WELCOME TO

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RS Serving YOU!!

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Company Profile

Founded in January 1981 with the mission of designing and producing high quality RF and Microwave filters

- Developed an approach to implementation of filter networks involving the use of evanescent modes of propagation that offered a good combination of size and insertion loss, not achievable with any other method current at the time.
- Since our founding, RS has developed:
    - unique lumped element networks with symmetrical response
    - dielectric resonator designs (1 MHz bandwidth with a center frequency of 8 GHz!)
    - compact high power, low-loss notch filters, the smallest possible multiplexers, wide passband and stopband filters combined with high power capability (1-4 GHz passband, stopband to 20 GHz, 1 KW operation)
    - blind-mate filters (as small as drop-in designs) for high isolation applications, Bessel-Thompson world standard filters (our OR series) for use in optical communication systems, and
    - a host of other unique products for system application including: in-line bandpass filters with finite transmission zeroes, reduced size high power filters, wide band high power filters, and other developments.
    - a series of unique multimode filters employing both waveguide and dielectric resonators, in a configuration allowing for pseudo-elliptic responses but with in-line physical configuration, coupled with high power operation and wide stopbands.

New Filter Topologies include the use of multiple waveguide modes, in “bypass” configurations, enhancing the in-line configurations with additional transmission zeros for very sharp rejection characteristics.

We are the Major Supplier of filters for the world-wide LINK-16 programs, a high power spread spectrum military communication link interfacing with TACAN, IFF, other data links, and other navigation/communication systems.

We are the Largest Supplier of High Power Notch Filters in the world; Major Supplier on MIDS, JTIDS, ASPJ, AESA, ALQ-172 LAMPS, ALR67 (ASR), Rapport III, SLQ32, GPN, SPS- 48, GBR, AMRAAM, SM-2, AEGIS, TTNT, F-22, F-35….

We utilize the latest computer-aided design techniques with standardized mechanical approaches to minimize size, cost, and delivery time while optimizing performance.

Approved to the AS9100 Quality System. All of our assembly and tests are in accordance with MIL-STD-2000 or 2000A. Our Assemblers are certified to J-STD-1000. Everyone in the company is certified to ESD standards.

Our manufacturing system is LEAN. We perform environmental testing on the majority of our products, including high power, temperature-altitude and leak resistance.

Our filters and multiplexers are on many of the U.S. government QPL or NSN lists as standard approved items.

Our filter products have been under the sea, on the ground, in tanks, in fighters, bombers, missiles, and satellites. We are considered “best of breed” in small size or high power.

Product Line

Filters - 1 MHz to 50 GHz

High Power

Low Loss

Blind-Mate

Drop In

Dielectric Resonator

Notch Filters

Coax or Waveguide

Tunable, Higher Order Mode

Multiplexers - 1 MHz to 50 GHz

Contiguous

Non - Contiguous

Switched

Subsystems - 1 MHz to 26 GHz

Combinations, including:

Filters

Circulators

Amplifiers and Switches

Stars of the Line (Current)

- **PN 30281C-1,-2** unique K- and Ku-band filters with extremely narrow passband (less than 0.025%) and wide spurious free stopband (up to 50 GHz). Such a distinctive performance is accomplished by properly combining overmoded cavities with single-mode and evanescent mode cavities. RS Microwave manufacturing experience and technological expedients are crucial to obtain excellent mechanical and thermal stability for these innovative products implementing such extreme filtering functions.

- **P/N 53681C** is a 5-channel multiplexer designed and built for satellite application. Rugged and light weight, it has 5 passbands covering UHF to S-band - a 10:1 frequency range; but, the concept is adaptable to applications allowing for additional channels of differing widths. The design combines evanescent mode filters and high Q-factor lumped components into a pseudo-elliptic complementary combining network, resulting in low-loss/high-isolation performance with wide, spurious-free stop bands and high power capability. The photograph shown illustrates an assembly incorporating two of these multiplexers in one package.

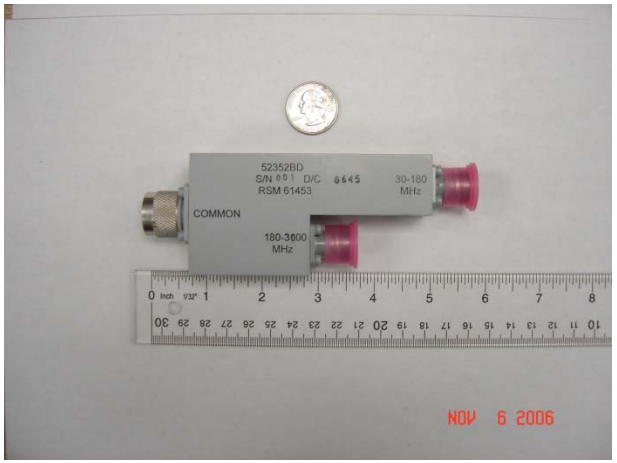
Stars of the Line (Recent)

- PN 20441CD Very low loss Ku-Band diplexer employing high Q-factor cavities with pseudo-elliptic response, yielding high channel isolation, maximum passband width & superior insertion loss performance.

- Low Loss Triplexer P/N 20521CT - a very Compact & low loss triplexer suitable for data-link applications in L-, S-, and C-band. The spurious free stopband of this unit extends up to 16 GHz, so as to provide high isolation to other commonly used frequency channels in Ku-band (see our P/N 20441CD)

- KW level Power Amplifiers in RF frequency range 10 MHz to 5 GHz.
- P/N 03331C series high power low loss filters with wide passband & wide stopband. Frequency spectrum 900 MHz – 18 GHz.

