

# **BIAS TEE**

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**Revision XX**

**Actox Corporation**

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## REVISION HISTORY

<u>Date</u>	<u>Person</u>	<u>Change</u>	<u>Revision</u>
5-10-07		Report Release	1

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**1.0. PURPOSE:**

To define the specification of bias tee.

**2.0. SCOPE:**

It's just preliminary to define more detailed sheet for BIP Corporation.

**3.0. REFERENCE DOCUMENTS:**

N/A

## 4.0. GENERAL DESCRIPTION:

4.1 Scope: It's important to define the specification of bias tee and to show the compatibility for another customer. And so we approach the design to two way as below section.

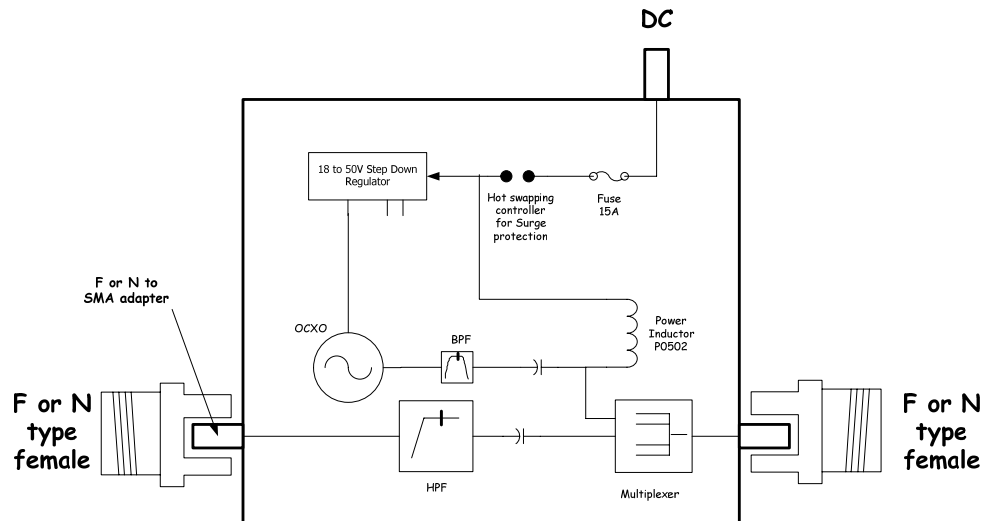
4.1.01 Standard type

4.1.02 Extended type

4.2 **BIAS TEE STANDARD:** Most simple design approach for BIAS TEE. The main goal of this is to get the aspects such as : **Internal 10MHz supplement and Over current protection.**

### **BIAS TEE Standard diagram:**

- \* SPDT : Single- Pole Double- Throw (Switch)
- \* DC : Power supply ( BNC, BANANA type )



4.3.3 The specification sheet for **“BIAS TEE Standard”**.

TECHNICAL SPECIFICATIONS			
MECHANICAL INTERFACE	IN	RF Signal IN	SMA
			50ohm ( N-type FEMALE ) 75 Ohm ( F-type In FEMALE )
		DC	BNC & BANNA TYPE
	OUT	RF Signal OUT	50ohm ( N-type OUT FEMALE ) 75 Ohm ( F-type OUT FEMALE )
ELECTRICAL CHARACTERISTICS	RF frequency	IN	950 to 1700 MHz
		OUT	950 to 1700 MHz + DC + 10MHz Reference
	DC		18 - 54 VDC 200W max. VDC ±5%
		RIPPLE OVERCURRENT PROTECTION	MAXIMUM DRIVE OVER 200 W
	VSWR	IN	2 : 1 MAX.
		OUT	2 : 1 MAX.
	INSERTION LOSS	RF	1dB @ MAX.
		REFERENCE(10MHz)	1dB @ MAX.
	10MHz REFERENCE SIGNAL	OUTPUT POWER	> -5 dBm @ Output Port
		PHASE NOISE	-115 dBc/Hz max. @ 10 Hz -140 dBc/Hz max. @ 0.1 kHz -150 dBc/Hz max. @ 1 kHz -155 dBc/Hz max. @ 10 kHz
STABILITY		< 3 X 10 <sup>-11</sup>	
		< ± 5x 10 <sup>-9</sup>	
		Short term stability (Allan deviation) per 1 sec	
WARM-UP TIME			
		Frequency stability vs. load changes	
		Frequency stability vs. power supply changes	
		@ 25°C within accuracy of < ±1x 10 <sup>-7</sup>	
ENVIRONMENTAL	HUMIDITY		95%
	TEMPERATURE RANGE	OPERATING	-40 deg C to +55 deg C
		STORAGE	-40 deg C to +75 deg C
	VIBRATION & ACCELERATION		1 TO 500 Hz / 10g
	SHOCK		
	DIMENSION & HOUSING		60 (L) x 60 (W) x 17 (H) mm
	WEIGHT		TBD
			Condense

