

18 GHz Attenuator

PSPL5510 Datasheet



The PSPL5510 Attenuators address a need that has been totally ignored by other microwave component manufacturers who specify their products in the frequency domain, but ignore the time domain responses. For time domain measurements, it is important to also know the transient response of attenuators used in a test set-up. These SMA attenuators have 8 ps risetimes and are recommended for measuring pulses with risetimes of 25 ps or slower. For frequency domain measurements, the useful frequency range is DC to 18 GHz. The 6 dB, 12 dB, 14 dB, and 20 dB values are popular for use as oscilloscope attenuators because they give simple, integer, voltage ratios of 2x, 4x, 5x, and 10x, respectively.

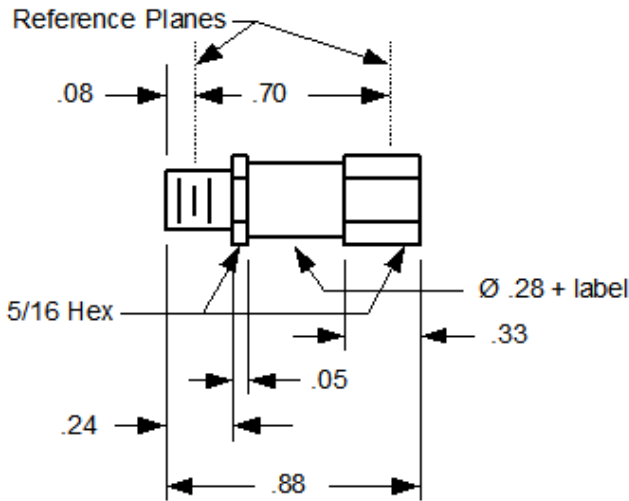
Key performance specifications

- SMA DC to 18 GHz
- 8 ps Risetime

Specifications

Parameter ¹	Value
Values available	1,2, 3, 6, 10, 12, 14, and 20 dB
Frequency range	DC to 18 GHz
Connectors	SMA jack (f) & plug (m)
Rise time (10% to 90%)	8 ps typical, when tested with 20 ps rise time pulse
Impedance - DC	50 Ω, < ±1 Ω typical, +7.5 Ω / -6.5 Ω maximum
Delay	74 ps, 1 – 12 dB (see Typical performance delay plots) 83 ps, 14 & 20 dB (see Typical performance delay plots)
DC Attenuation accuracy	±0.3 dB, (1 – 6 dB) ±0.5 dB, (10 – 20 dB), maximum limits
Return loss –DC VSWR – DC	> 40 dB typ, 23 dB minimum < 1.02 typ, 1.15 maximum
Attenuation Flatness (see Typical performance plots)	< ±0.3 dB, (1-6 dB) < ±0.6 dB, (10-20 dB)
Return Loss – AC (see Typical performance plots)	> 23 dB, f < 4 GHz > 15 dB, f < 18 GHz
Maximum Power Input	2 W avg at 25 °C, derated linearly to 0.5 W at 125C, 250 W peak, < 5 μs pulse
Temperature Range	-65 to +125 °C operating and storage, 0.0001 dB/dB/°C temp. coeff.
Length & Weight	19.2 mm, 4.1 gm (1-12 dB) 22.5 mm, 4.9 gm (14 & 20 dB), 5/16" hex body
Material	stainless steel
Serial Number	no
Warranty	One Year

5510-110 SMA Attenuators
14dB to 20dB

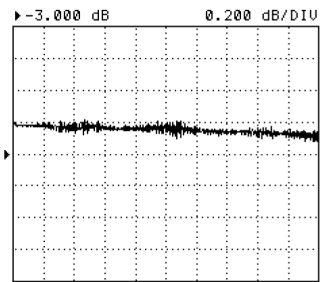


¹ All parameters listed are typical unless maximum or minimum guaranteed limits are provided.

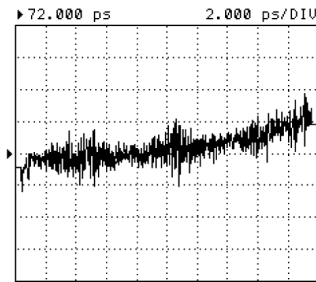
Typical performance

PSPL5510
Opt. 3DB

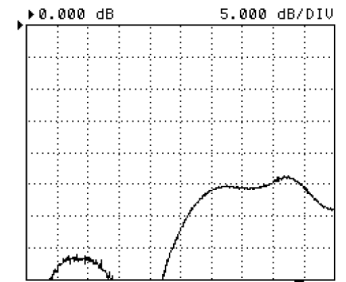
Insertion Loss, S_{21}
0.2 dB/div, 2 GHz/div



