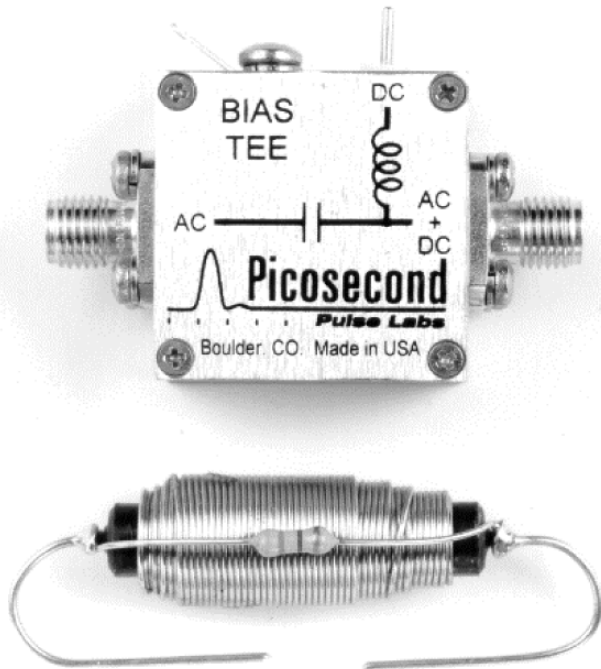


# 7 GHz Bias Tee

## PSPL5546 Datasheet

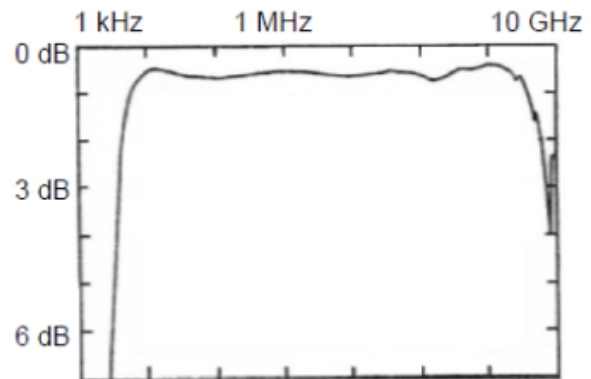


The PSPL5546 is a broadband, coaxial bias insertion tee and DC blocking capacitor. It was designed to have a very low cutoff frequency of only 3.5 kHz. It passes fast rise pulses with a minimum of waveform distortion. Its rise time is 45 ps. The frequency response is very flat, and the -3 dB bandwidth extends from 3.5 kHz to 7 GHz. The PSPL5546 is supplied with a 1 mH choke and terminal strip for connection to the DC bias.

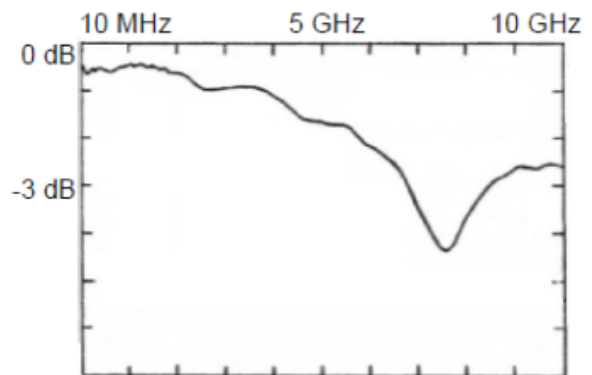
### Key performance specifications

- 3.5 kHz to 7 GHz
- 45 ps rise time
- 50 V, 500 mA

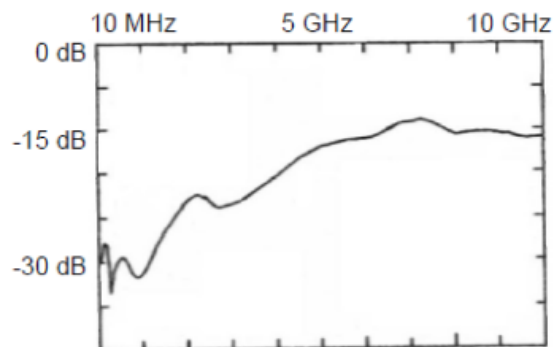
### Typical performance



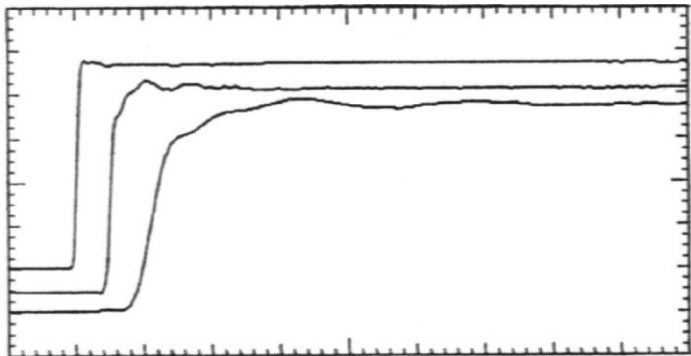
1 db/div log plot to 10 GHz Insertion Loss



