

Phase Shifter Subsystem Model 8401-8

8 x 8 Butler Matrix

Description

The 8401-8 Series Butler matrix is a high performance 8x8 Butler matrix, covering several frequency bands from 0.5 to 8GHz. It can transfer the signal reciprocally from any of 8 inputs ports to any of 8 output ports, with high phase accuracy, amplitude balance, low insertion loss, and high port-to-port isolation.

Features

- Compact, modular microstrip design and construction
- Good channel condition number
- Custom frequency ranges and configurations are available. Please consult the factory.



Applications

- WiFi, WiMAX, 4G/5G LTE Testing, Link Simulation
- MIMO Testing
- Multipath Simulation and Performance Evaluation
- Antenna Array Beam-forming
- Interferometer System Simulation and Testing

	F _{min} (GHz)	F _{max} (GHz)	Insertion Loss (dB)	VSWR	Output Phase Accuracy	RF Input Power (dBm)	Isolation (dB)
8401-8	2.0	6.0	13 typ / 16 max	1.5:1 typ 2.0:1 max	±20° max at 4.2 GHz	37	16 typ / 12.5 max
8401-8-5	0.7 1.7 3.2	1.7 3.2 6	10 typ / 12 max* 11 typ / 13 max 12 typ / 16 max*	1.4:1 max 1.7:1 max 2.2:1 max	±20° max at 5 GHz	37	20 typ / 17 max 17 typ / 14 max 15 typ / 10 max
8401-8-6 PRELIMINARY	0.5 2.0	2.0 6.0	10 typ / 13 max 11 typ / 16 max	1.5:1 max 2.2:1 max	±20° max at 5 GHz	37	20 typ / 17 max 17 typ / 12 max
8401-8E	2.4	7.25	13.5 typ. / 16 max	1.8:1 typ. 2.2:1 max	±20° max at 6.5 GHz	37	20 typ / 12 max

Impedance	50 Ohms
Connectors	SMA (F) All ports
Weight	~565 grams
Temperature Range, Operating	-20°C to +70°C

* Insertion Loss
0.7 - 0.85 GHz: 10 typ. / 15dB max
5.8 - 6.0 GHz: 12typ. / 18dB max

