

TAKING COMMAND THROUGH THE

DEVELOPMENT
OF INNOVATIVE
ELECTRONIC WARFARE
AND RADAR
TECHNOLOGIES



MPG

CONNECTING & PROTECTING

a **DOVER** company



MICROWAVE PRODUCTS GROUP SPECIALIZES IN RF FILTERS, SWITCHES AND INTEGRATED MICROWAVE ASSEMBLIES (IMAS) FROM PROTOTYPES, UP TO HIGH VOLUME APPLICATIONS FOR THE ELECTRONIC WARFARE MARKET.

MPG DELIVERS



CORE PRODUCT EXPERTISE

- PRODUCT CUSTOMIZATION
- PREFERRED SUPPLIER
- IN-HOUSE MANUFACTURING



ADDED VALUE SOLUTIONS

- INTEGRATED MICROWAVE ASSEMBLIES (IMAs)
- MULTI-FUNCTION ASSEMBLIES
- SENSOR OPEN SYSTEMS ARCHITECTURE (SOSA)



HIGHLY EXPERIENCED TEAM

- DEVELOPS NEXT GENERATION MARKET SOLUTIONS WHILE MAINTAINING AFFORDABILITY AND RELIABILITY
- CONTINUES ENHANCING PROCESSES TO IMPROVE QUALITY, RELIABILITY AND COST

CERTIFICATIONS

SANTO DOMINGO
ISO 9001:2015

WEST CHESTER
AS9100D
ISO 9001:2015

SALISBURY
AS9100D
ISO 9001:2015

YORK
AS9100:2015
ISO 14001:2015
JOSCAR REGISTERED

VENTURA
AS9100
ISO-9001

FILTERS



SURFACE MOUNT LUMPED ELEMENT WAVEGUIDE

SWITCHES



SURFACE MOUNT PIN DIODE COAXIAL WAVEGUIDE

INTEGRATED MICROWAVE ASSEMBLIES (IMAs)



SIGNAL DISTRIBUTION UNIT 18 GHz IMA DOWN CONVERTER W/ LNA TEST SYSTEMS

EW APPLICATIONS

INNOVATION IN DESIGN

THE QUEST FOR EVER HIGHER LEVELS OF PERFORMANCE AND COST COMPETITIVENESS DRIVES OUR DESIGN AND DEVELOPMENT INITIATIVES.

MPG'S NEXT GENERATION ARRAY OF PRODUCTS, LEGACY DESIGN EXPERTISE AND PRODUCTION FACILITIES ARE A MUST FOR EVER-CHANGING THREATS.

