



**TELEDYNE
DEFENCE**

A Teledyne Technologies Company

2-18GHz Switch Multiplexer

Technical Data **SA002**



Features

- Full 2 – 18 GHz Coverage
- 8 Equally spaced channels
- Low Noise Figure
- Flat Group Delay
- Fast switching

Applications

- Broadband EW Signal limiting
- Adaptive filtering
- RWR system protection
- Test lab filtering

Product Description

The Switch Multiplexer is a single RF input to single RF output, fast, multi-configurable filter bank covering 2-18GHz.

Consisting of 8 equally spaced channels, each one independently controlled, allowing 256 possible combinations of overall filter response from input to output, with the capability of changing from any combination, to any other in less than 100ns.

This provides the user with a fast, flexible, filter network capable of providing different band-pass or band-stop responses on a pulse-by-pulse basis in dense signal environments.

Filter control is achieved by 8 independent TTL control bits.

With internal amplification, providing zero loss and low noise figure, together with flat insertion loss and exceptionally flat group delay, the filter is an ideal system enhancement.

Designed to withstand harsh military environments, the SA002 is a complete front-end filter solution allowing system designers to achieve functionality previously unattainable.

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SA002 rev 3.0
16 November 2009
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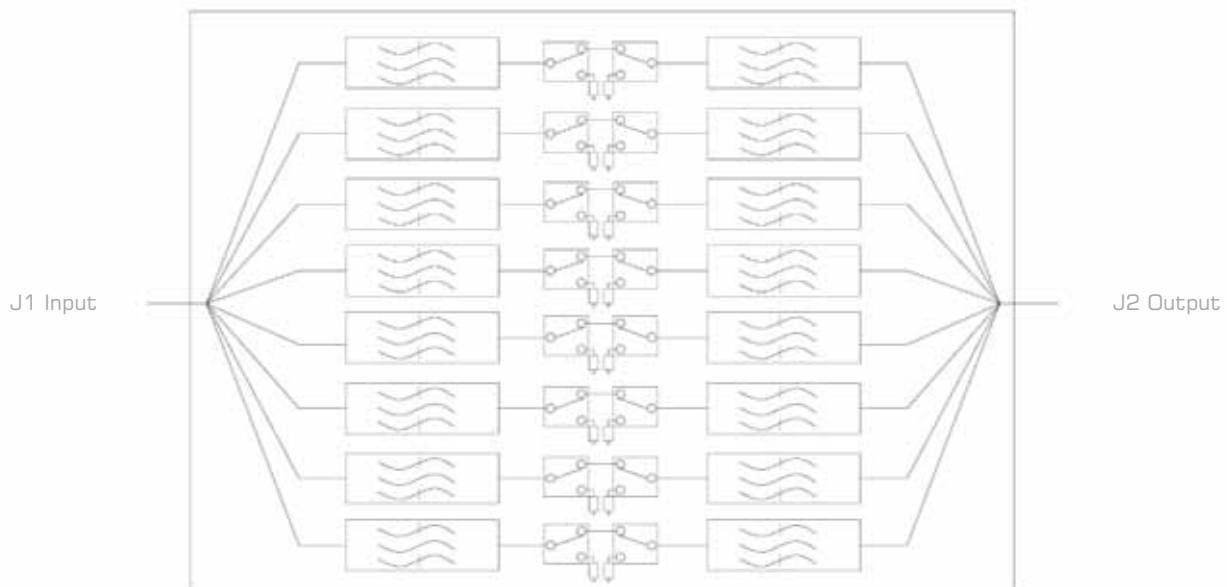
Electrical Specification

Parameter	Specification
Passband	2-18GHz (channeled as : 2-4-6-8-10-12-14-16-18)
Passband Insertion Loss Window	0 to +4dB NOTE 1,
Insertion loss window variation with temperature	0.025dB/°C NOTE 1
Group Delay Variation	<3ns (in passband) NOTE 1
Noise Figure	10 dB max (in passband) NOTE 1
Rejection	50dBc min @ adjacent band centre
Input 1dB Compression	>0 dBm NOTE 1
Output IP3	>+25 dBm (input) NOTE 1
Channel Control	8 bit parallel TTL
Channel Switching Speed	<100ns
Input / Output Impedance	50 Ohm, standard SMA (f)
VSWR	2:1 (input) 2.5:1 (output)
Operating Temperature Range	-40 to +85 degrees C
DC power	+12V DC at < 400mA -5V DC at < 100mA
Size	130 x 90 x 15 mm Max

NOTES:

1. Passband defined as being 5% from band edge of de-selected channels.

Block Diagram





Performance Data

Insertion Loss and Rejection

The following plots show the filter in differing states, showing the true switch multiplexer nature of the SA002.

