

**z48841**  
6 GHz Solid State 4x4 Matrix



# Port Descriptions



## Front Panel

Label	Type	Description
X1-X4	SMA	RFX1 to RFX4 Input/Output Channels
Y1-Y4	SMA	RFY1 to RFY4 Input/Output Channels

# Electrical Specifications

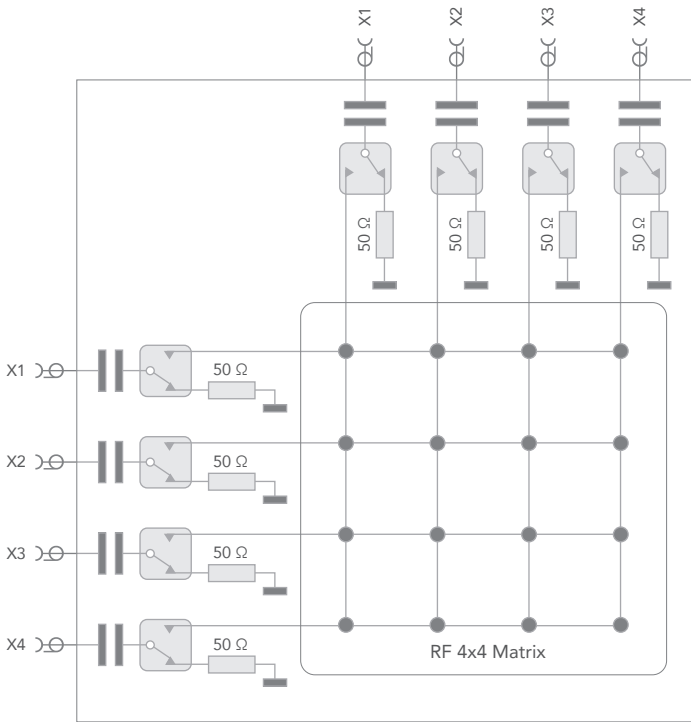


Figure 1: z48841 simplified block diagram

# Switching Diagram

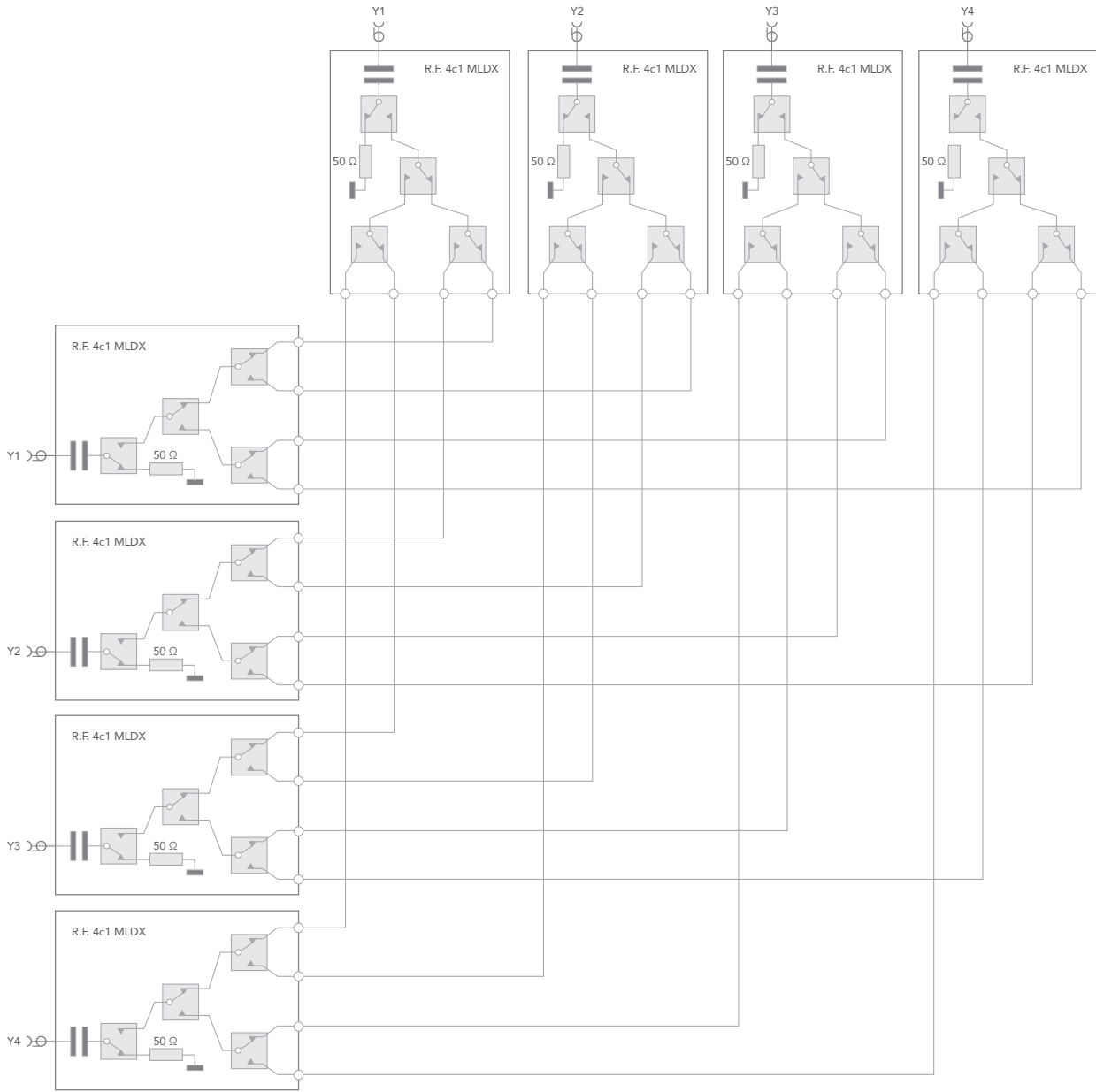


Figure 2: 4x4 matrix module block diagram

## RF Specifications

Specification	Value
RF Frequency Range	10 MHz to 6 GHz (useable to 7 GHz)
Insertion Loss	<4 dB @ 10 MHz typical <5.5 dB to 3 GHz typical <6.5 dB to 6 GHz typical
VSWR thru path Y to X	<1.6:1 to 6 GHz typical
VSWR thru path X to Y	<1.65:1 to 6 GHz typical
VSWR Internal termination	<1.4:1 to 6 GHz typical
Crosstalk	<-60 dB to 6 GHz typical
Maximum RF Power	+30 dBm
Maximum DC Voltage	16 V (AC coupled)
Life Expectancy	Indefinite when used within ratings
Operate Time	50 $\mu$ s
RF Switching Time	10 $\mu$ s typical rise and fall time
RF Connectors	SMA