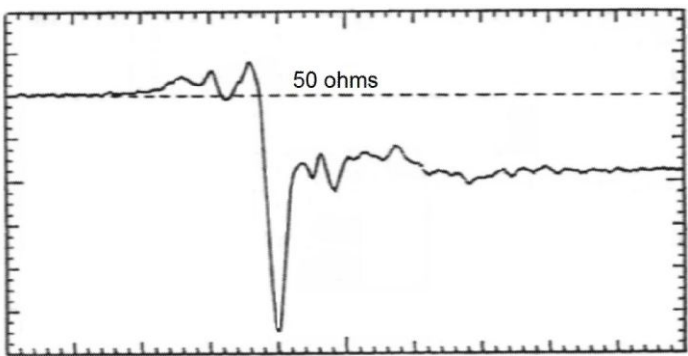
1 db/div log plot to 10 GHz Insertion Loss



5 dB/div log plot to 10 GHz Return Los



Top to bottom: 1 ns/div, 200 ps/div, and 50 ps/div. Response to 20 ps rise time input step



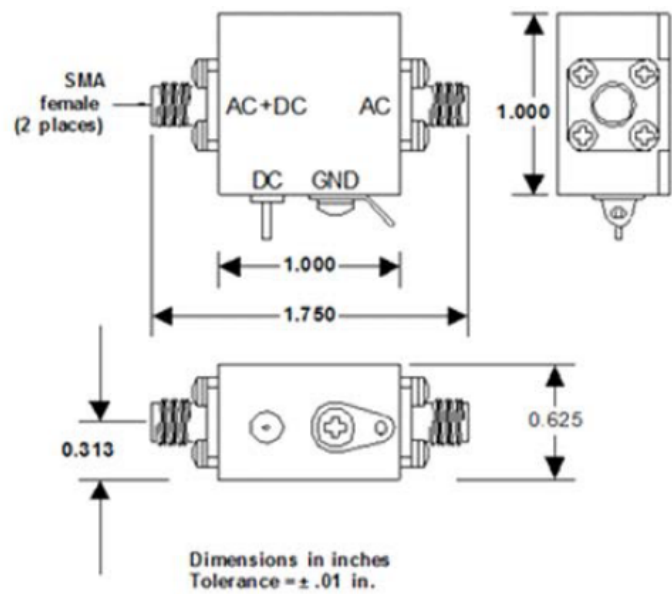
2.5% rho/div and 200 ps/div. 35 ps rise time input step

Specifications

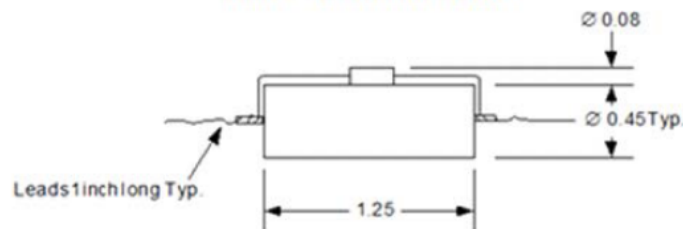
Parameter	Symbol	Units	Minimum	Typical	Maximum	Comments
Impedance	Z	ohms		50		
Upper 3 dB frequency	$f_{c,h}$	GHz	4	7		
Lower 3 dB frequency	$f_{c,l}$	kHz		3.5		
Rise time	$t_r$	ps		45	75	10 – 90%
Insertion loss	$S_{21}$	dB		0.5		
Input (AC) Return Loss	$S_{11}$	dB		23		f = 100 MHz
Refl. Coefficient (35 ps TDR)	$\Gamma$	%		-5		t > 200 ps
DC voltage	V	Volts			50	
DC current	I	mA			500	
Capacitance	C	$\mu$ F		0.9		- 50%, + 80%
Inductance	L	mH		1.34		+/- 30% <sup>1</sup>
Resistance	R	ohms		1.5		
RF power	P	W			2	Average power
Isolation	$S_{13}$	dB		30		
DC path bandwidth	$f_{c,DC}$	kHz		4.5		
RF Connectors	SMA jacks (f)					
DC Connector	Solder pin					
Warranty	One Year					

<sup>1</sup> A 1 mH choke is supplied with the bias tee. It is to be wired in series directly to the DC in solder terminal on the coax module. This is a high impedance point. Avoid using long wire, especially coax, for this connection. Do not locate the choke close to ground. Excessive stray capacitance will cause a resonance that will appear as a dip in the insertion loss between 1 and 10 MHz.

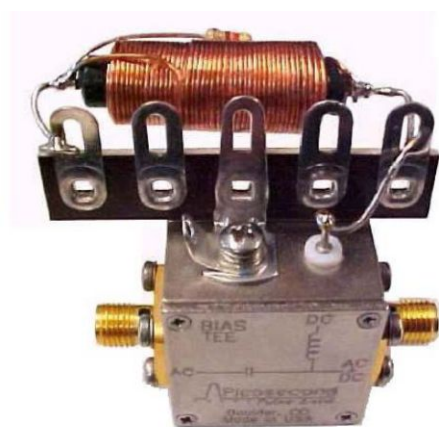
Mechanical dimensions



1 mH External Inductor



Note: The external inductor has an irregular shape. This sketch shows the maximum dimensions of the outline.



Suggested assembly of the external inductor and terminal strip

