

SPDT SWITCH

MODEL 310-021001-001

Available as: 0.90" x 0.75" x 0.25" Connectorized Housing

Features

- Reflective SPDT Switch
- Wide Bandwidth 100 MHz - 22 GHz
- Fast Switching Speed: 100 ns Typical
- Integral TTL Driver
- Operating Temp. -55 °C to + 85 °C
- Environmental Screening Available

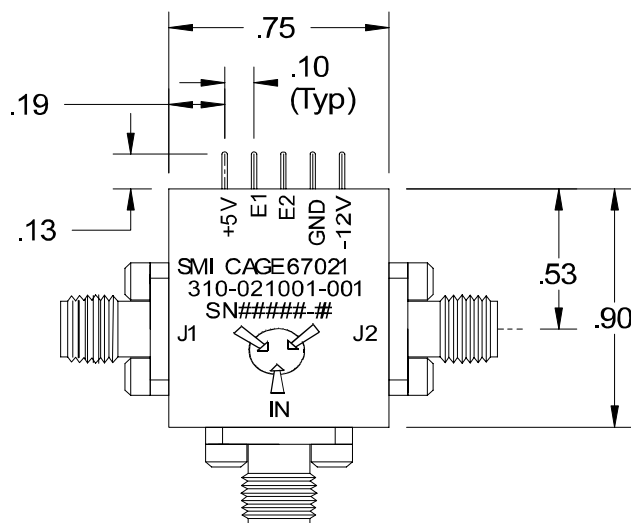
Absolute Maximum (No Damage) Ratings

Ambient Operating Temperature	-55°C to + 100 °C
Storage Temperature	-65°C to + 125 °C
Operating Case Temperature	+ 125 °C
DC Voltage	+ 6.0 / -12.5 Volts
Continuous RF Input Power	+30 dBm

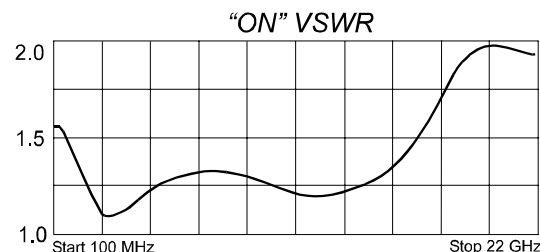
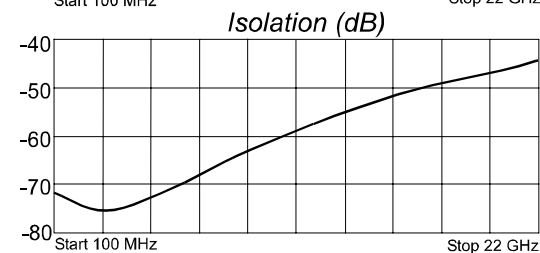
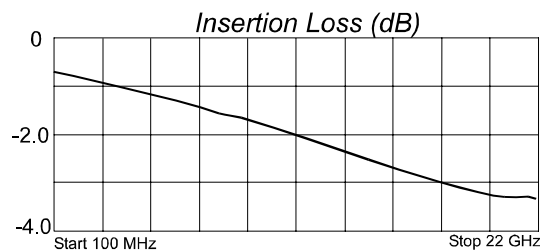
Specifications