Stars of the Line: Continued



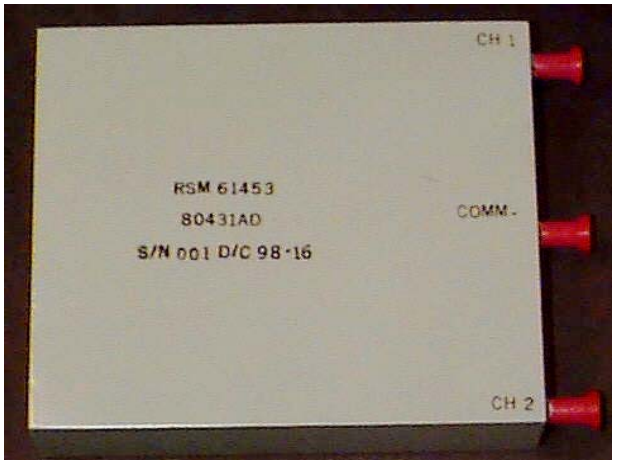
←Diplexer designed to combine 30 to 180 MHz with 180-3000 MHz (P/N 52352BD)

➔ 91122A-1 Right-angle transition vers. of 60661A-3 JTIDS/MIDS HP bandpass filter

←SPS-49 Radar Band Rejection Filter (P/N 50822B-2)

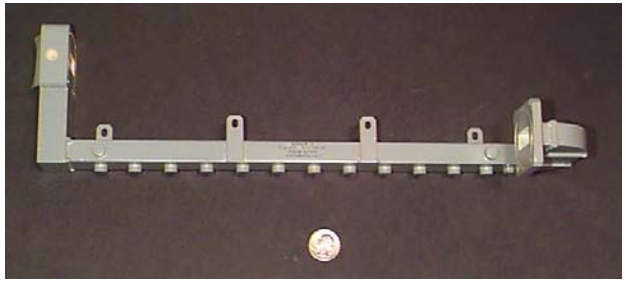
➔Low-Loss High Rejection Bandstop (P/N 50151B-2)

Stars of the Line: Continued



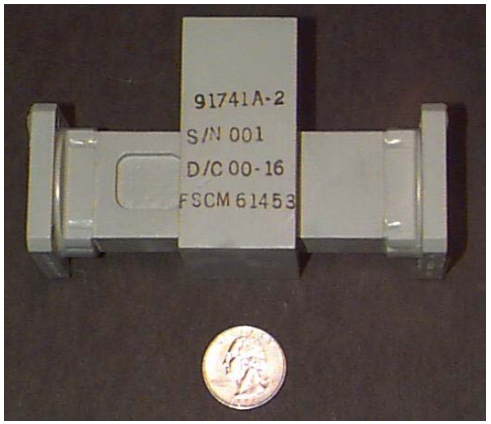
- Diplexer
  PN 80431AD (4/98)

- Diplexer/Combiner
  P/N 80501AD3
  (12/98)



- Waveguide
  Bandpass Filter
  P/N 62021A-2
  (3/99)
- Diplexer GPS High
  Power 80501AD1
  (4/99)

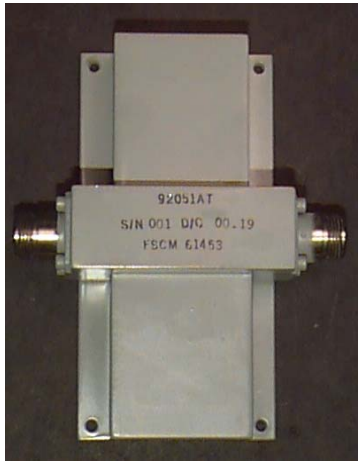
Stars of the Line: Continued

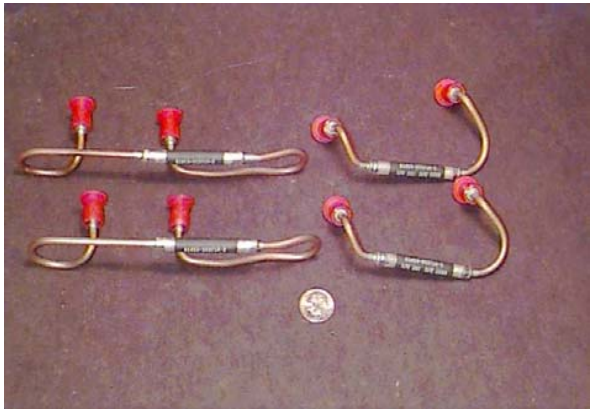


←Waveguide Bandpass Filter 91741A-2 (4/00)

→GPS Dual Triplexer 92051AT

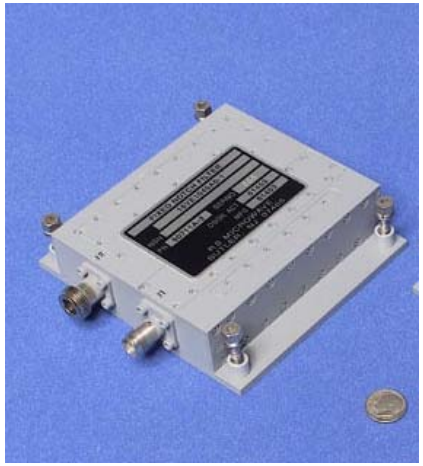
(5/00)



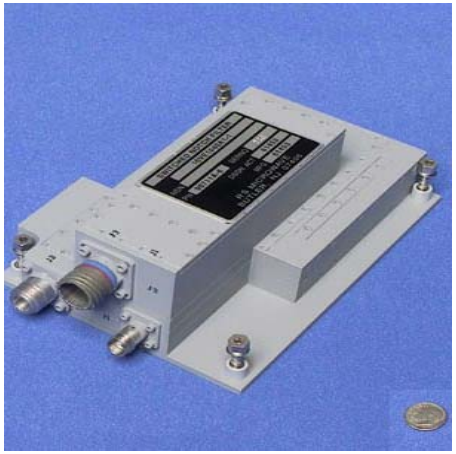


←Lowpass Cable Filters P/Ns 90371A-1 &2 (9/00)

