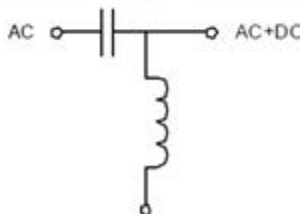


Ultra-Broadband Bias Tee

PSPL5542 Datasheet



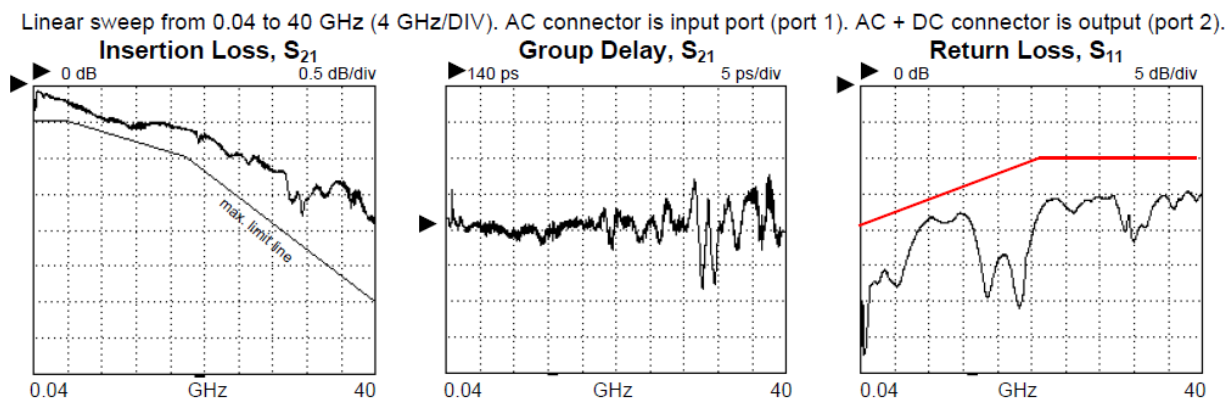
The Model PSPL5542 is an ultra-broadband, coaxial bias insertion tee and DC blocking capacitor that passes ultra-fast pulses with very low waveform distortion. Its rise time is only 7 ps, and its frequency response is flat over many decades from 10 kHz to beyond 50 GHz. It is available with either 2.92 mm (40 GHz) or 2.4 mm (50 GHz) connectors. Its small package makes this bias tee ideal for 40 Gbit data systems as well as broadband RF and microwave applications.



Key performance specifications

- 10 kHz to > 50 GHz
- 7 ps rise time
- 16 V, 100 mA
- Available with 2.92mm or 2.4 mm connectors

Microwave frequency response



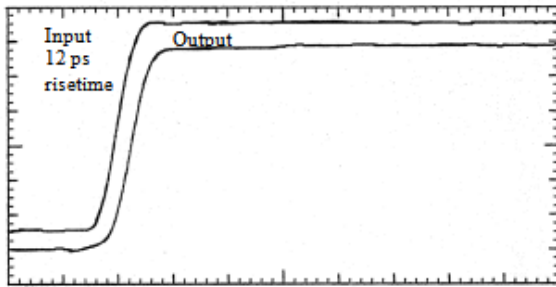
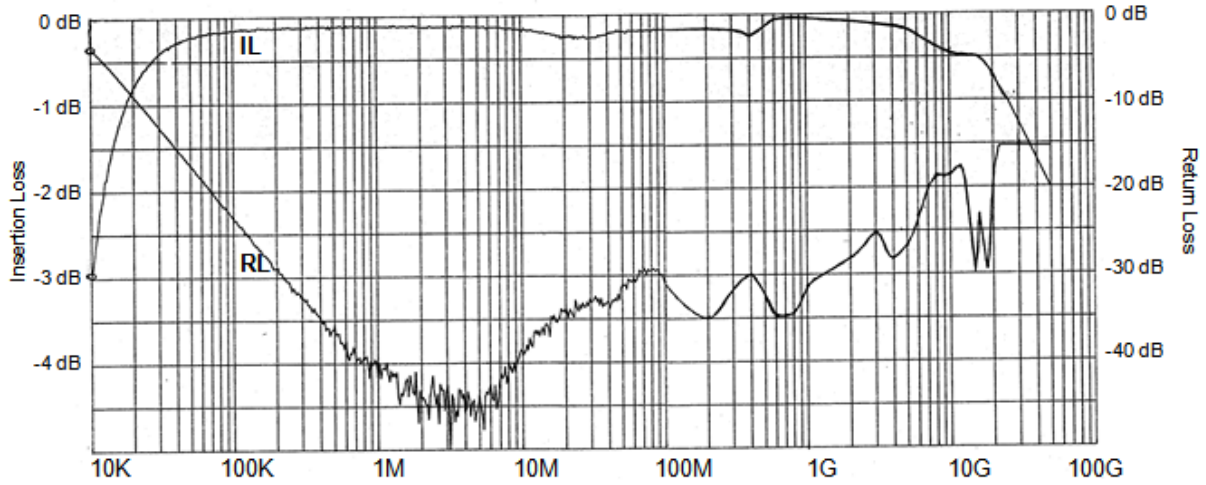
Specifications