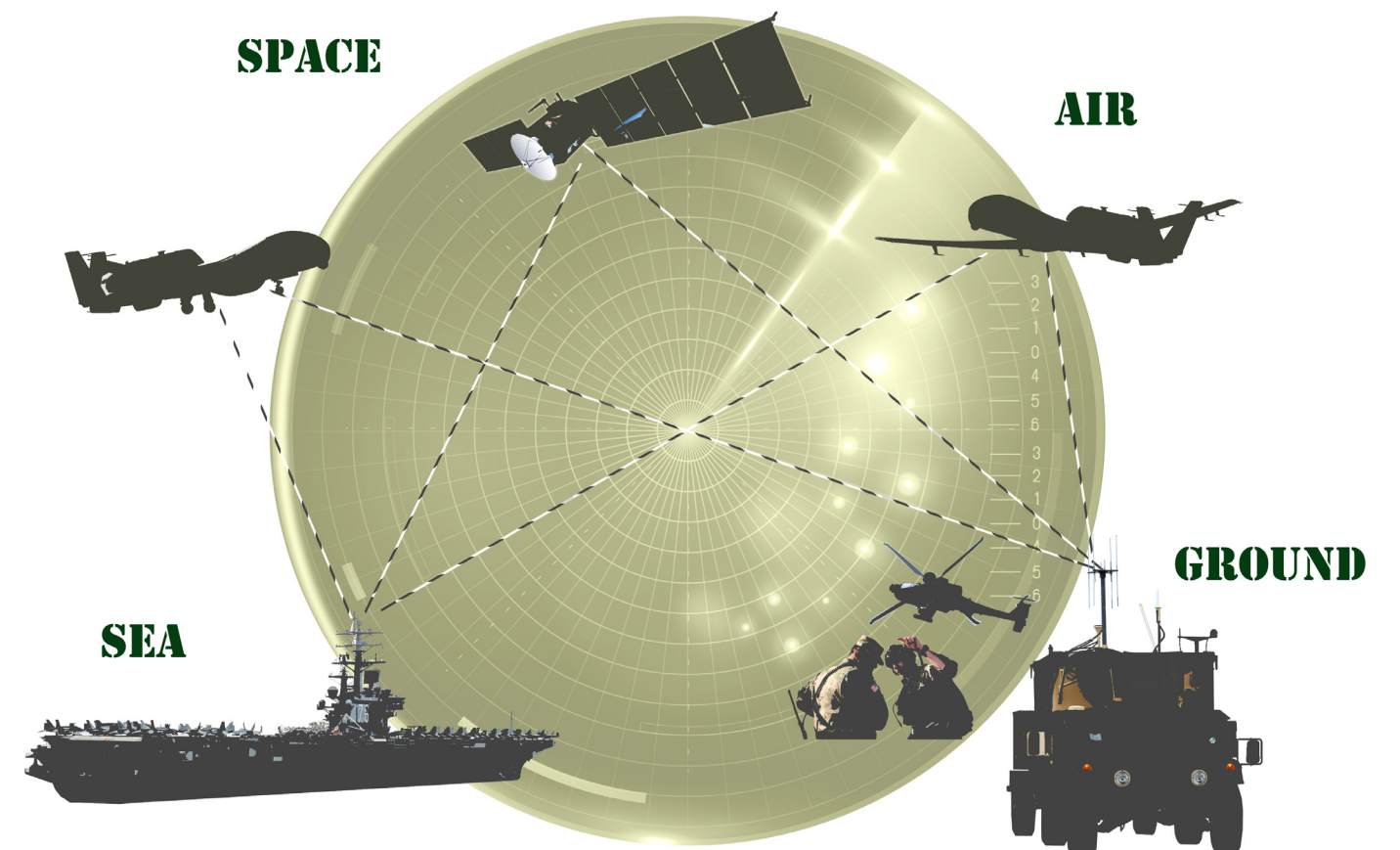


CONNECT & PROTECT

PRESENT AND FUTURE DYNAMIC THREATS

IDEAL FOR:

- * RADAR & ELECTRONIC WARFARE (EW) SYSTEMS
- * COMMAND & CONTROL VEHICLES (GROUND, NAVAL, AIRBORNE)
- * SOFTWARE DEFINED RADIOS (SDR)
- * FORCE PROTECTION SOLUTIONS



FILTERS

AGILE AND TUNABLE	1 MHz	BP BS	28 GHz		BW = 2% MULTI-OCTAVE
THIN FILM Q250-400	2 GHz	BP BS LP HP	18 GHz		BW = 5% MULTI-OCTAVE
HELICAL Q800-1,200	30 MHz	BP BS	1.3 GHz		BW = 0.5 - 15%
LUMPED ELEMENT Q50-300	300 KHZ	BP BS LP HP	6 GHz		BW = 1% MULTI-OCTAVE
MINI-MAX Q20-1000	20 MHz	BP LP HP	3 GHz		BW = 2 - 20%
CERAMIC Q150-1,000	500 MHz	BP	3 GHz		BW = 1 - 30%
TUBULAR Q300-700	20 MHz	BP LP	20 GHz		
COMBLINE Q500-4,000	400 MHz	BP	20 GHz		BW = 1 - 50%
CAVITY Q500-30,000	100 MHz	BP BS	30 GHz		BW = 0.2 - 100%
SUSPENDED SUBSTRATE Q400-600	500 MHz	BP BS LP HP	50 GHz		BW = 10% MULTI-OCTAVE
SUSPENDED SUBSTRATE PUCK Q500-4,000	4 GHz	BP	27 GHz		BW = 0.2 - 5%
WAVEGUIDE Q1,000-20,000	1 GHz	BP BS LP HP	100 GHz		BW = 0.5 - 10%
MULTIPLEXERS LUMPED ELEMENT CERAMIC CAVITY	300 KHZ	BP BS LP HP	100 GHz		BW = 1% MULTI-OCTAVE