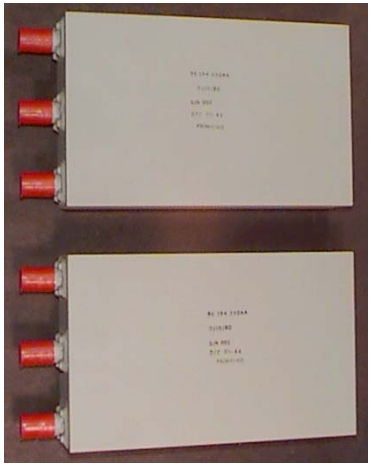
→Fixed Dual Notch Filter P/N 90711A-3 (11/00)

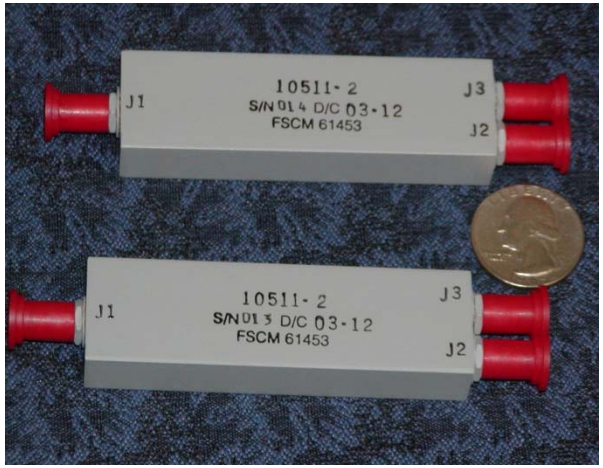


Stars of the Line: Continued



←Switched Dual Notch Filter PN 90711A-6 (8/01)

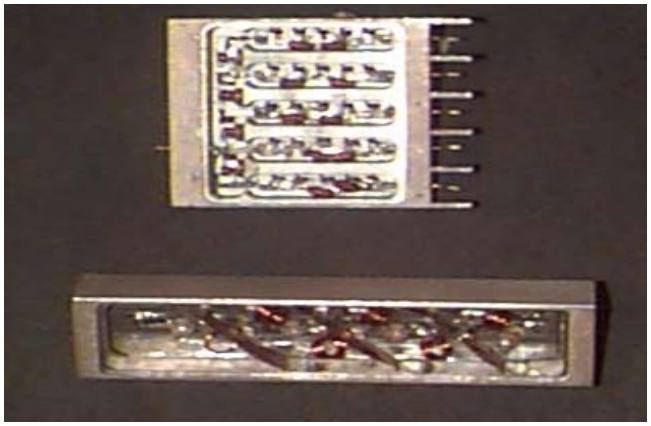




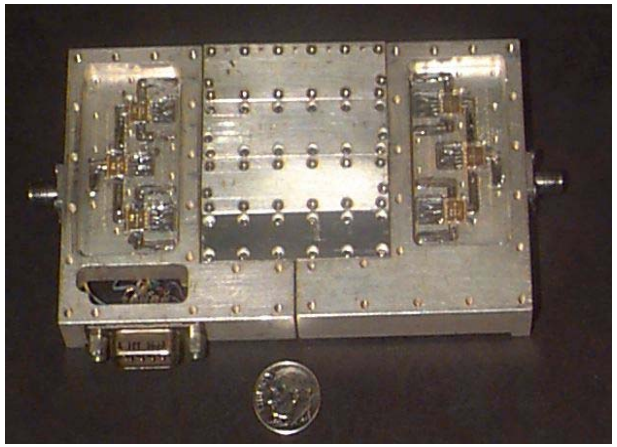
←Compact Diplexer PN10511-2 (3/26/03)

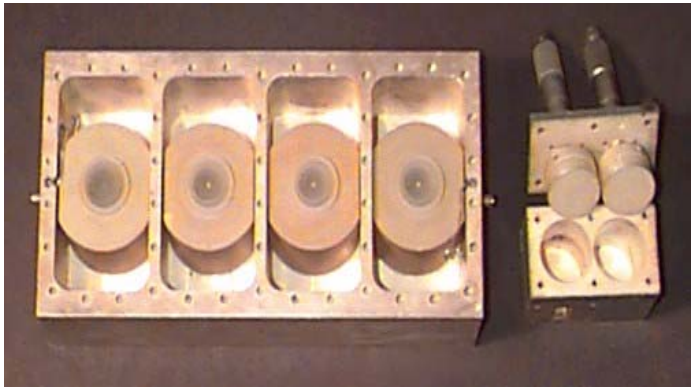
→Low-Loss High Rejection Bandstop Filter 50151B (10/05)

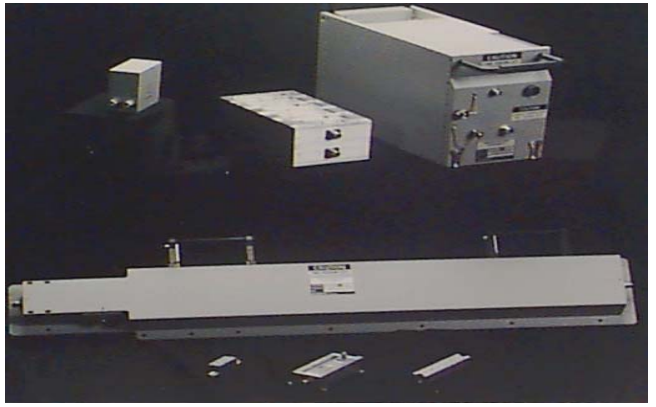
Our Stars (Traditional)



