AMERICAN MICROWAVE CORPORATION

Your Partner for integrated RF/Microwave components and assemblies
AMERICAN MICROWAVE CORPORATION (AMC) HAS SUPPORTED THE DEFENSE, AEROSPACE, COMMUNICATIONS AND INSTRUMENTATION MARKETS FOR OVER 37 YEARS

• Experts in MIMIC and Pin Diode design and integration
• 35 people and growing
• 15,000 sq ft with options for another 10,000 sq ft
• Vertically integrated operation (All under one roof)
  • Engineering and engineering lab close to manufacturing for efficient hand offs
  • In House Machine Shop
  • Clean Room
  • Large assembly area
  • In House Paint Shop
  • Test department with 5 test stands with capability to 40 Ghz
• ISO 9001:2008 certified
AMC’s Focus

- Integrated Assemblies
- Solid State Switches
- Electronically Controlled Attenuators
- Detector Log Video Amplifiers
AMC HAS A LIBRARY OF MULTIPLE COMPONENTS WE HAVE DESIGNED OVER THE YEARS

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✔ If you have a required component you do not see here we have several sourcing alliances
AMC FOUNDED BY
RAY SICOTTE

Ray’s Background

• American Microwave Corporation-CEO, June 1979 to present
• Fairchild Space Communications-Manager of Communications Lab and Communications Design & Engineer Group, Feb 1977 to June 1979
• Aiken Industries, C&E Division- Group Leader, Advanced Development, August 1975 to February 1975
• Comsat Laboratories, Member of Technical Staff, RF Transmission Lab November 1969 to August 1975
• MIT Lincoln Labs – Member of Technical Staff, Space Techniques and Equipment Group of the Satellite Communications Division

Published Papers

“ A High Efficiency Upper Sideband Upconverter” IEEE
“Intermodulation in Pin Diodes Switches” IEEE
“Design of a UHF Diode Switch with Emphasis on Intermodal and Switching Noise” NEREM
“RFI Measurements at UHF on a Pulsed Plasma Thruster” Journal of Space Craft and Rockets
“Computer Analysis Promotes Upconverter Design” Microwave
“ A .75 to 6GHz Varactor Upconverter Broadband at all three ports” Microwave
“ A Broadband 6 GHz Upconverter” EASCON
“Centimeter Wave Impatt Amplifiers for Space Communications” Microwaves
“20 and 30GHz Varactor Multipliers for Space Application”
“18 GHz Impatt Amplifier for Space Applications” Microwave Journal
WHAT ARE THE ADVANTAGES OF INTEGRATED ASSEMBLIES?

- Optimize overall module performance
- We can take your proof of concept design to a well engineered module
- Size and weight reduction
- Lower VSWR ripple
- Lower insertion loss
- Thermal management of entire assembly
- Vendor has total subsystem performance responsibility
- Leverage AMCs low overhead verse internal build
EXAMPLES OF INTEGRATED ASSEMBLIES

- Matrix Switches
- Beam Forming Networks
- Direction Finding Units
- Switching Assemblies
- Radar and Communication test systems
- Up & Down Converters
- Switched Filter Banks
SOME EXAMPLES OF INTEGRATED ASSEMBLIES AMC HAS PRODUCED

- Direction finding units for Electronic Warfare test station
- Switching module for Jamming pod
- Switch Matrices
- Sophisticated EW detectors for Radar Warning Receivers
American Microwave Corporation (AMC) designed and manufactured a highly complex Electronic Warfare test station. The job was awarded to AMC in June of 2012 with an original ship date of March 2013. The schedule was accelerated to a delivery of 12/21/2012 due to a request to deliver the system to a major customer as soon as possible. AMC supplied 8 each high band and 8 each low band Direction Finding Assemblies plus 1 each of a high band and low band calibration assembly...a total of 18 separate rack mounted chassis assemblies.