Enabling Communication
and Signal Control

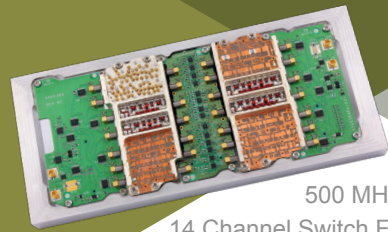
SWITCHES

<p>SOLID STATE PIN DIODE</p> <p>100 MHz - 18 GHz, SPDT - SP8T SWITCHING SPEED: 100 & 250 NSEC MAX. HIGH POWER OPTIONS AVAILABLE SPACE QUALIFIED OPTIONS AVAILABLE</p>	<p>L-BAND, HIGH POWER SP8T SWITCH 37 W HOT SWITCHING</p>
<p>MINIATURE MECHANICAL (IN PROCESS R&D)</p> <p>DC - 8 GHz SPDT, DPDT LATCHING ACTUATOR SPACE QUALIFIED OPTIONS AVAILABLE</p>	
<p>COAXIAL</p> <p>DC - 26.5 GHz, DC - 40 GHz SPDT, DPDT, SP3T-SPI4T3 ACTUATOR: FAILSAFE, NORMALLY OPEN, LATCHING SELF CUTOFF OPTIONS: INTERNAL OR EXTERNAL TERMINATIONS SPACE QUALIFIED OPTIONS AVAILABLE</p>	
<p>RELIANT HIGH REPEATABILITY</p> <p>0.03 dB INSERTION LOSS DC - 26.5 GHz, SPDT, SPDT WITH TERMINATIONS, SP6T WITH TERMINATIONS LATCH SELF-CUTOFF ACTUATOR</p>	
<p>WAVEGUIDE</p> <p>WR62, WR75, WR90, WR112* SPTD & DPDT LATCHING ACTUATOR *OTHER OPTIONS AVAILABLE SPACE QUALIFIED OPTIONS AVAILABLE</p>	
<p>SWITCHES ARE NORMALLY CONTROLLED VIA DC POWER, TTL, OR CANBUS MESSAGING; OTHER CONTROL MAY BE AVAILABLE UPON REQUEST.</p>	



Count on us
for mission critical support

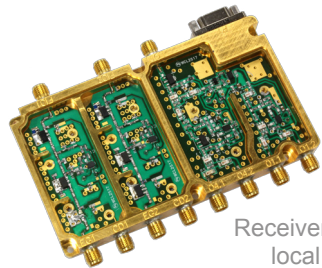
INTEGRATED MICROWAVE ASSEMBLIES (IMAS)



500 MHz - 3 GHz
14 Channel Switch Filter Bank
Front ends software defined radio
Tx & Rx functions Dynamic range
shifting gain control

MAXIMIZING INTEGRATION IS KEY TO OFFERING THE BEST POSSIBLE PERFORMANCE IN A SMALL FORM FACTOR. WE OFFER INNOVATIVE LOW RISK SOLUTIONS, BY UTILIZING OUR EXPERTISE IN INTEGRATED SMALL MULTIFUNCTION, MODULAR SUB-SYSTEMS.

AS FILTER & SWITCH EXPERTS, MPG HAS BUILT ON A HISTORIC REPUTATION OF QUALITY AND PERFORMANCE BY ADDING ACTIVE CAPABILITY AROUND OUR PASSIVE RF DEVICES. MULTIPLE FUNCTIONS CAN BE CARRIED OUT BY A SINGLE SELF-CONTAINED BLOCK INCORPORATING AMPLIFICATION/GAIN CONTROL, TEMPERATURE COMPENSATION AND OFFSETS, WE PROVIDE DIGITAL FUNCTIONALITY USING FPGA CONTROL & CALIBRATION.



6-18 GHz , Radar Warning Receiver Building Block For RF and local oscillator signal distribution

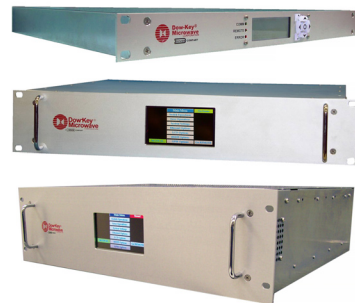


2-18 GHz, Preselector Reconfigurable Filter Bank for ESM receivers
8 independent switchable channels, allowing user to dynamically change the passband performance on a pulse by pulse basis.

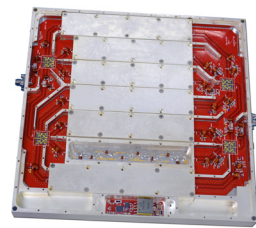
RELIABLE. FASTER. MODULAR.

NEXT GENERATION INTEGRATION MICROWAVE ASSEMBLIES

- HIGHLY SCALABLE AND MODULAR
- TROUBLE-FREE MAINTENANCE FOR FIELD UPGRADES & REPAIR
- 1RU/2RU/3RU/4RU RACK MOUNTABLE ENCLOSURES
- LCD/KEYPAD OR TOUCH SCREEN MANUAL CONTROL
- REMOTE CONTROLS: ETHERNET (TCP/IP) WITH HTTP SERVER OR SNMP V1/V2 OR GPIB & RS-232 AND USB



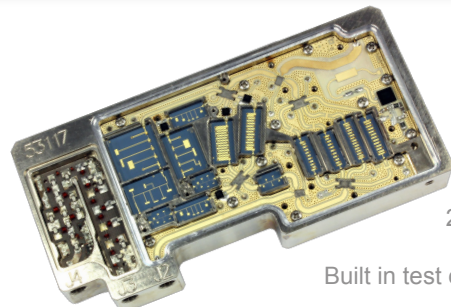
Switch Boxes (Matrix Systems)



High Power Switch Filter Banks
100W+ VHF/UHF Bands
50W L Band / S Band



Systems are fully controlled through controller module(s) with Windows based PC and removable hard drive.



