

## BALUN

## BAL-0520

### Features

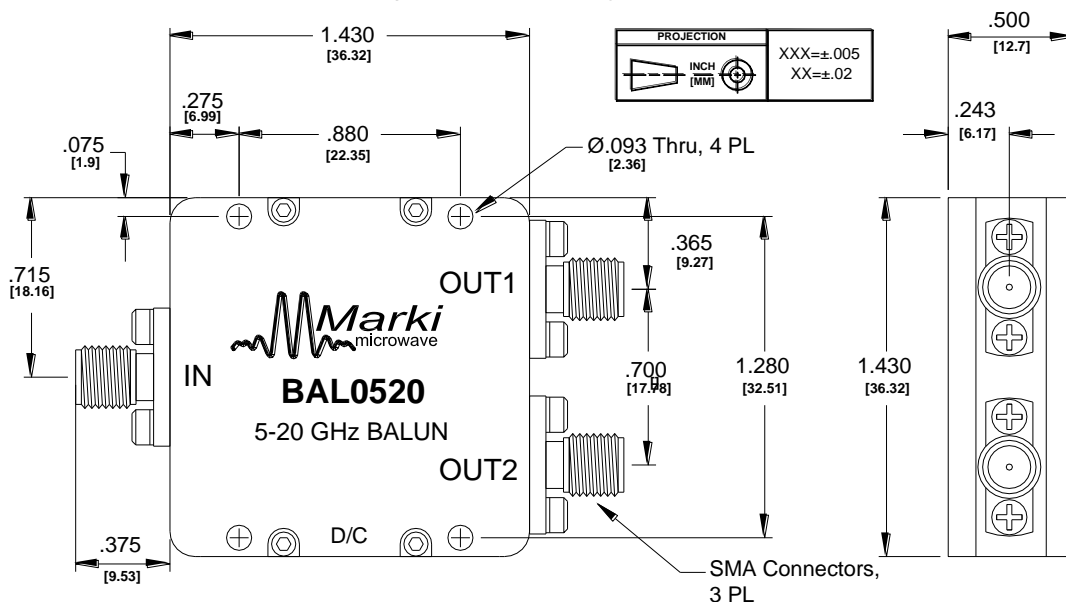
- 5 to 20 GHz Balun (Balanced to Unbalanced Transformer)
- Tuned for Optimal Phase/Amplitude Balance
- Provides 50  $\Omega$  to 100  $\Omega$  Differential Transformation
- Applications: Antenna Feeds, Device Testing, General Lab Use
- [BAL-0520.s3p](#)

**Electrical Specifications** - Specifications guaranteed from -55 to +100°C, measured in a 50 $\Omega$  system.

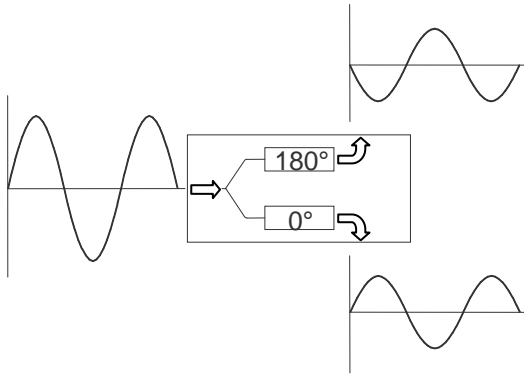
Parameter	Frequency Range	Min	Typ	Max	
Insertion Loss (dB)	5 to 20 GHz		4.5	6.5	
Nominal Phase Shift (Degrees)			180		
Amplitude Balance (dB)			$\pm 0.2$	$\pm 0.6$	
Phase Balance (Degrees)			$\pm 3$	$\pm 8$	
Common Mode Rejection (dB)			22	30	
Isolation (dB)				6	
VSWR (Input)				1.4	
VSWR (Output)				2.6	
Total Input Power (W)					5
Weight (g)				38	

Model Number	Description
BAL-0520	5 to 20 GHz Balun with SMA connectors <sup>1</sup>

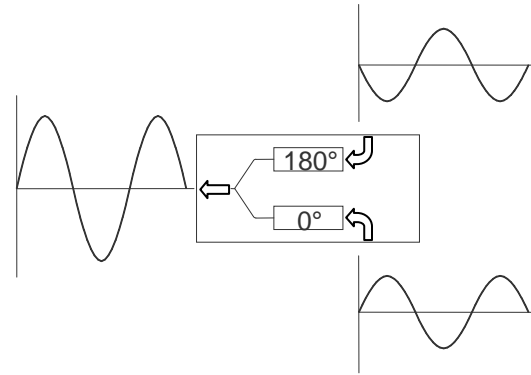
<sup>1</sup>Default is SMA female connectors. Consult factory for other connector options.