Parameter	Symbol	Units	Min	Typical	Max	Comments
Impedance	Z	Ohms		50		
Upper 3 dB frequency	$f_{c,h}$	GHz	40			2.92 mm option
			50			2.4 mm option
Lower 3 dB frequency	$f_{c,l}$	kHz		10		
Rise time	t_r	ps		7		10 – 90%
Insertion loss See S_{21} plot	S_{21}	dB		2 at 40 GHz		2.92 mm option
				2 at 50 GHz		2.4 mm option
Return loss See S_{11} plot	S_{11}	dB				See plot for limits
DC voltage	V	Volts			16	
DC current	I	mA			100	DC port
Capacitance	C	μ F		0.22		
Inductance	L	mH		1.5		DC port
Resistance	R	Ohms		5.6		DC port
RF power	P	W			5	Avg. $f < 10$ GHz
Isolation	S_{13}	dB	50			$f > 100$ MHz AC port to DC port
DC path bandwidth				8 kHz		
Delay	T_d	ps		140		AC to AC+DC port
Warranty	One Year					

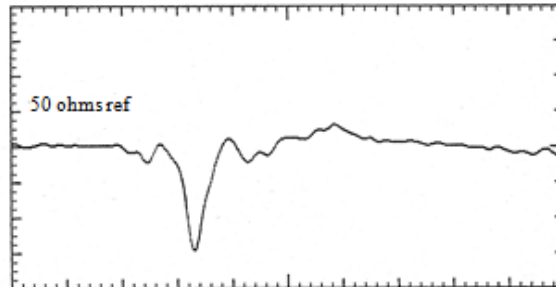
Note: Maximum and minimum values are based on manufacturing test limits at 25 °C

Typical frequency domain response

Log sweep from 10 kHz to 50 GHz. Insertion loss scale is 0.5 dB/div. Return loss is 5 dB/div.

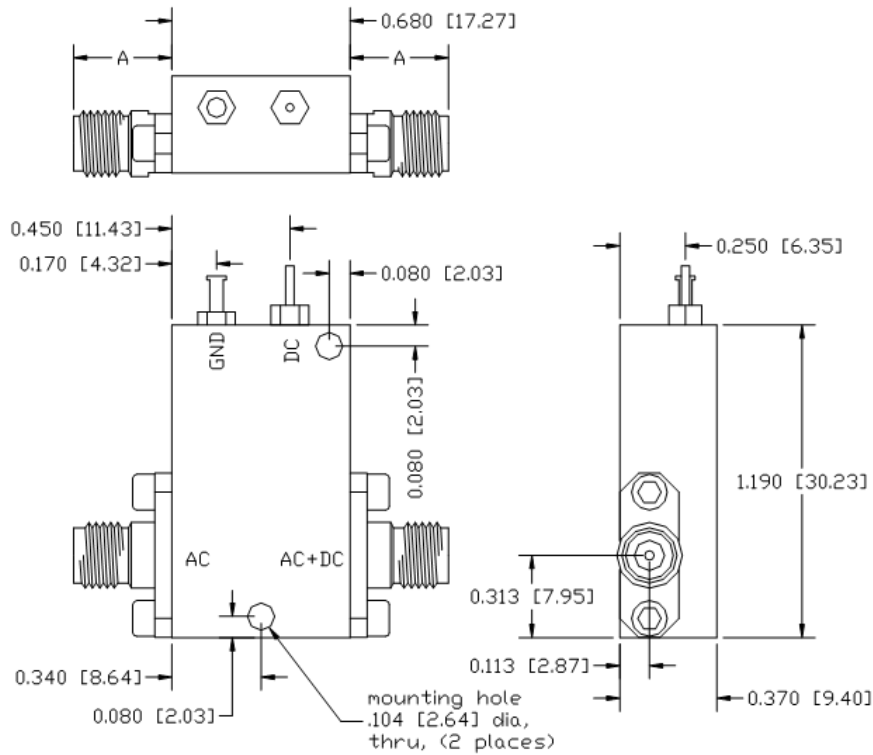


Step Response, 20ps/div



2% rho/div, 100ps/div
25ps TDR of AC input port

PSPL5542 Mechanical dimensions



Connector Type	Dimension A
2.92mm	.375 [9.53]
2.4mm	.430 [10.92]

All dimensions in inches and [millimeters]
Tolerance = ±.005 inches [0.13mm]

Ordering information

Model	Description
PSPL5542	BIAS TEE, 40GHz, 16V

Options

- Opt. 240JJ Female 2.4 mm connectors on AC and AC+DC ports, solder pin on DC port
- Opt. 292JJ Female 2.92 mm connectors on AC and AC+DC ports, solder pin on DC port
- Opt. 292SMB Female 2.92 mm connectors on AC and AC+DC ports, SMB on DC port

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