AMC designed and built all components except for the bandpass filters in the switched filter assemblies in a record time of approximately 6 months.
Some of the assemblies in the direction finding units

- Mounted Delay Line Blocks
- Delay Line Blocks
- Delay Line Blocks
- Very Short Low Band Delays
- High Band Switched Filter Bank
- Switches and Power Dividers Cal Unit
- Low Band Switched Filter Bank
COMPLETED RACK MOUNT UNITS

High Band DFU

Low Band Calibration Unit

Low Band DFU

High Band Calibration Unit
DIRECTION FINDING UNITS FOR ELECTRONIC WARFARE TEST STATION

HIGH BAND

LED (RF IN)

RF IN (SMA) → 0.00018 nS → 0.00097 nS → 0.00143 nS → 0.00294 nS → 0.00862 nS → 0.01111 nS → 0.02201 nS → 0.08266 nS → 0.08487 nS → Internal Delay

0.17134 nS → 0.35866 nS → 0.87955 nS → 1.32770 nS → 2.62884 nS → Internal Delay

20.000 nS → 20.000 nS → 20.000 nS → 20.000 nS → 10.30616 nS → 5.20510 nS → LED (RF OUT)

10dB ±1dB Coupler → RF OUT (SMA) → 40,40404 nS

Notes:
1. 14 Individual Blocks
2. 7 ea 20nS External Delay Blocks
3. 1 ea Internal Delay Voltage Control Delay Design Block Assembly
4. 2 ea Internal Delay Blocks (Multi Stage)
5. 2 ea External Delay Blocks (Multi Stage)
SWITCH MATRICES

- Eliminated all interconnecting cables
- Very reliable product in a compact form factor
- Provided excellent repeatability
- Has the ability to be remotely controlled by host
- Lowered insertion loss
SWITCH MATRICES

- 12 x 18 Non-Blocking Switch Matrix
- Using AMC's standard switch designs combined with AMC standard Bias Tee design and custom Power Dividers
- Providing 5 dB I.L. and >80 dB isolation
- Custom RS-232 control and LED driver
- Designed for medium volume MIL communications application
SWITCH MATRICES

- Eliminated all interconnecting cables
- Very reliable product in a compact form factor
- Provided excellent repeatability
- Has the ability to be remotely controlled by host
- Lowered insertion loss
SWITCH MATRICES

- 2 x 8 Blocking Switch Matrix Assembly
- 8 – 2 Ts and 2 – 8Ts
- 4 discrete BP filters
- Custom logic including fault circuit
- Multilayer SMT design
- <2 dB I.L., >60 db isolation at 1GHz

- FAA/Commercial aircraft application
- Designed and built initial units in <120 days
SWITCHING MODULE FOR JAMMING POD

- Reduced size and weight
- Optimized overall module performance
SWITCHING MODULE FOR JAMMING POD
RADAR WARNING RECEIVER DLVA

- Integrated a CW immunity circuit
- High dynamic range
- Fast rise times
- Excellent sensitivity
- Small form factor and light weight
AMC Model RFM-16M7 integrated switching assembly

- Reduced size by 50%
- Improved VSWR and lowered Insertion Loss
- Implemented temperature compensated design resulting in better performance across broad temperature range
- Incorporated SPIE and I2C control bus with imbedded control software

Integrated switching assembly contains solid state switches, circulators, a digital controlled attenuator, a Ku band solid state source and a Detector Logarithmic Video Amplifier with digitized video output
ENVIRONMENTAL RATINGS:

- TEMPERATURE: -18°C TO +55°C (OPERATING)
- -40°C TO +85°C (STORAGE)
- HUMIDITY: MIL-STD-202F, METHOD 107B, COND. B
- SHOCKS: MIL-STD-202F, METHOD 213B, COND. B
- VIBRATION: MIL-STD-202F, METHOD 2040, COND. B
- ALTITUDE: MIL-STD-202F, METHOD 105C, COND. B
- TEMPERATURE CYCLE: MIL-STD-202F, METHOD 107D, COND. A

NOTE: SPECIFICATIONS WILL VARY WITH OPERATING TEMPERATURE

NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE OR REVISION

NOTE: UNITS ARE DESIGNED TO MEET ENVIRONMENTAL RATINGS BUT NOT TESTED. IF ENVIRONMENTAL TESTING IS REQUIRED, PLEASE CONTACT SALES DEPARTMENT.
THANK YOU FOR YOUR TIME

✓ If you have a project that you would like to get an estimate on cost and time frame please forward your requirements to AMC
✓ Leverage AMC’s low overhead and fast track project team
✓ Our engineering team will review your requirements and schedule a conference to discuss the details
✓ We will turn around a quote and timeline very quickly
✓ We are confidant you will find that AMC can meet or exceed your expectations
✓ Contact info Pete Schramm 443-309-6244 pschramm@americanmic.com
✓ WWW.AMERICANMIC.COM