



**TELEDYNE
DEFENCE**

A Teledyne Technologies Company

Switched Multiplexer

Technical Data **SA212-M1**



Features

- Operating Range 2 – 6 GHz
- 16 Contiguous channels
- Low loss
- Low channel ripples
- Bandpass / Bandstop configuration

Applications

- Adaptive filtering
- Interferer removal
- Channelisation

Product Description

The SA212-M1 Switched Multiplexer (SwMux) is a fast multi-configurable filter bank working in the 2GHz to 6 GHz frequency range.

Consisting of 16 channels, each one independently controlled, providing over 65,500 combinations of overall filter responses capable of changing every 100nsecs to a different filter response. This provide the user with a fast, flexible, filter network capable of providing differing Band pass or Band stop responses on a pulse by pulse basis in dense signal environments.

When used in conjunction with a DG009-M1 ADU, these components can provide the ability to detect interfering signals and remove them from receiver systems on an adaptive basis.

The SwMux has a single RF input feeding a power splitter and in turn 16 independently controlled channels.

The outputs of these channels are then recombined in a further power splitter providing a single RF output.

Control of the SwMux is achieved by setting 16 control bits on the control port. Control data is not latched within the SwMux, allowing maximum user flexibility.

The SwMux has been designed for use in airborne transport environments of -20 degC to +80 degC and up to 50,000 feet altitude

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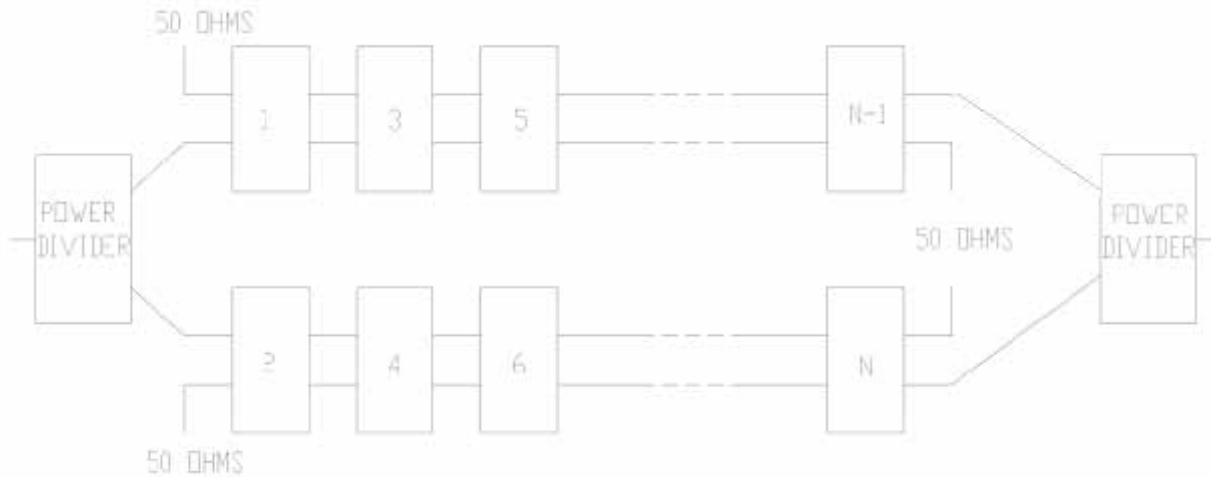


Electrical Specification

Parameter	Specification							
Number of Channels:	16 channels, each with a 250 MHz bandwidth							
12 dB Channel Bandwidth:	300 MHz \pm 20 MHz over the temperature range							
Input and Output Port Return Loss:	> 9.54 dB							
Insertion Loss,								
Frequency Range (2.05 - 5.95) GHz:	< 23.5 dB							
All channels 'ON'								
Insertion Loss at 2.0 and 6.0 GHz:	< Average passband insertion loss of channels 1 and 16 respectively plus 6dB							
(Ch 1 or Ch 16 switched ON)								
Channel Passband Ripple:	< 1.0 dB peak to peak							
Center Frequency $f_c \pm 50$ MHz								
Recombination Channels Ripple:	< 3.2 dB over the temperature range							
Frequency Range (2.05 - 5.95) GHz								
Isolation Between ON and OFF states (Relative to average insertion loss of all channels ON)								
Frequency Range (2.0 - 6.0) GHz:	> 65 dBc							
Stopband Rejection of each ON Channel (Relative to insertion loss at f_c)								
at $f_c \pm 250$ MHz:	> 48 dBc except							
Channel 1 f_c -250 MHz	> 42 dBc							
Channel 16 f_c -250 MHz	> 46 dBc							
Channel 16 f_c +250 MHz	> 42 dBc							
at $f_c \pm 300$ MHz:	> 59 dBc							
at $f_c \pm 350$ MHz:	> 64 dBc							
Out of Band Rejection of Each ON Channel (Relative to average insertion loss of all channels ON)								
DC - 7.5 GHz								
(Excluding $f_c \pm 350$ MHz):	> 64 dBc							
7.5 - 13 GHz:	> 30 dBc							
Crossover Frequency Tolerance:	< ± 7 MHz							
Crossover Drift:	< ± 12 MHz over temperature range							
Switching Speed								
(50% Control To 10% / 90% RF):	< 100 ns							
All ON Group Delay Ripple,								
(2.05 - 5.95) GHz:	< 7.0 ns							
Worst Case Group Delay								
(2.05 - 5.95) GHz:	< 16.0 ns							
Control								
HIGH level logic '1' :	Appropriate channel ON, low insertion loss.							
LOW level logic '0' :	Appropriate channel OFF position, high isolation.							
Power Supply								
+ 5.0 Volts:	< 100 mA							
-12.0 Volt:	< 120 mA							
Power Consumption:	< 1.9 Watt							
Operating Temperature:	-20°C to +80°C (baseplate) continuously							
Weight:	< 0.75 Kg							
Channel Centre Frequencies :								
Channel	1	2	3	4	5	6	7	8
Centre Frequency	2.125	2.375	2.625	2.875	3.125	3.375	3.625	3.875
Channel	9	10	11	12	13	14	15	16
Centre Frequency	4.125	4.375	4.625	4.875	5.125	5.375	5.625	5.875



Block Diagram



Connector Information

Port J1	RF Input	sma female
Port J2	RF Output	sma female
Port J3	Supply Voltages & Logic Input	MDM 31 Socket

Pin No.	Signal Name	Pin No.	Signal Name
1	Input Channel 1	17	GND
2	Input Channel 2	18	GND
3	Input Channel 3	19	GND
4	Input Channel 4	20	N.C.
5	Input Channel 5	21	+5V
6	Input Channel 6	22	N.C.
7	Input Channel 7	23	N.C.
8	Input Channel 8	24	N.C.
9	Input Channel 9	25	-12V
10	Input Channel 10	26	N.C.
11	Input Channel 11	27	N.C.
12	Input Channel 12	28	N.C.
13	Input Channel 13	29	N.C.
14	Input Channel 14	30	N.C.
15	Input Channel 15	31	N.C.
16	Input Channel 16		



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Outline Drawing

