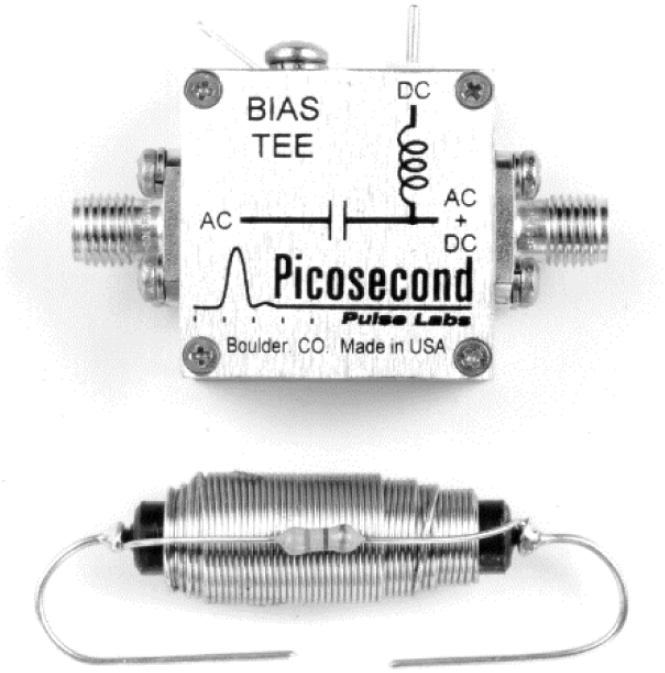
7 GHz Bias Tee

PSPL5546 Datasheet

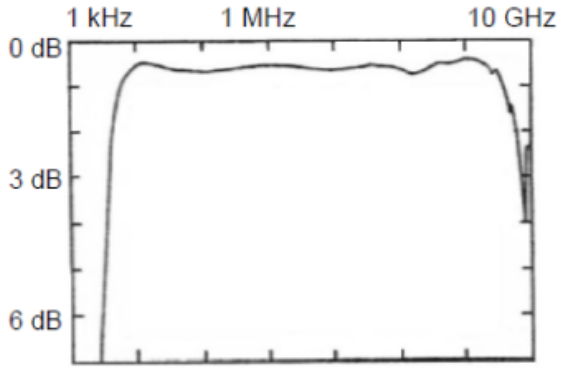


The PSPL5546 is a broadband, coaxial bias insertion tee and DC blocking capacitor. It was designed to have a very low cutoff frequency of only 3.5 kHz. It passes fast rise pulses with a minimum of waveform distortion. Its rise time is 45 ps. The frequency response is very flat, and the -3 dB bandwidth 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.