2-18 GHz, Switch Filter Bank for ESM System
Preselector 8-channels 50n sec switch time.
Built in test oscillator to ensure all channels are functional

EXTREME SELECTIVITY AND OUTPHASING



TUNABLE FILTERS



INTEGRATED COSITE EQUIPMENT (ICE)

COSITE COMMUNICATION INTERFERENCE SOLUTIONS

IDEAL FOR SIGINT & COMINT APPLICATIONS, ABOARD SHIPS AND ISR AIRCRAFT, DF (DIRECTION FINDING) SYSTEMS AND OTHER SENSITIVE RF SYSTEMS.

MPG IS THE PREMIER PROVIDER OF SOLUTIONS FOR COMMUNICATIONS CHALLENGES ARISING FROM RF INTERFERENCE. OUR PRODUCTS ENABLE MILITARY PLATFORMS TO SIMULTANEOUSLY OPERATE MULTIPLE RADIOS ON THE SAME PLATFORM WITHOUT DEGRADATION IN PERFORMANCE, RANGE OR COMPROMISES IN CON-OPS. OUR INTEGRATED COSITE EQUIPMENT (ICE) LINE OF PRODUCTS ARE INCORPORATED BETWEEN RADIOS AND ANTENNAS TO ENABLE SIMULTANEOUS OPERATION OF ALL YOUR COMMUNICATIONS, RADAR, SIGINT/COMINT AND OTHER RF SYSTEMS.

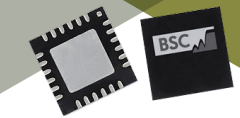
TODAY'S ELECTROMAGNETIC (EM) ENVIRONMENT HAS PROVOKED NEW TECHNOLOGIES.

- MULTI-ROLE DEVICES AND PLATFORMS
- SMALLER, LIGHTER, COST EFFECTIVE SOLUTIONS

COSITE ANALYSIS & SYSTEM INTEGRATION

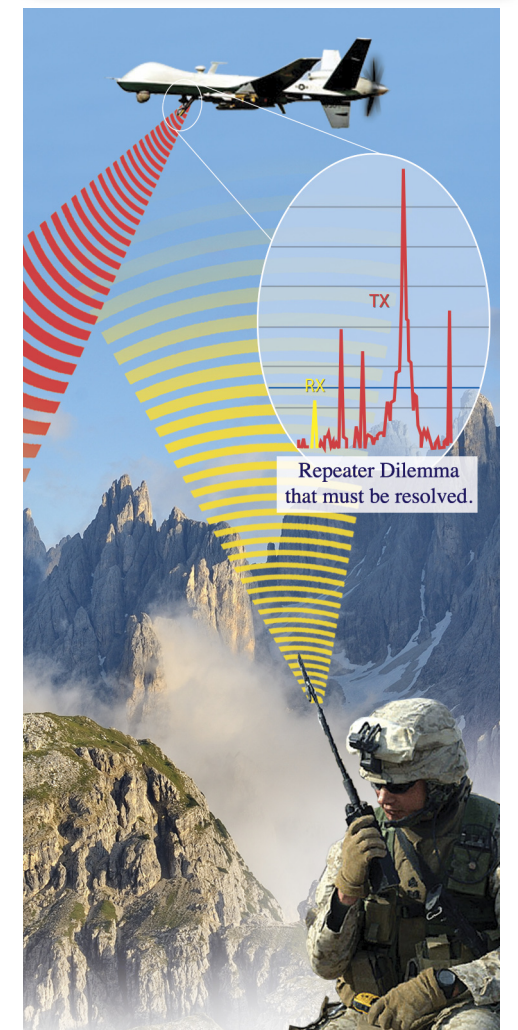


COSITE MITIGATION AT ALL LEVELS



QFN- EXTREMELY HIGH Q

- L-BAND (1 - 2 GHz)
- S-BAND (2.4 - 3.5 GHz)
- X-BAND (7 - 12 GHz)
- X-BAND NOTCH (7 - 12 GHz)





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MICROWAVE PRODUCTS GROUP UNIFIES THE HERITAGE,
PRODUCT LEADERSHIP AND INNOVATION OF SIX WORLD CLASS BRANDS
TO ENABLE COMMUNICATION, PROVIDE SIGNAL CONTROL AND TAKE COMMAND
OF ELECTRONIC WARFARE AND RADAR TECHNOLOGY DEVELOPMENT

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