**Block Diagram**



**Single ended to differential**



**Differential to single ended**

**Typical Performance**

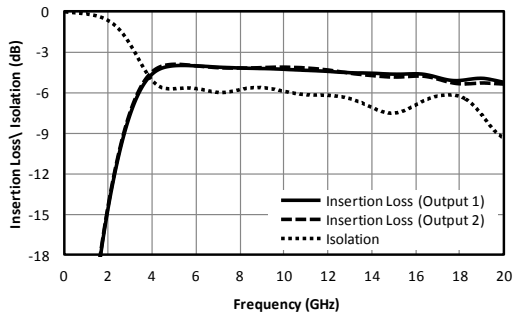


Fig. 1. Common to output port insertion loss and output to output port Isolation.

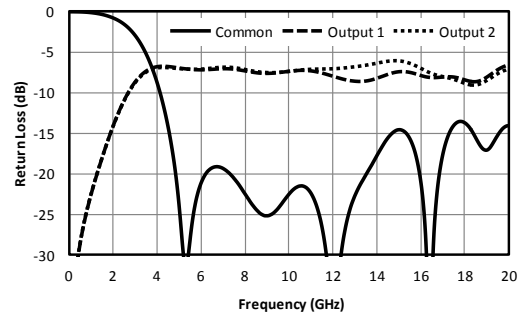


Fig. 2. Return loss for common port and output ports.

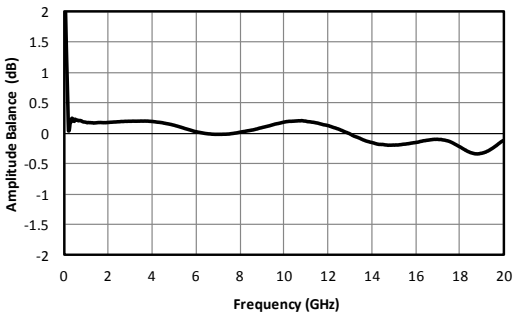


Fig. 3. Amplitude balance between output ports.

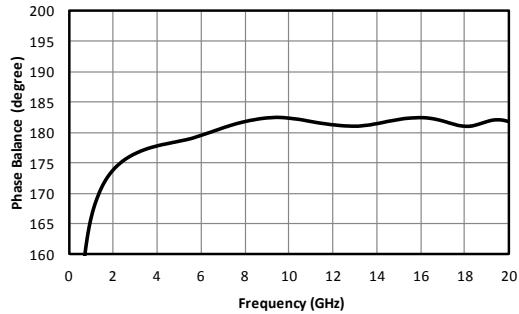


Fig. 4. Phase balance between output ports.

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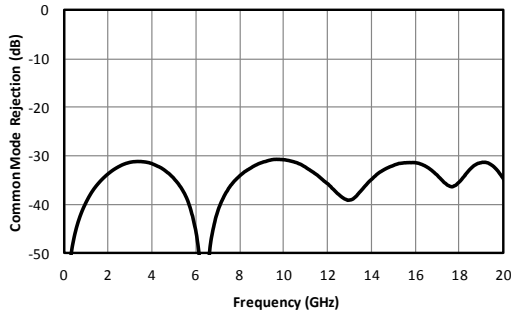


Fig. 5. Common mode rejection.

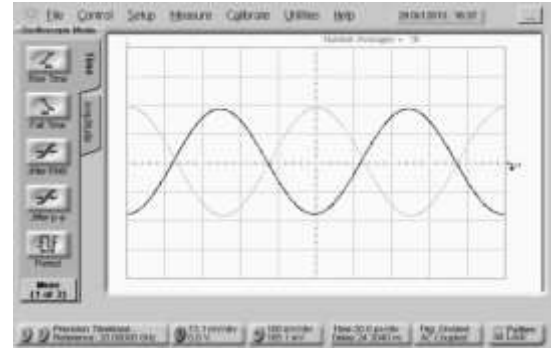





Fig. 6. Oscilloscope measurements with 10 GHz sine wave input. Excellent amplitude and phase balance are apparent. Note that the BAL-0520 is not suitable for baseband data, as any data input will be high pass filtered, particularly on the inverted side.

## DC Interface

Port	Description	DC Interface Schematic
Common Port / In (Unbalanced)	The common port is DC open.	
Out 1 / 0° Port (Balanced)	The 0° port is DC shorted to the 180° port and DC open to ground.	
Out 2 / 180° Port (Balanced)	The 180° port is DC shorted to the 0° port and DC open to ground.	

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