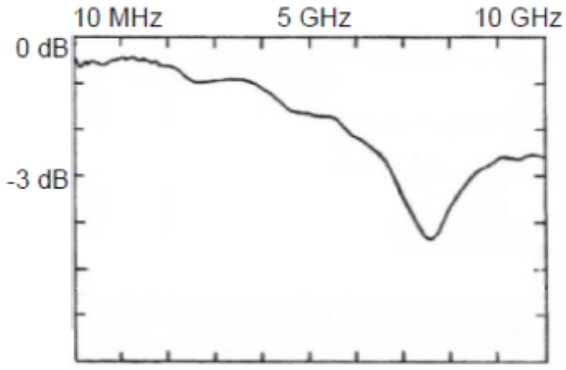
Key performance specifications

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

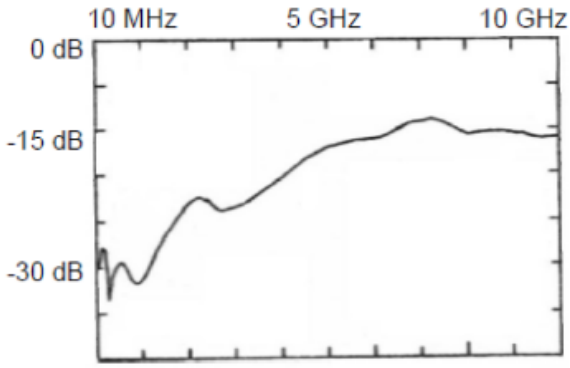
Typical performance



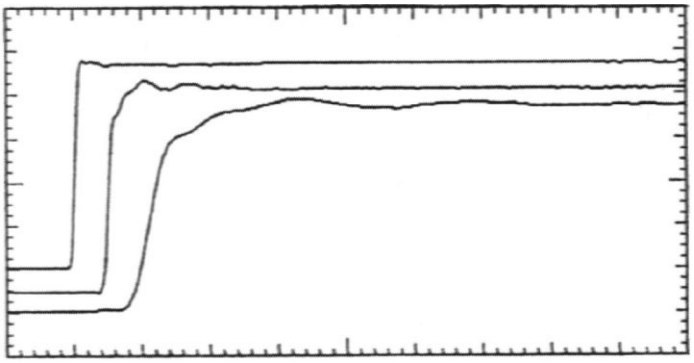
1 db/div log plot to 10 GHz Insertion Loss



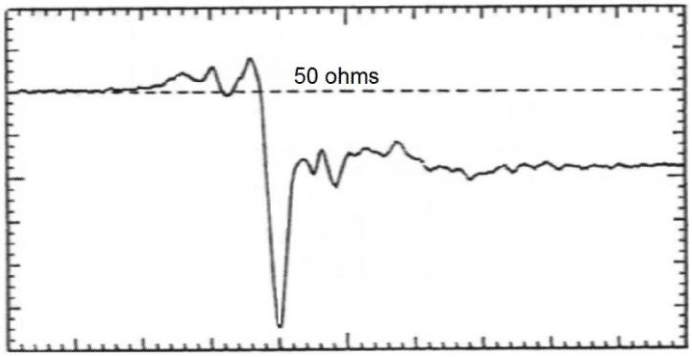
1 db/div log plot to 10 GHz Insertion Loss



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



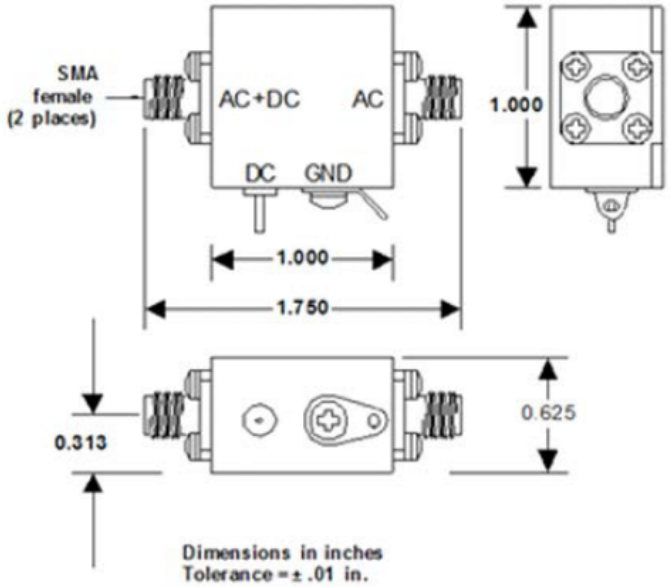
2.5% rho/div and 200 ps/div. 35 ps rise time input step

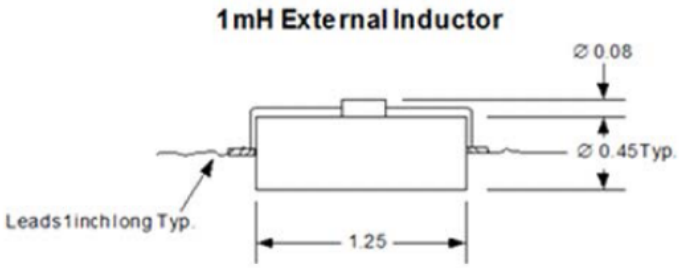
Specifications

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)	Γ	%		-5		t > 200 ps
DC voltage	V	Volts			50	
DC current	I	mA			500	
Capacitance	C	µF		0.9		- 50%, + 80%
Inductance	L	mH		1.34		+/- 30% [1]
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					

[1] 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





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

Ordering information

Models

PSPL5546	BIAS TEE, 7 GHz, 50 V

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