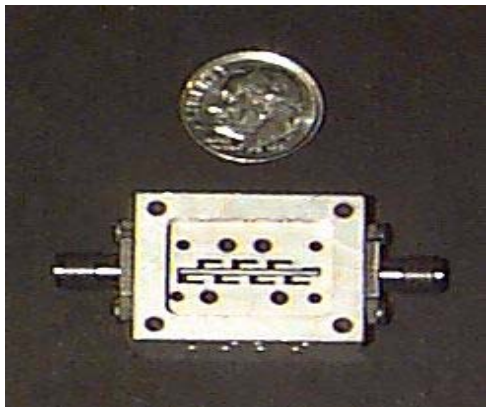
- Lumped Element & Printed Circuit Filters
- Switched Filter with Blind Mate Connector
  (P/N 61461a-3
  4 channel)
- Coupled Cavities
- Dual Notch Filters (JTIDS Program)



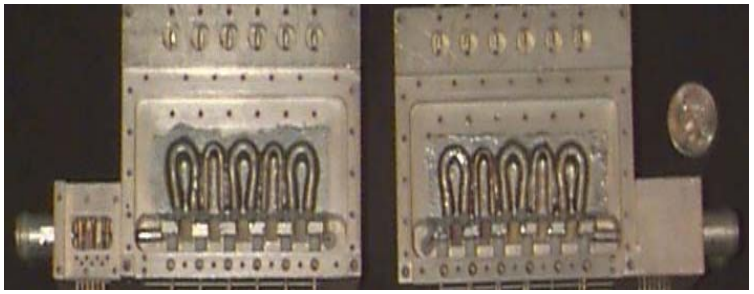




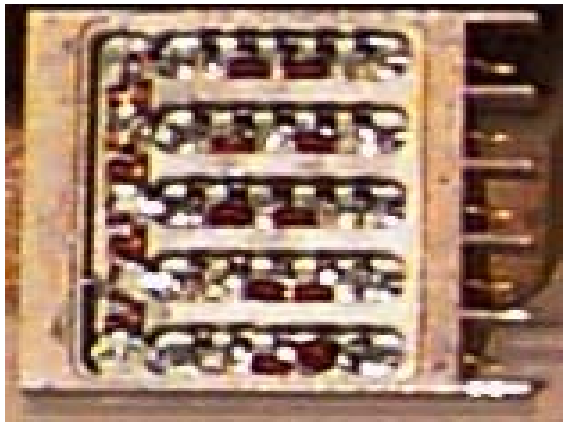
Our Stars (Traditional)



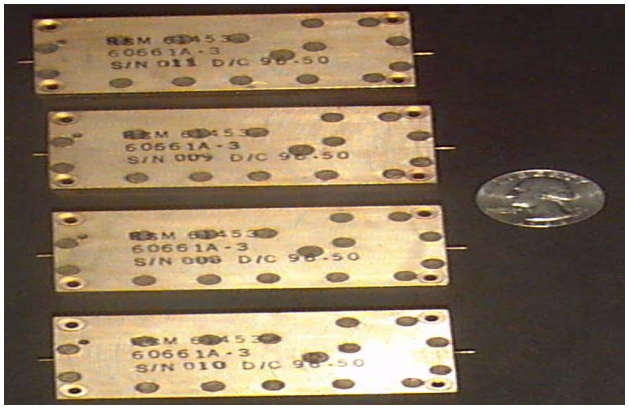
- 28 GHz Notch Filter (P/N 60733A-4)



- High Power Compact Coaxial Notch Filter (P/N 22761-2F)



- Multiplexer



- High Power Bandpass Filter MIDS/JTIDS (P/N 60661A-3)

New Product Announcements

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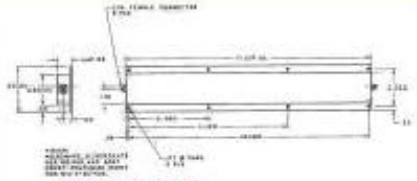
New Product Announcement

P/N 61703B-3



OUTLINE DRAWING

P/N 61703B-3

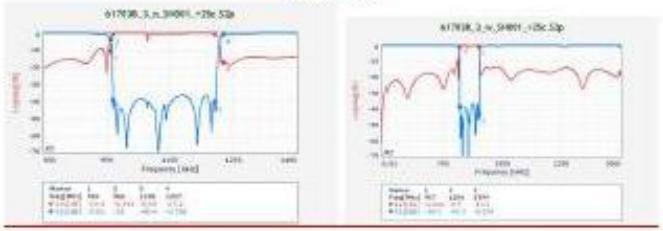
JTIDS/MIDS Band Rejection Filter

This P/N 61703B-3 is the latest in the RS Microwave Band Rejection filter designed for resolving coolte interference problem with the JTIDS/MIDS Band. This filter has very steep transition slopes from passband to stopband (8 MHz is typical.). The unit is constructed as an elliptic air-slab line design, achieving high unloaded Q, which minimizes the insertion loss while maximizing the stopband attenuation.

Specifications

Pass Bands:	DC - 960 MHz, 1227-3000 MHz
Average Passband Loss:	-1 dBa Max.
-3dBo Passband cutoff points:	960 and 1227 MHz
Passband VSWR:	1.8 : 1 (Typical)
Min. -36 dBo Rejections:	966 – 1206 MHz
Power Limit:	At least 60 W peak, 20 W Avg.
Temperature Range:	-30°C to +60 °C
MIL Vibration, Shock, Humidity, Salt	

TEST DATA



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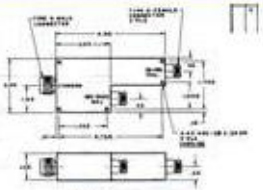
New Product Announcement

P/N 52352BD



OUTLINE DRAWING

P/N 52352BD: Diplexer

Part Number 52352BD is a diplexer designed to combine 30 to 180 MHz with 180-3000 MHz. The unit provides state of the art loss and isolation characteristics and is typical of highly-engineered RS Microwave filter and multiplexer products.