CHARACTERISTIC	TYPICAL Ta = 25 °C	MIN/MAX Ta = -55 °C to +85 °C
Frequency	100 MHz - 22 GHz	100 MHz - 22 GHz
Insertion Loss (dB)		
100 - 12000 MHz	1.5	2.0 Max.
12000 - 18000 MHz	2.5	3.0 Max.
18000 - 22000 MHz	3.2	3.5 Max.
Isolation (dB)		
100 - 2000 MHz	75	70 Min.
2000 - 12000 MHz	65	50 Min.
12000 - 18000 MHz	55	40 Min.
18000 - 22000 MHz	45	25 Min.
RF Leakage (dB)	80	-
Isolation RF to / from DC (dB)	-	60 Min.
Isolation RF to / from Control (dB)	-	60 Min.
VSWR:		
In	1.5:1	2.0:1 Max.
Out	1.5:1	2.0:1 Max.
Input Power RF (dBm)	-	+30.0 Min.
1 dB Compression (dBm)	-	+27.0 Min.
Switching Speed (50% TTL to 90% RF) (nsec)	100	-
DC Bias		
(Vdc)	+5 / -12	+5 / -12 Max.
(mA)	+50 / -25	+100 / -40 Max.
Intercept Points (dBm)		
2nd Order IP (Input)	—	+40 Min.
3rd Order IP (Input)	—	+37 Min.

Note: Care should always be taken to effectively ground the case of each unit.



Typical Performance Data



Legend — +25 °C

Truth Table

TTL Control Inputs		Switch Position
E2	E1	
0	1	IN to J1
1	0	IN to J2
1	1	"ALL OFF"



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Rev. 5/13/10

SP4T SWITCH

MODEL 310-021004-001

Available as: 2.24" x 0.90" x 0.40" Field Removable
SMA Connectorized Housing

Features

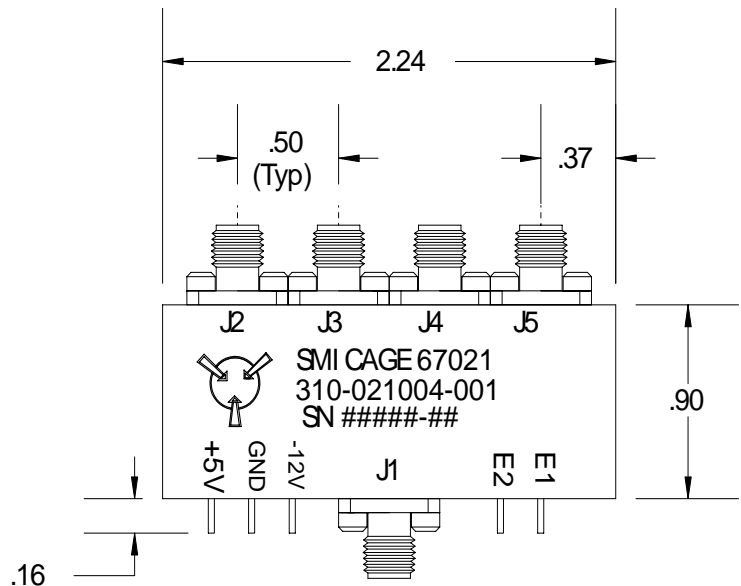
- Absorptive SP4T Switch
- Wide Bandwidth: 2 to 8 GHz
- Fast Switching Speed: 100 ns Typical
- Integral TTL Driver
- Operating Temp.: -55 °C to + 85 °C
- Environmental Screening Available

Maximum Ratings

Ambient Operating Temperature -55°C to + 100 °C
 Storage Temperature -65°C to + 125 °C
 Operating Case Temperature + 125 °C
 DC Voltage + 6.0 / -15 Volts
 Continuous RF Input Power +30 dBm