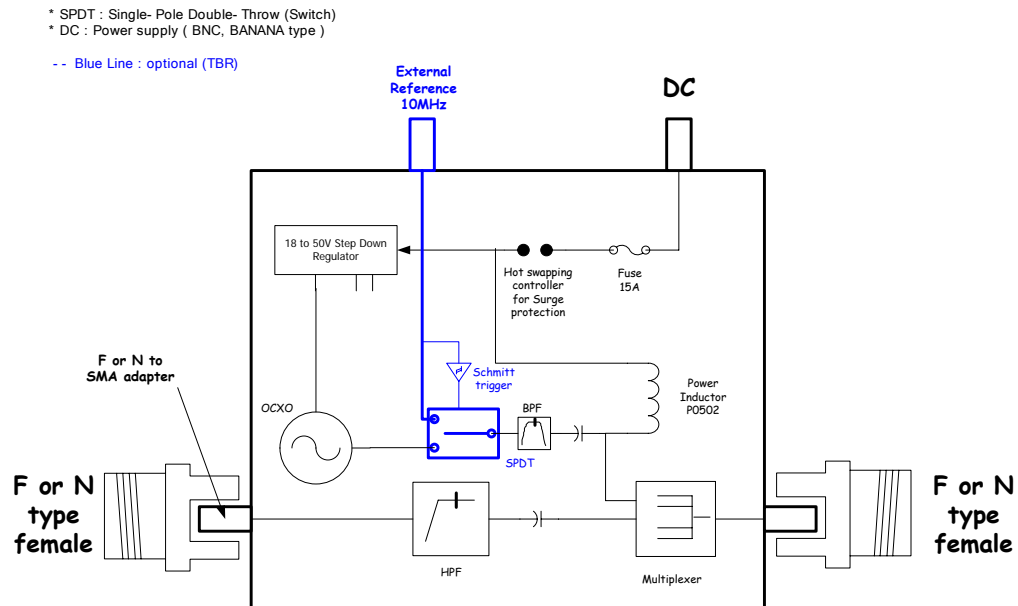
4.3 **BIAS TEE EXTENDED:** An additive design approach for BIAS TEE. The main goal of this is to get the aspects such as :

4.3.01 **Internal 10MHz supplement and Over current protection.**

4.3.02 **External 10MHz and Internal OCXO Switching design**

4.3.03 **Internal OCXO output power tuning deign : about +20dB**

**BIAS TEE Extended diagram:**



4.4.3 The specification sheet for **“BIAS TEE Extended”**.

; Red font shows an additive option for BIAS TEE

TECHNICAL SPECIFICATIONS				
MECHANICAL INTERFACE	IN	RF Signal IN	SMA	
			50ohm ( N-type FEMALE ) 75 Ohm ( F-type In FEMALE )	
		REFERENCE(10MHz)	BNC & BANNA TYPE	Switcherble internal & external referenece (TBR)
		DC	BNC & BANNA TYPE	Feederthrou (TBR)
OUT	RF Signal OUT	50ohm ( N-type OUT FEMALE ) 75 Ohm ( F-type OUT FEMALE )	Switcherble N OR F TYPE	
ELECTRICAL CHARACTERISTICS	RF frequency	IN	950 to 1700 MHz	
		OUT	950 to 1700 MHz + DC + 10MHz Reference	
	DC		18 - 54 VDC 200W max. VDC ±5%	SURGE & ELECTRICAL SHOCK protection
		RIPPLE OVERCURRENT PROTECTION	MAXIMUM DRIVE OVER 200 W	
	VSWR	IN	2 : 1 MAX.	
		OUT	2 : 1 MAX.	
	INSERTION LOSS	RF	1dB @ MAX.	
		REFERENCE(10MHz)	1dB @ MAX.	
	10MHz REFERENCE SIGNAL	OUTPUT POWER	> -5 dBm @ Output Port	-Tunerble range +20dB (-OPTIONAL)
		PHASE NOISE	-115 dBc/Hz max. @ 10 Hz -140 dBc/Hz max. @ 0.1 kHz -150 dBc/Hz max. @ 1 kHz -155 dBc/Hz max. @ 10 kHz	
STABILITY		< 3 X 10 <sup>-11</sup>	Short term stability (Allan deviation) per 1 sec	
		< ± 5x 10 <sup>-9</sup>	Frequency stability vs. load changes	
			Frequency stability vs. power supply changes	
WARM-UP TIME		< 3 min	@ 25°C within accuracy of < ±1x 10 <sup>-7</sup>	
ENVIRONMENTAL	HUMIDITY		95%	Condense
	TERMPERATURE RANGE	OPERATING	-40 deg C to +55 deg C	
		STORAGE	-40 deg C to +75 deg C	
	VIBRATION & ACCELARATION		1 TO 500 Hz / 10g	
	SHOCK			
	DIMENSION & HOUSING		60 (L) x 60 (W) x 17 (H) mm	TBD
WEIGHT		TBD		