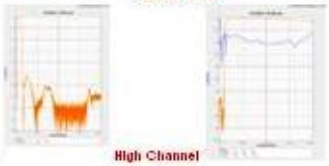
SPECIFICATIONS

Low Channel
Type: Bandpass filter
Minimum -4 dBc passband: 30-177 MHz
Maximum loss from 177 to 183 MHz: -7 dB (crossover region)
Maximum 2.3 dB loss: 30-170 MHz (1.0 dB typical)
Maximum 1.7 VSWR: 30-177 MHz (1.5 VSWR typical)
Maximum 2.0 VSWR: 177-3000 MHz
Minimum -50 dBc rejection: DC-15, 220-550 MHz
Minimum -55 dBc rejection: 550-3000 MHz

High Channel
Type: High Pass Filter
Minimum -4 dBc passband: 183-3000 MHz
Maximum loss from 177 to 183 MHz: -7 dB (crossover region)
Maximum 2.0 dB loss: 200-2300 MHz (0.75 dB typical)
Maximum 2.5 dB loss: 2300-2750 MHz
Maximum 3.5 dB loss: 2750-2850 MHz
Maximum 4.5 dB loss: 2850-3000 MHz
Maximum 1.7 VSWR: 200-2300 MHz (1.5 VSWR typical)
Maximum 2.0 VSWR: 30-200 MHz, 2300-3000 MHz
Minimum -50 dBc rejection: DC-150 MHz

Operating power level: At least +33 dBm continuous
Temperature range: -55 to +85 C
Other environmental: Typical MIL (filter is gross leak sealed)

TEST DATA



Low Channel

High Channel

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New Product Announcements

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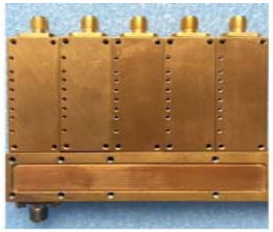
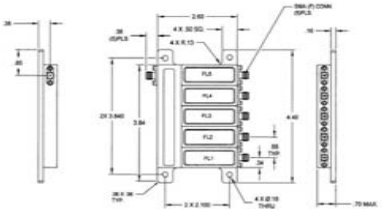
New Product Announcement

P/N 53681C



Outline Drawing



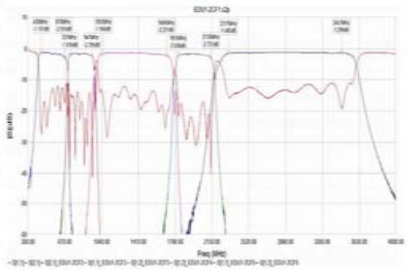
Multiplexer

P/N 53681C is a 5-channel multiplexer designed and built for satellite application. Rugged and light weight, it has 5 passbands covering UHF to S-band - a 10:1 frequency range; but, the concept is adaptable to applications allowing for additional channels of differing widths. The design combines evanescent mode filters and high Q-factor lumped components into a pseudo-elliptic complementary combining network, resulting in low-loss/high-isolation performance with wide, spurious-free stop bands and high power capability.

SPECIFICATIONS

Channel	Parameter	Limit	Min	Max
1	Passband Freq	MHz	430	670
2	Passband Freq	MHz	727.5	947.5
3	Passband Freq	MHz	1055	1695
4	Passband Freq	MHz	1815	2135
5	Passband Freq	MHz	2317.5	3457.5
1 - 5	Passband IL	dB		3.0
	Passband RL	dB	9.5	
	Rejection	dBc	35	
	Amplitude Flatness	dB p-p		0.5
	Ampl Flat Stability	dB p-p		0.2
	Phase Linearity	Deg p-p		8
	Upper Stop Band	GHz	12	
	Vibration	Grms	46.6	
	Mech Shock/dur	G @ ms	50 @ 0.3ms	
	Operating Temp	Deg C	-55	+85
	Input power	W		25

TEST DATA



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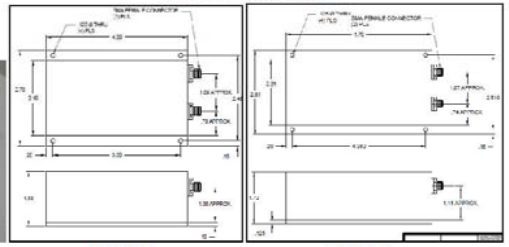
New Product Announcement

P/N 30281C-1, -2

OUTLINE DRAWINGS



30281C-1 30281C-2

Passband Filter

P/N 20521CTCD are P/N 30281C-1 and 30281C-2 are unique K- and Ku-band filters with extremely narrow passband (less than 0.025%) and wide spurious free stopband (up to 50 GHz). Such a distinctive performance is accomplished by properly combining overmoded cavities with single-mode and evanescent mode cavities. RS Microwave manufacturing experience and technological expedients are crucial to obtain excellent mechanical and thermal stability for these innovative products implementing such extreme filtering functions.