Group Delay, S_{21}
2 ps/div, 2 GHz/div

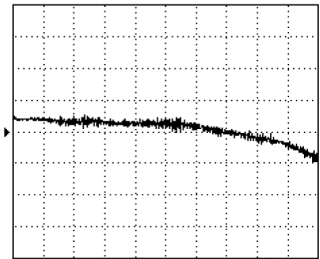


Return Loss, S_{11}
5 dB/div, 2 GHz/div

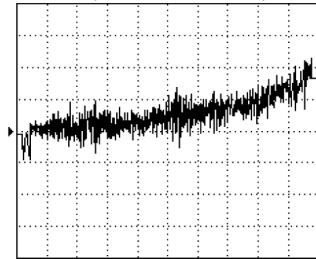


PSPL5510
Opt. 6DB

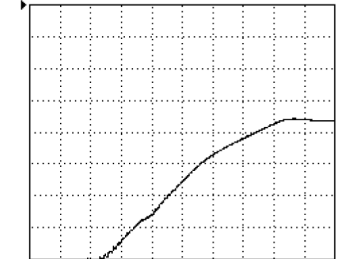
Insertion Loss, S_{21}
0.200 dB/DIV



Group Delay, S_{21}
2.000 ps/DIV

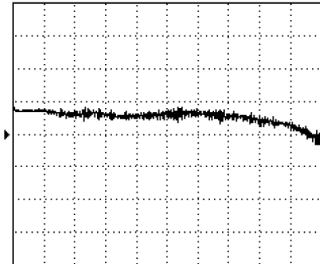


Return Loss, S_{11}
5.000 dB/DIV

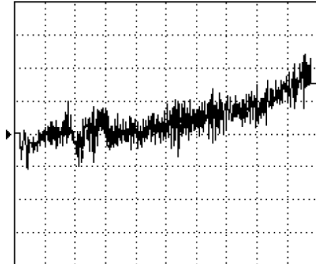


PSPL5510
Opt. 10DB

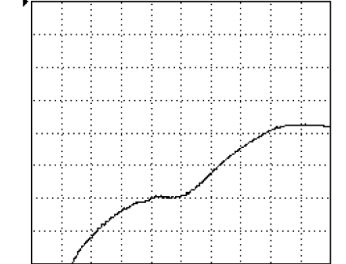
Insertion Loss, S_{21}
0.200 dB/DIV



Group Delay, S_{21}
2.000 ps/DIV

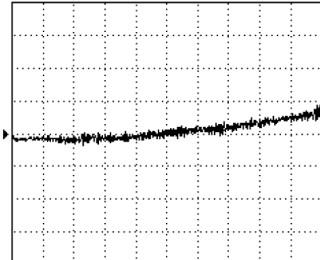


Return Loss, S_{11}
5.000 dB/DIV

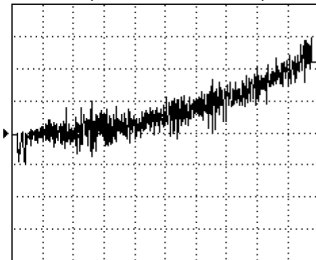


PSPL5510
Opt. 20DB

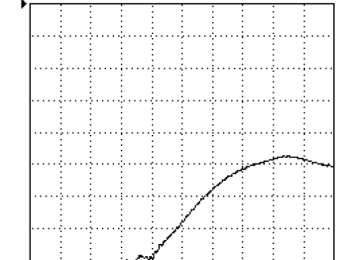
Insertion Loss, S_{21}
0.200 dB/DIV

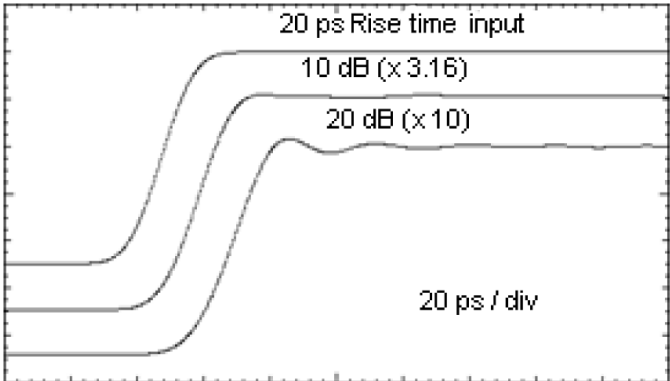
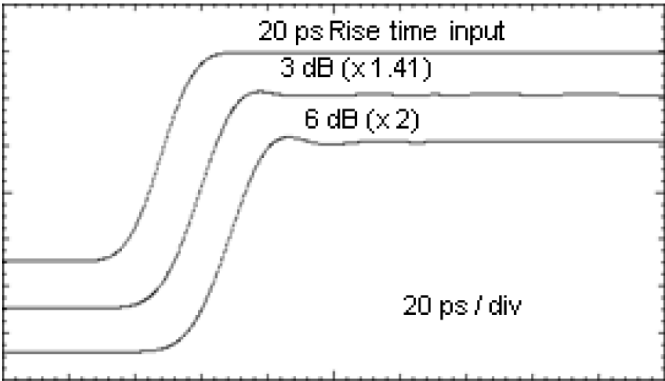


Group Delay, S_{21}
2.000 ps/DIV



Return Loss, S_{11}
5.000 dB/DIV





Ordering information

Models

PSPL5510	18 GHz Attenuator
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Options

Opt. 1DB	1 dB attenuation
Opt. 2DB	2 dB attenuation
Opt. 3DB	3 dB attenuation
Opt. 6DB	6 dB attenuation
Opt. 10DB	10 dB attenuation
Opt. 12DB	12 dB attenuation
Opt. 14DB	14 dB attenuation
Opt. 20DB	20 dB attenuation

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Finland +41 52 675 3777	France 00800 2255 4835*	Germany 00800 2255 4835*
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* European toll-free number. If not accessible, call: +41 52 675 3777

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