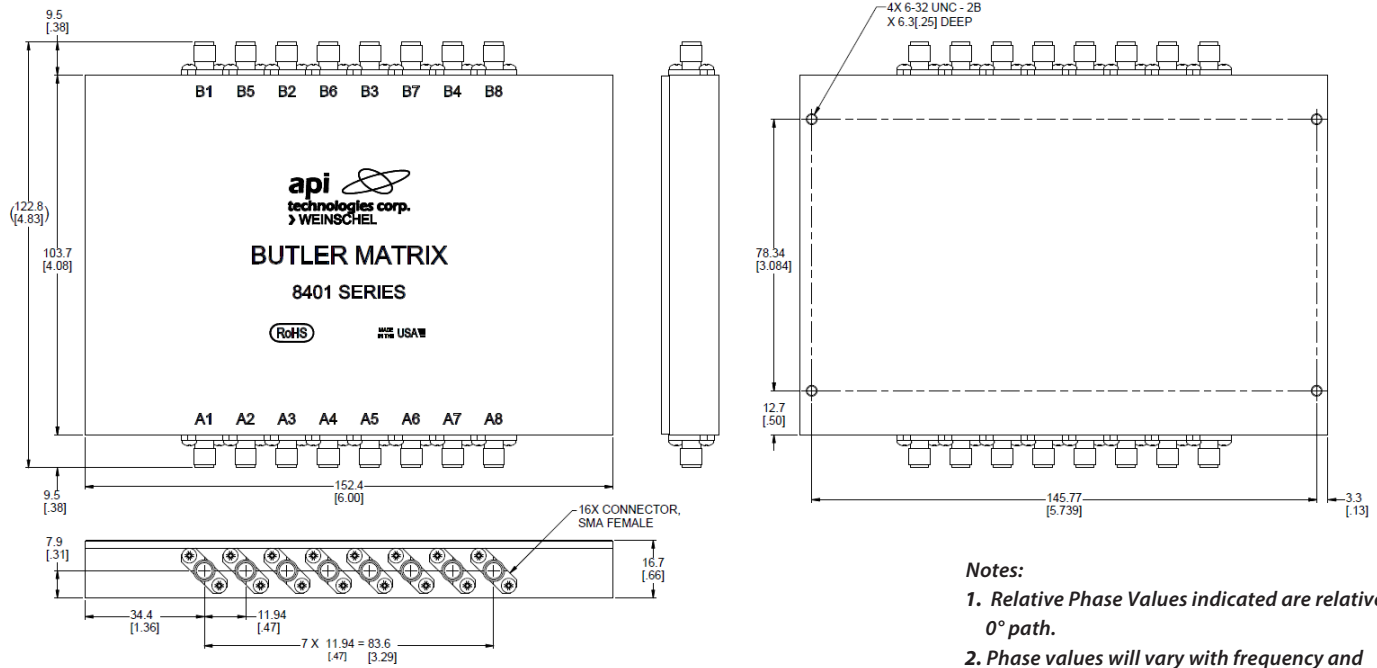
Phase Shifter Subsystem Model 8401-8

8 x 8 Butler Matrix

Mechanical Outline and Functional Block Diagram

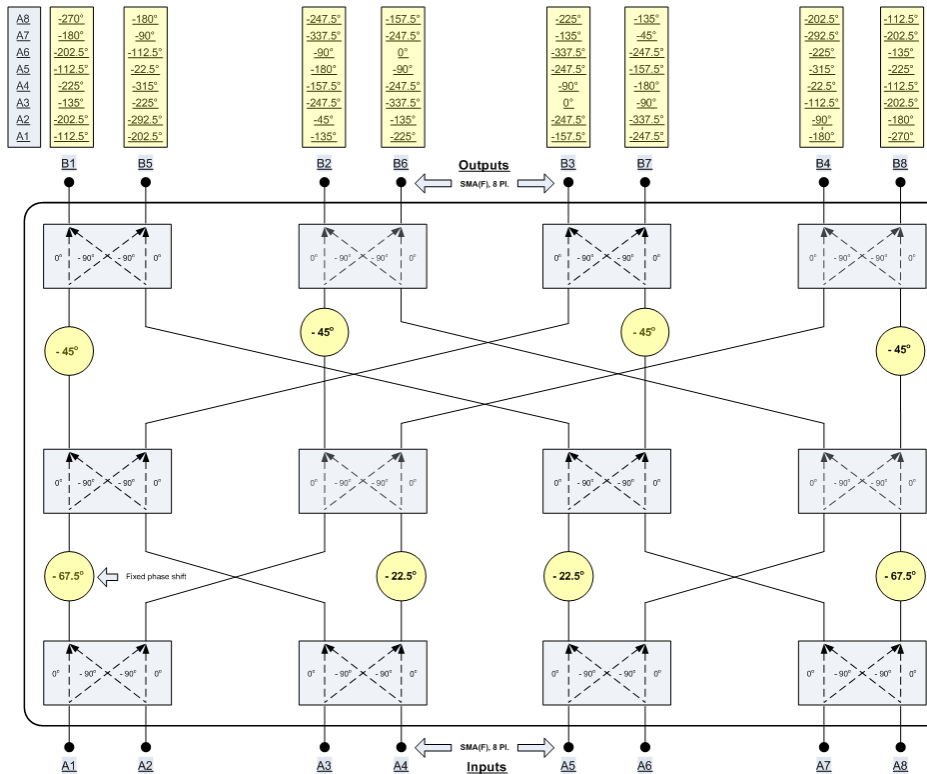
Note:

1. All dimensions given in MM [inches].



Notes:

1. Relative Phase Values indicated are relative to a 0° path.
2. Phase values will vary with frequency and are dependent on the RF path.
3. For reference, the data is stored in the sNp file relative to the mechanical layout of the butler matrix, rather than the reference designator of the part. The table below correlates reference designators to ports in the sNp file.



Ref Port Designation	S16P Port in SNP file
A1	1
A2	2
A3	3
A4	4
A5	5
A6	6
A7	7
A8	8
B1	9
B2	11
B3	13
B4	15
B5	10
B6	12
B7	14
B8	16