Specifications

	30281C-1	30281C-2
Center Frequency (F0)	18.600 GHz	15.350 GHz
Passband	F0 ± 0.0002 GHz	F0 ± 0.0002 GHz
Passband Insertion Loss	≤ 8 dB (6.5 dB typ.)	≤ 8 dB (5.5 dB typ.)
Passband Return Loss	≥ 15 dB	≥ 15 dB
Rejection Loss at		
F0 ± 0.005 GHz	≥ 5 dBc	≥ 5 dBc
F0 ± 0.010 GHz	≥ 20 dBc	≥ 25 dBc
F0 ± 0.100 GHz (up to 50 GHz)	≥ 50 dBc	≥ 50 dBc
Operating Temperature	-20 to +65 °C	-20 to +65 °C

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35 YEARS OF EXCELLENCE

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Technical Reading

Fall 2015

- Waveguide Filters Using Dielectric Resonators
- Discussion of Filter Techniques
- RSPLOT™ Simulator 2.32
- Technical Corner Archives

News

- 35 Year Retrospective
- Newsletter - Winter 2016
- Newsletter- Summer 2015
- IWS - SHANGHAI 2016
- RS Microwave Awardees at MTTS - IMS2012
- RSM Expands Test Capability

RS Microwave Company, Inc., founded in 1981, is an internationally respected leader in RF and microwave filter technology and production. Located in Butler, NJ approximately 25 miles from New York City, we are AS9100 Certified and specialize in the design and production of quality custom filters and multiplexers to aerospace and deep space applications using state-of-the-art CAD techniques. Many parts are on the Qualified Parts List (QPL).

Filters, Multiplexers, Sub-Assemblies, and Power Amplifiers for the military market
1 MHz to 50 GHz, bandpass, notch, lowpass, highpass, and combinations
High power, small size, wide stop or pass bands and complex requirements our specialty

Ku-Band Diplexer: PN 20441CD

Passband Filters: PN 30281C-1, -2

Ridgeline™ Filters: PN 03331C-()