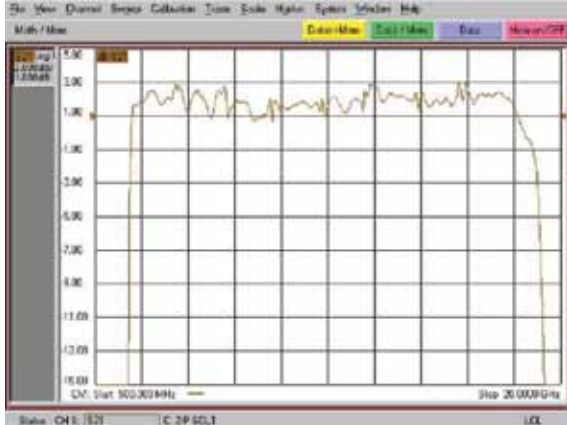


Fig 1. S21, all channels 'ON'

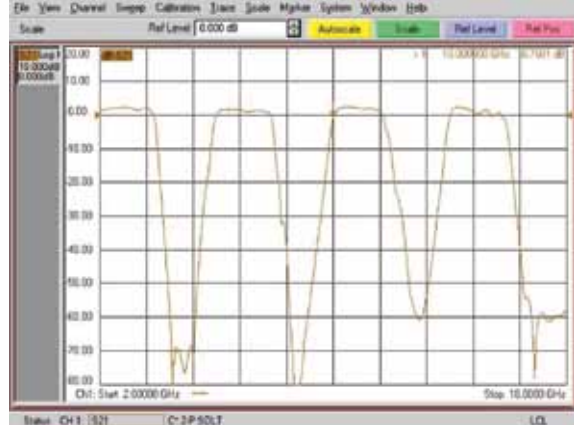


Fig 2. S21 'Odd' channels 'ON'

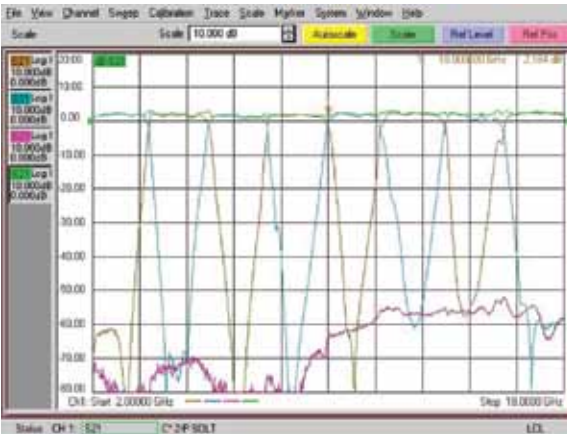


Fig 3. Overlay of individual channels

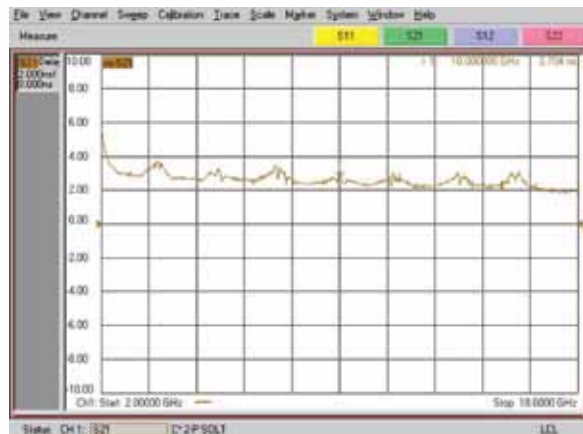


Fig 4. Full band Group Delay response

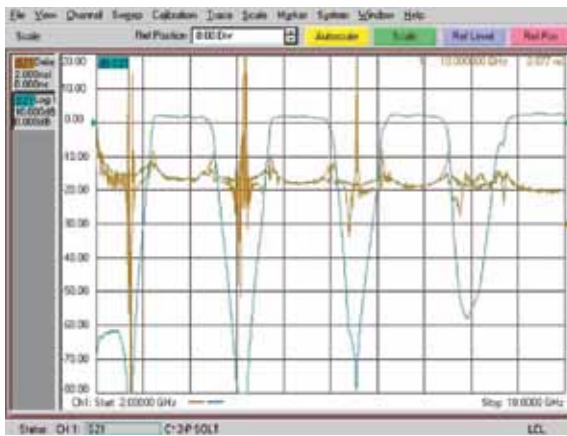
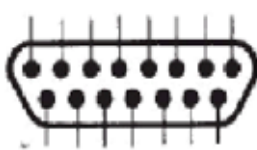


Fig 5 & 6. Group Delay response in 'On' and 'Off' Bands.



Connector Information

Connector Pin	Description
1	Ground
2	+ve Supply
3	-ve Supply
4	Channel 1 Control
5	Channel 2 Control
6	Channel 3 Control
7	Channel 4 Control
8	Channel 5 Control
9	Channel 6 Control
10	Channel 7 Control
11	Channel 8 Control
12	N/C
13	N/C
14	N/C
15	N/C



Pin 1

J0 – DC & Control Connector

Body Connector is MDM-15-S-H-003-P, a suitable mating connector is required.

Pin 15

Outline Drawing

