDFM-052-BD-DP is a 500 MHz to 2.0 GHz Directional, Multi-function Device that provides signal path switching, conditioning and modulation.



High Band Direction Finding Module

PMI Model No: HBDFM-052-BD-DP is a 2.0 to 18.0 GHz Directional, Multifunction Device that provides signal path switching, conditioning and modulation.



PLANAR MONOLITHICS INDUSTRIES, INC.

A TRADITION OF EXCELLENCE SINCE 1989

ISO9001-2000 CERTIFIED

Computer Controlled, Solid State RF Switch Matrices

PMI has developed a full product line of RF Switch Matrices that operate over the 20MHz to 40GHz frequency range. Three standard models are offered that cover this frequency range, namely 20MHz to 3.0GHz, 2.0GHz to 18.0GHz, and 18.0GHz to 40.0GHz. Any of the three models can be supplied as either a 4 X 4, 8 X 8, 16 X 16, or 32 X 32 non-blocking matrix.

All models offer switching control via TTL, RS232, RS422/485, Ethernet and via the front panel touch screen LCD. All units are supplied in a ruggedized 6U, 19" Chassis.



Model No. SM-20M3G (20MHz to 3.0GHz)

4 X 4	8 X 8	16 X 16	32 X 32
Insertion Loss:.....10dB	Insertion Loss:.....14dB	Insertion Loss:.....16dB	Insertion Loss:.....19dB
Isolation:.....60dB	Isolation:.....60dB	Isolation:.....60dB	Isolation:.....60dB
IP2:.....55dB	IP2:.....55dB	IP2:.....55dB	IP2:.....55dB
IP3:.....45dB	IP3:.....45dB	IP3:.....45dB	IP3:.....45dB
Switching Speed:....100nsec	Switching Speed:....100nsec	Switching Speed:....100nsec	Switching Speed:....100nsec
VSWR:.....2.0:1	VSWR:.....2.0:1	VSWR:.....2.0:1	VSWR:.....2.0:1
Input Power:.....+20dBm CW	Input Power:.....+20dBm CW	Input Power:.....+20dBm CW	Input Power:.....+20dBm CW

Model No. SM-2G18G (2.0GHz to 18.0GHz)

4 X 4	8 X 8	16 X 16	32 X 32
Insertion Loss:.....14dB	Insertion Loss:.....16dB	Insertion Loss:.....19dB	Insertion Loss:.....23dB
Isolation:.....60dB	Isolation:.....60dB	Isolation:.....60dB	Isolation:.....60dB
IP2:.....55dB	IP2:.....55dB	IP2:.....55dB	IP2:.....55dB
IP3:.....45dB	IP3:.....45dB	IP3:.....45dB	IP3:.....45dB
Switching Speed:....100nsec	Switching Speed:....100nsec	Switching Speed:....100nsec	Switching Speed:....100nsec
VSWR:.....2.0:1	VSWR:.....2.0:1	VSWR:.....2.0:1	VSWR:.....2.0:1
Input Power:.....+20dBm CW	Input Power:.....+20dBm CW	Input Power:.....+20dBm CW	Input Power:.....+20dBm CW

Model No. SM-18G40G (18.0GHz to 40.0GHz)

4 X 4	8 X 8	16 X 16	32 X 32
Insertion Loss:.....16dB	Insertion Loss:.....18dB	Insertion Loss:.....22dB	Insertion Loss:.....25dB
Isolation:.....60dB	Isolation:.....60dB	Isolation:.....60dB	Isolation:.....60dB
IP2:.....55dB	IP2:.....55dB	IP2:.....55dB	IP2:.....55dB
IP3:.....45dB	IP3:.....45dB	IP3:.....45dB	IP3:.....45dB
Switching Speed:....100nsec	Switching Speed:....100nsec	Switching Speed:....100nsec	Switching Speed:....100nsec
VSWR:.....2.0:1	VSWR:.....2.0:1	VSWR:.....2.0:1	VSWR:.....2.0:1
Input Power:.....+20dBm CW	Input Power:.....+20dBm CW	Input Power:.....+20dBm CW	Input Power:.....+20dBm CW

Available Options:

ZL - Zero Insertion Loss

LV - Low Video Transients

HI - Higher Isolation

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*Specifications are typical

Rack Mount & Chassis Products



PMI offers various RF and Microwave products that range from 250kHz up to 40.0GHz which are supplied in a ruggedized, 1U to 6U chassis

Our ruggedized, military grade chassis products are built to meet the customers exact application needs.

A mixed set of functions can be included:

- Amplification
- Attenuation (Digital Solid-State)
- Switching (Ultra High Speed)
- Power Detection / Fault Detection
- Phase Shifting / Phase Modulation
- Pulse Modulation
- Noise Generation
- RF Filtering
- RF Limiting
- Power Splitting
- RF Signal Distribution



SIGINIT & DF RF Distribution Units



- Airborne Ruggedized 19" Rack Mount Chassis, 6U Height, 18" Deep
- Linux or Windows CE Operating System
- Compact Flash contains all boot up and operation software. Can be removed for security purposes.
- Compatible with RS-232-C, RS-422, RS-485, PECL, TTL, and Ethernet protocols.
- Current monitoring of every internal RF component. Failures are displayed on the front panel display.
- Cooling Fan speed monitoring. Fan failures are displayed on the front panel display.
- RF module internal temperature monitoring. Over temperature conditions are displayed on the front panel display.
- Plug and Play, Modular design to allow in-the-field repairs and flexibility for custom configurations. (3 Modules)
 - Power Supply Module can contain any required power supply.
 - Computer Module can be switched out in minutes.
 - RF Module can contain any set of RF components required. Up to 320 individual control lines can be accommodated.

ITAR – International Traffic in Arms Regulations

- Trained and Experienced ITAR/Export Administrator
- Export Compliance Manual
- AES (Automated Export System) certified export staff
- Long Term Relationships with both DDTTC and SNAP-R Personnel
- U.S. Government Registration Numbers:
 - Cage Code: 05XQ0
 - DUNS Number: 829998517
 - SAM (CCR) Registration: 1998E211401
 - Federal Tax ID (TIN): 52-1756966
 - DDTTC Registrant Code: M16913