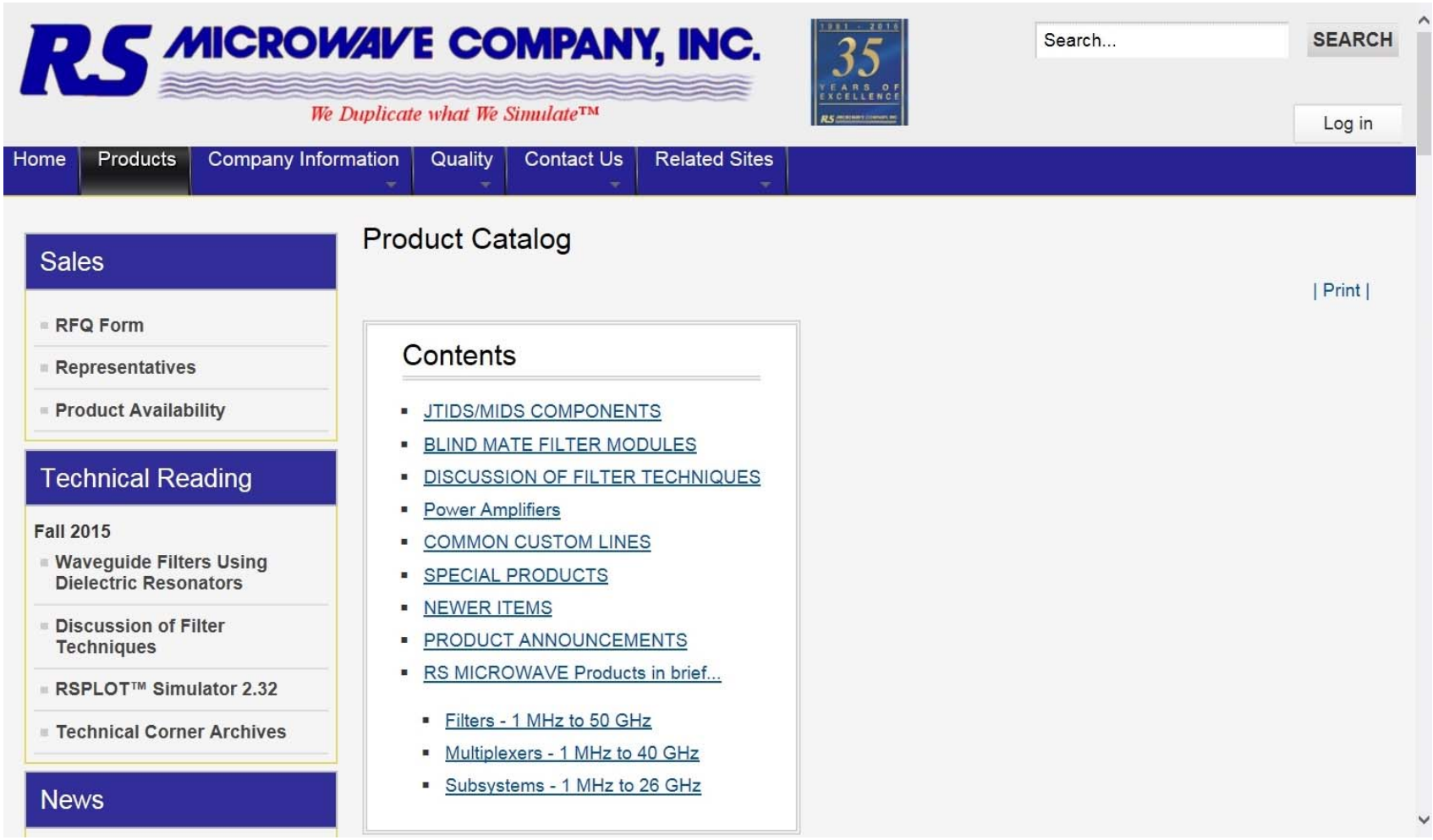
5-Channel Multiplexer: PN 53681C

JTIDS / MIDS Band Rejection Filters and High Power Bandpass Filters

Bandstop Filters

Last Updated on Friday, 01 April 2016 15:47
Hits: 371911

On Line Catalog

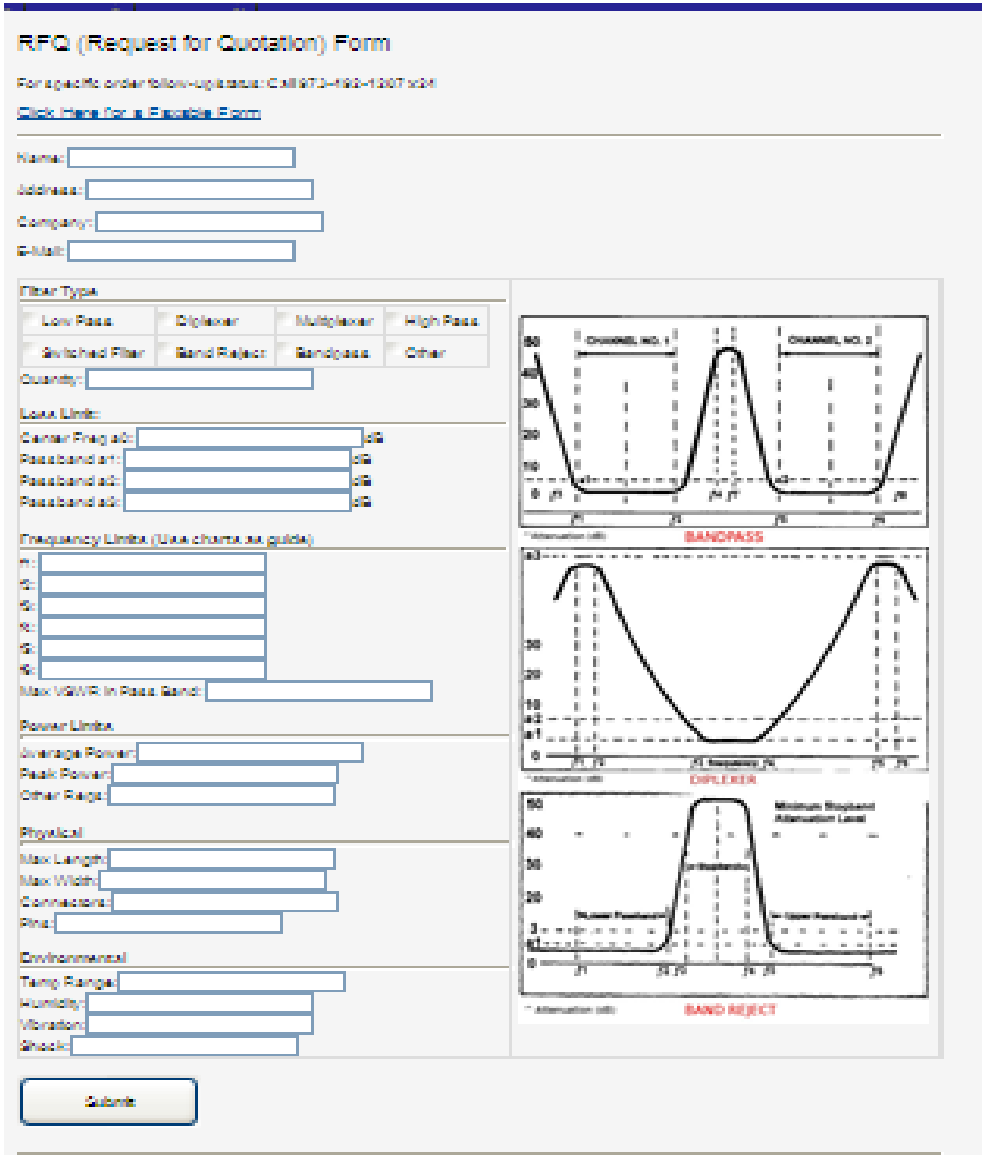


QPL (Qualified Parts List)

Updated Links to all Product Outline Drawings & Test Data ongoing as changes require

FSC	NIIN	Item Name (Link to Outline Drawings)	RS Part No. (Links to Outline Drawing or Test Data)
5915	011308250	FILTER,BAND SUPPRESS	B4028140
5915	013742935	FILTER,BANDPASS	SF2015
5985	014442309	DUMMY LOAD, ELECTRIC	S83521-14
5985	014438771	DUMMY LOAD, ELECTRIC	S83521-15
5985	014440825	SWITCH,RADIO FREQ	S83521-5
5915	013634599	FILTER,BANDPASS	00353-1
5915	013634598	FILTER,BANDPASS	00353-2
5915	013634597	FILTER,BANDPASS	00581-4
5915	013637345	FILTER,BANDPASS	00581-5
5915	013637344	FILTER,BANDPASS	00581-6
5915	013637346	FILTER,BANDPASS	00581-7
5915	015222383	FILTER,BANDPASS	00801B-2

Use our On Line RFQ Form!