Specifications

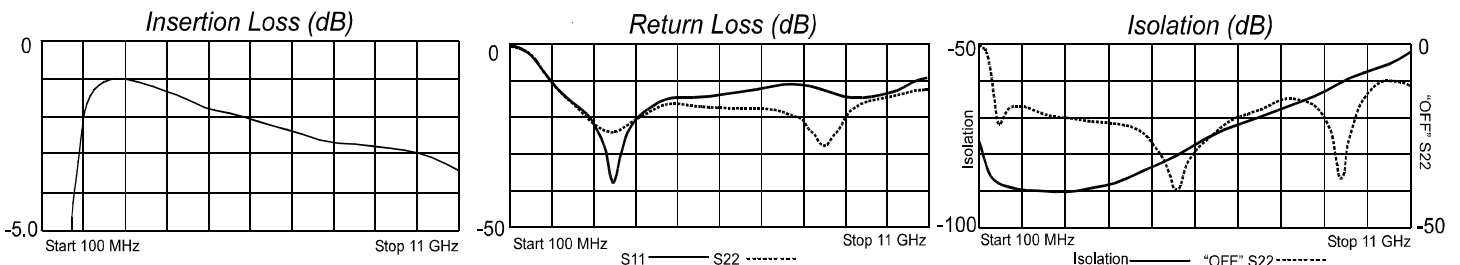
CHARACTERISTIC	TYPICAL Ta = 25 °C	MIN/MAX Ta = -55 °C to +85 °C
Frequency Range	2 - 8 GHz	2 - 8 GHz
Insertion Loss (dB)		
2 - 4 GHz	1.6	2.0 Max.
4 - 8 GHz	2.5	3.0 Max.
8 - 10 GHz	3.0	3.5 Max.
Isolation (dB)		
2 - 4 GHz	85	80 Min.
4 - 8 GHz	70	65 Min.
8 - 10 GHz	60	55 Min.
VSWR:		
Input	1.5:1	1.8:1 Max.
Output "ON"	1.5:1	1.8:1 Max.
Output "OFF"	1.5:1	1.8:1 Max.
RF Leakage (dB)	80	-
Isolation RF to / from DC (dB)	-	60 Min.
Isolation RF to / from Control (dB)	-	60 Min.
Switching Speed (50% TTL to 90% RF) (nsec)	100	-
DC (Vdc)	+5 / -12	+5 / -12
Bias (mA)	+50 / -40	+80 / -40
Input 1 dB Compression (dBm)	-	+27 Min.
Intercept Points (dBm)		
2nd Order IP (Input)	-	+40 Min.
3rd Order IP (Input)	-	+37 Min.



Truth Table

TTL Control Input		Switch Position
TTL1	TTL2	RF1 to RF2
0	0	J1 to J2
0	1	J1 to J3
1	0	J1 to J4
1	1	J1 to J5

Typical Performance Data



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Rev.
3/30/07

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SP5T SWITCH

MODEL 310-021005-001

Available as: 2.74" x 0.90" x 0.40" Field Removable
SMA Connectorized Housing

Features

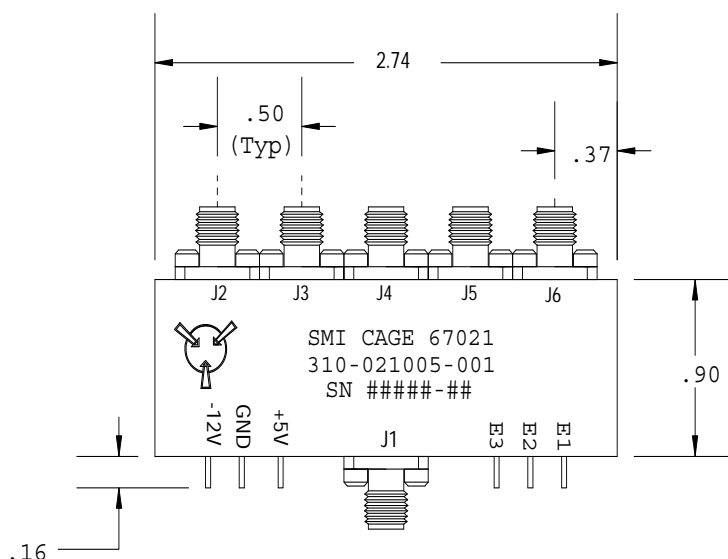
- Reflective SP5T Switch
- Wide Bandwidth: 10 MHz to 22 GHz
- Fast Switching Speed: 100 ns Typical
- Integrated TTL Driver
- Operating Temp.: -55 °C to +85 °C
- Environmental Screening Available