# Typical Characteristics

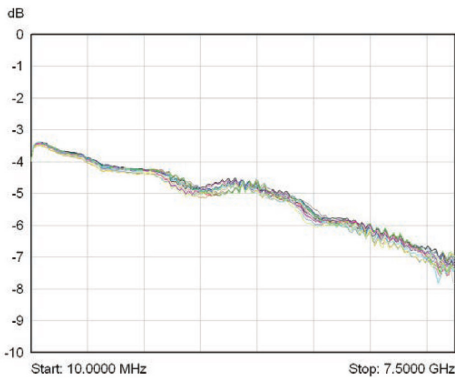


Figure 3: z48841 insertion loss all matrix paths up to 7.5 GHz

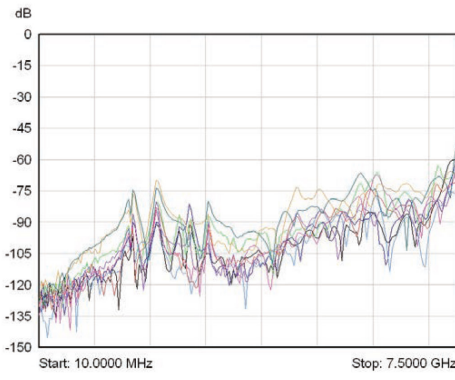


Figure 4: z48841 Crosstalk between adjacent channels all paths up to 7.5 GHz

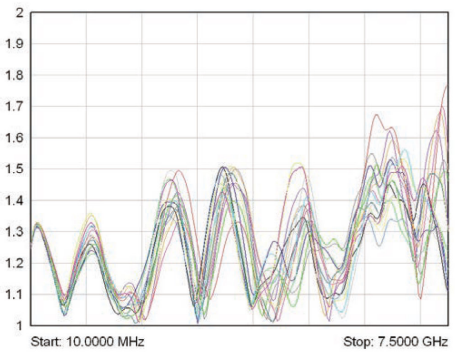


Figure 5: z48841 VSWR X to Y all paths up to 7.5 GHz

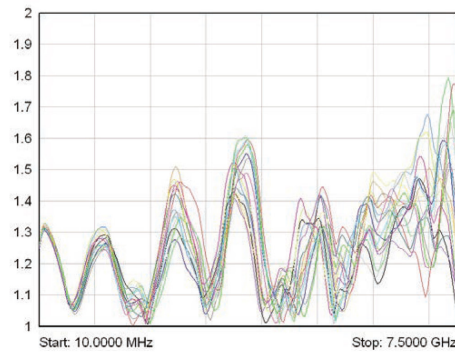


Figure 6: z48841 VSWR Y to X all paths up to 7.5 GHz

## Power Supplies

Voltage	Maximum Current
+3.3 V	0.03 A
+5 V	0.10 A
+12 V	0.00 A
-12 V	0.00 A

## Physical & Environmental

### Size & Weight

Specification	Value
Physical Size	4 slot 3U PXI Instrument

### Temperature & Humidity

Specification	Value
Operating Temperature	0° C to +55° C
Storage Temperature	-20° C to +75° C
Operating Humidity	Up to 90% non-condensing
Storage Humidity	Up to 90% non-condensing

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## Terminology

### Numeric Prefixes

When referring to numeric values, this document will use SI (International System of Units) and IEC (International Electrotechnical Commission) standard prefixes. Prefix definitions are in the following table.

Prefix	Multiplier
n (nano)	$1/(1000 \times 1000 \times 1000)$
$\mu$ (micro)	$1/(1000 \times 1000)$
m (milli)	$1/1000$
k/K (kilo)	1000
M (Mega)	$1000 \times 1000$
G (Giga)	$1000 \times 1000 \times 1000$
Ki (Kibi)	1024
Mi (Mebi)	$1024 \times 1024$
Gi (Gibi)	$1024 \times 1024 \times 1024$

### Differential Outputs

**Single-Ended** is used to refer to the output on either the + or – output pin

**Differential** is used to refer to the output between the + and- output pins

**Vd indicates** Volts differential

**Vppd** indicates Volts peak-to-peak differential



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## Safety

This product is designed to meet the requirements of the following standard of safety for electrical equipment for measurement, control and laboratory use: EN 61010-1

## Electromagnetic Compatibility

CE Marking EN 61326-1:1997 with A1:1998 and A2:2001 Compliant

FCC Part 15 (Class A) Compliant

## Emissions

EN 55011	Radiated Emissions, ISM Group 1, Class A, distance 10 m, emissions < 1 GHz
EN 55011	Conducted Emissions, Class A, emissions < 30 MHz Immunity
EN 61000-4-2	Electrostatic Discharge (ESD), 4 kV by Contact, 8 kV by Air
EN 61000-4-3	RF Radiated Susceptibility, 10 V/m
EN 61000-4-4	Electrical Fast Transient Burst (EFTB), 2 kV AC Power Lines
EN 61000-4-5	Surge
EN 61000-4-6	Conducted Immunity
EN 61000-4-8	Power Frequency Magnetic Field, 30 A/m
EN 61000-4-11	Voltage Dips and Interrupts

## CE Compliance

This product meets the necessary requirements of applicable European Directives for CE Marking as follows:

73/23/EEC Low Voltage Directive (Safety)

89/336/EEC Electromagnetic Compatibility Directive (EMC)

See Declaration of Conformity for this product for additional regulatory compliance information.

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Doc: 1075-0078-001

June 2017 Rev 1