Technical Articles

Technical Corner Archives

Details

Date	Topic
Feb 2014	Multipactor comes to RS Microwave
July 2013	Advanced Evanescent Mode Filters Using Strongly Coupled Resonator Pairs
Feb 2013	Inline Pseudoelliptic Dielectric Resonator Filters Using Multiple Evanescent Modes
Aug 2011	Parallel Coupled Line and Inter-digital Filters with Unusually Broad Upper Stop Bandwidth
July 2011	In-line Evanescent-mode Filter with Independent Transmission Zeros
Sept 2010	Wide Pass-band, Wide Stop-band, High Power, Reduced Size, Bandpass Filter
Aug 2010	Wide Pass-band, Wide Stop-band, High Power Bandpass Filter
Mar 2010	Four-channel Broadband Multiplexer
Aug 2009	Unique Waveguide Bandpass Filters with Wide Stop-bands
Sept 2008	"Improving Temperature Stability of Resonators"
Nov 2007	High Power Testing
Oct 2005	Wide Pass-band, Wide Stop-band, High Power Band-stop Filters
May 2004	RSPLOT™ to the Rescue!
Feb 2004	Evanescent Mode Band-stop Filters
Feb 2003	High-pass Filter Design Using Stepped Impedance Resonators
June 2000	The 1030/1090 Notch Filter Story
Dec 1998	Quasi-optimum Filters - A Series of Articles - Part 2
Sep 1998	Quasi-optimum Filters - A Series of Articles
Jul 1998	Quasi-eliptic Notch Filters for AMPS/GSM Separation
May 1998	Why You Should NOT Design Your Own Filter
Mar 1998	Diplexer Design Using Cross Coupled Filters
Jan 1998	GPS Two-pass-band Filter
Dec 1997	Switched Filters
Nov 1997	Multiplexers
Sept 1997	Compensation of Filter-filter Interactions within Narrow Band Filter Assemblies: Application To Congested Spectrum Scenarios
Aug 1997	Why Choose RS Microwave above the others?
June 1997	Dielectric Resonator Filters with Resonated Cross Coupling
May 1997	Using Resonated Couplings In Filters
Feb 1997	Inverted Resonator Evanescent Mode Filters
Jan 1997	Compact High Power Notch Filters
Dec 1997	Simulating Leakage Effects in Lumped Element Filters
Nov 1996	The Art of Simulation
Oct 1996	Filter Subsystems Blind-mate Filters

Company Newsletter

RS MICROWAVE COMPANY, INC.

Volume 18 Issue 1 "We Duplicate what We Simulate"™ Winter Issue

2016 at RS — Celebrating 35 Years in Business

Happy Anniversary to Us!

A 35 Year Retrospective By Our President

"Do you fix microwaves"? Do you carry microwave carts"? Those were the inquiries we got back in 1981. I would answer "No, we make microwave filters", and sometimes the reply was "No thanks, my filters are clean and we don't need one".

For those of you who remember, we occupied small offices in the back of the courtyard, which wasn't a courtyard then! The facilities were minimal compared to today's; and, then, there was the parking…! At that time, other buildings occupied the present courtyard area, the pavement did not exist, and the parking area was dirt and rocks. It was sometimes a bit treacherous, particularly after a big rain or snowstorm. We were all lucky to not get too many flat tires or broken shocks on our cars. It was great when they pulled down the biggest of the old buildings, paved the area, and gave us an opportunity to harvest the 130 year old bricks that formed the walls of the old building. People loaded their car trunks with those bricks to be used at home for patio walkways, walls and possibly for helping get traction in the snow and ice!

I had my own private entrance which required walking up a steel mesh staircase that was treacherously icy from time to time. When my middle daughter, Meredith, was about to be born, I ran out of the office, hit that steel mesh, and took a flying leap face down to the ground! I was a mess but survived, and was smart enough to get a covering for that mesh offering some traction. A bit late;

but, that's how we learned in the old days…by making mistakes and not repeating them.

We were not afraid to take chances, and fortunately, were right more often than wrong (or we would not be here today). We worked very long days, and often 7 per week. Believe it or not, Ralph, Gene and I were actually young. We kind of enjoyed the hard work, as we were actually developing and manufacturing filters that no one else had ever tried, and pretty successfully with both on-time delivery and good quality. We always focused on quality, even if we had to deliver slightly late but with confidence that once shipped, our parts would "stick" and would make for happy customers. To this day, we have kept that as the mantra for RS Microwave: "Give the customer what he wants, when he agrees to take it, and make 100% sure the parts are fully compliant when shipped".

We had some colorful and unusual characters as employees for sure at the outset, including (among others) one that camped on a ledge just outside the old machine shop window (until caught by the landlord) and an administrator who lived in a small hut on an island in one of the local reservoirs. However, we also always had a crew of wonderful, caring employees, with great enthusiasm and company pride. To this day, we are blessed with employees with the same enthusiasm, pride and loyalty. Any future success we might have will be a function of being able to encourage such characteristics and recognize employees for their continuing contributions. I am very proud to have reached this 35 year milestone, and look forward to the next 5 years and reaching our 40th!

Keep it up folks, I am proud of all of you!

Then & Now

Still smiling after all these years!!

Honors & Recognition from the Aviation Industry!

Following the recognition by Lockheed Martin in March 2015 for our 100% quality and delivery in 2014, we have continued to be recognized for outstanding performance by other customers! Late last summer, Boeing rewarded our performance excellence with a trophy proudly displayed in our awards case.

Our Filters Soar and Rewards Abound!

And last fall, we won the annual Northrup Grumman Supplier Excellence award for which we had been nominated in the summer.

Northrup Grumman Excellence Award

Dr. Snyder was honored to accept this prestigious award on behalf of the Company at a special ceremony in November. We could not be prouder to be celebrated as one of the very best performing companies in the country!

RS Microwave is Committed to Quality

Our Policy & Objectives*:*

- The management and employees of RS Microwave are dedicated to producing goods and providing services that meet or exceed customer requirements, as well as continually working to improve our processes and the effectiveness thereof. Quality objectives and metrics are established for on-time delivery, customer returns, and ensuring customer satisfaction.

- These objectives and this policy are reviewed using the Management Review Process of the QMS, and are implemented with the direct involvement of all personnel in processes, product safety, and continual improvement activities.

WE ARE AS9100 CERTIFIED

RS Microwave Company, Inc.
is certified to AS9100 Revision C
through October 2016

Director of Quality Assurance: Eugene J Clegg, Jr.

Thank You for Allowing

RS Microwave

to be your

Filter Provider!