Maximum Ratings

Ambient Operating Temperature -55°C to +100 °C
 Storage Temperature -65°C to +125 °C
 Operating Case Temperature +125 °C
 DC Voltage + 6.0 / -15 Volts
 Continuous RF Input Power +30 dBm

Specifications

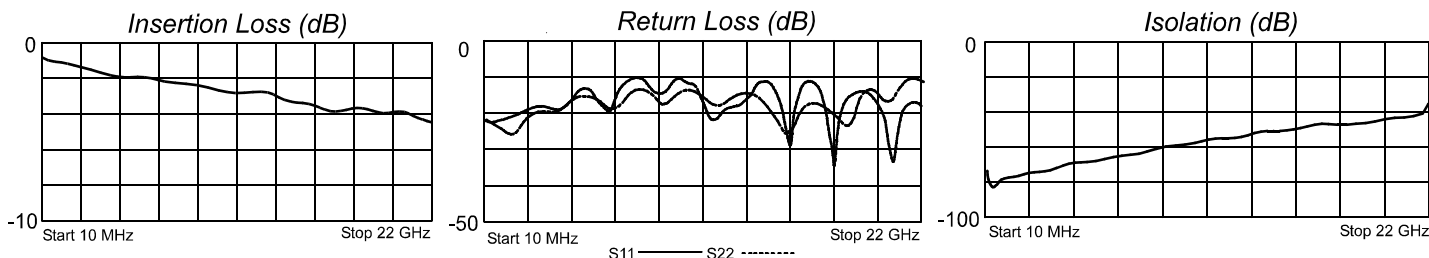
CHARACTERISTIC	TYPICAL Ta = 25 °C	MIN/MAX Ta = -55 °C to +85 °C
Frequency Range	10 MHz - 22 GHz	10 MHz - 22 GHz
Insertion Loss (dB)		
0.010 - 2.0 GHz	1.3	1.65 Max.
2.0 - 18.0 GHz	3.0	3.5 Max.
18.0 - 22.0 GHz	3.2	3.6 Max.
Isolation (dB)		
0.010 - 2.0 GHz	70	65 Min.
2.0 - 18.0 GHz	45	40 Min.
18.0 - 22.0 GHz	40	35 Min.
VSWR	1.8:1	2.0:1 Max.
RF Leakage (dB)	75	-
Isolation RF to / from DC (dB)	-	60 Min.
Isolation RF to / from Control (dB)	-	60 Min.
Switching Speed (nSec) (50% TTL to 10/90% RF)	100	-
DC Bias (Vdc)	+5 / -12	+5 / -12
Bias (mA)	+150 / -50	+200 / -100
Input 1 dB Compression (dBm)	-	+27 Min.
Intercept Points (dBm)		
2nd Order IP (Input)	-	+40 Min.
3rd Order IP (Input)	-	+37 Min.



Truth Table

TTL Control Input			Switch Position
TTL1	TTL2	TTL3	RF1 to RF2
0	0	0	J1 to J2
0	0	1	J1 to J3
0	1	0	J1 to J4
0	1	1	J1 to J5
1	0	0	J1 to J6

Typical Performance Data



Rev 1/15/2014

SP3T SWITCH

MODEL 310-021008-001

Available as: 1.90" x 1.00" x 0.40" Field Removable SMA Connectorized Housing

Features

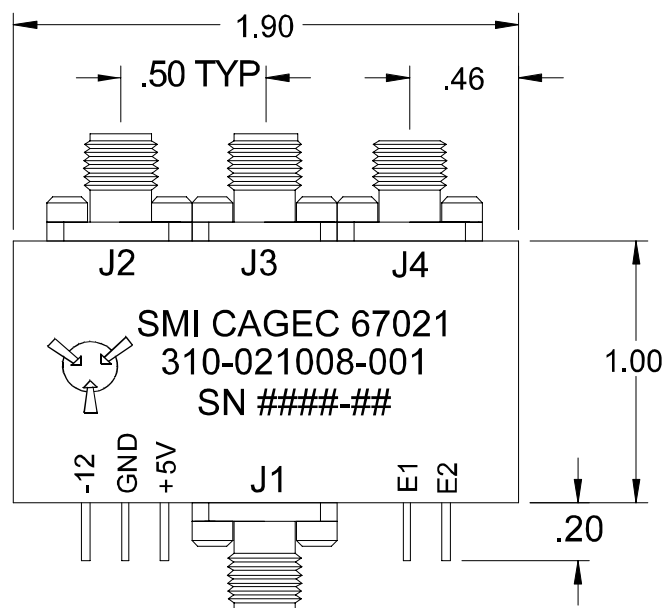
- Reflective High Isolation SP3T Switch
- Wide Bandwidth: 1 to 18 GHz
- Isolation 70 dB at 18 GHz
- Fast Switching Speed: 100 ns Typical
- Integral TTL Driver
- OperatingTemp.: -40 °C to + 85 °C
- Environmental Screening Available

Absolute Maximum (No Damage) Ratings

Ambient Operating Temperature -55°C to +100 °C
 Storage Temperature -65°C to +125 °C
 Operating Case Temperature +125 °C
 DC Voltage +5.5 / -15 Volts
 Continuous RF Input Power +30 dBm

Specifications

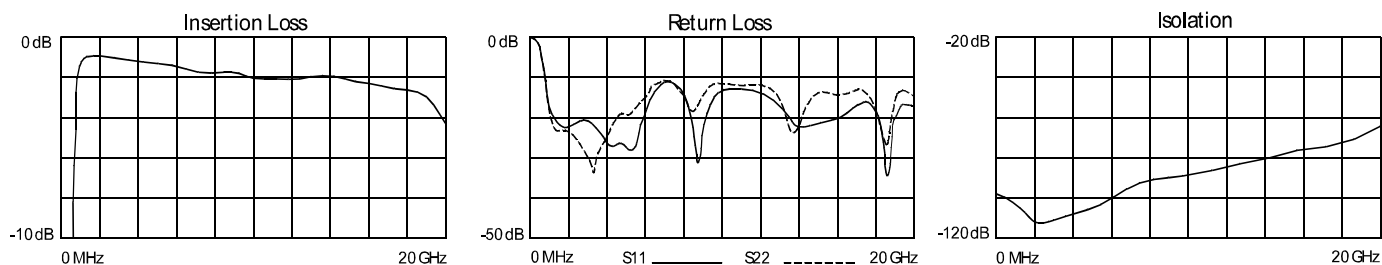
CHARACTERISTIC	TYPICAL Ta = 25 °C	MIN/MAX Ta = -40 °C to +85 °C
Frequency Range	1 - 18 GHz	1 - 18 GHz
Insertion Loss (dB)		
1 - 8 GHz	1.5	2.0 Max.
8 - 16 GHz	2.0	2.5 Max.
16 - 18 GHz	2.5	3.0 Max.
Isolation (dB)		
1 - 8 GHz	95	85 Min.
8 - 16 GHz	80	70 Min.
16 - 18 GHz	70	65 Min.
VSWR:		
Input	1.7:1	2.0:1 Max.
Output "ON"	1.7:1	2.0:1 Max.
RF Leakage (dB)	80	-
Isolation RF to / from DC (dB)	-	60 Min.
Isolation RF to / from Control (dB)	-	60 Min.
Switching Speed (50% TTL to 90% RF) (nsec)	100	-
DC Bias (Vdc) (mA)	+5 / -12	+5 / -12
	+100 / -40	+150 / -40
Input 1 dB Compression (dBm)	-	+27 Min.
Intercept Points (dBm)		
2nd Order IP (Input)	-	+40 Min.
3rd Order IP (Input)	-	+37 Min.



Truth Table

TTL Control Input		Switch Position
E2	E1	
0	0	All Off
0	1	J1 to J2
1	0	J1 to J3
1	1	J1 to J4

Typical Performance Data



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5/4/10