Programmable Attenuator PAH-4G/95-TTL

MTS-No.: 23909-01

Description

The PAH-4G/95-TTL from MTS Systemtechnik is designed for operations between 50 MHz and 4000 MHz. The attenuation of this unit is adjustable, continuously and without breaks from 0 to 95 dB in 0.25 / 0.5 dB steps. The inter-changeable in- and output ports are protected by internal blocking capacitors.
This attenuator can be used very flexible because of its compact design and the controlling via TTL interface (8 bit parallel).

Technical data:

1 RF-specifications:

1.1	Impedance		50 Ω	
1.2	Input power			
	- Absolute [1]		34 dBm max.	
	- Operating: Pulsed [2]		31 dBm max.	
	- Operating: CW		28 dBm max.	
1.3	Voltage rating		50 WVDC	
1.4	Frequency range		50 - 4000 MHz (50 - 6000 MHz on request)	
1.5	Attenuation		0 - 32 dB in 0.25 dB steps 32 - 95 dB in 0.5 dB steps	
		min.	**typ.**	**max.**
1.6	VSWR in / out			
	@ 50 - 700 MHz			
	@ 0 - 5 dB		1.45	1.8
	@ 5.25 - 95 dB		1.15	1.6
	@ 700 - 4000 MHz			
	@ 0 - 5 dB		1.25	1.65
	@ 5.25 - 95 dB		1.1	1.5
1.7	Insertion loss (IL)			
	@ 50 MHz		2.8 dB	3.1 dB
	@ 4000 MHz		5.8 dB	6.5 dB
1.8	IL derating / 20 MHz		0.015 dB	
1.9	Relative phase			
	@ 0 - 95 dB		90°	
1.10	Input IP3		55 dBm	
1.11	Switching speed		1 µs	
1.12	Attenuation accuracy		(negative means more attenuation)	
	@ 50 - 3000 MHz			
	@ 0.25 - 30 dB		±0.1 dB	±0.8 dB
	@ 30.25 - 60 dB		±0.4 dB	+1.5/-0.8 dB
	@ 60.5 - 95 dB		±0.8 dB	+2.5/-1.5 dB
	@ 3000 - 4000 MHz			
	@ 0.25 - 30 dB		0/-0.3 dB	±0.8 dB
	@ 30.25 - 45 dB		0/-1.1 dB	+0.8/-1.5 dB
	@ 45.5 - 60 dB		0/-1.1 dB	+0.8/-2.0 dB
	@ 60.5 - 85 dB		0/-1.9 dB	+1.5/-2.5 dB
	@ 85.5 - 95 dB		0/-1.9 dB	+1.5/-3.5 dB

2 Connections:

2.1	RF connectors	SMA female
2.2	Control connector	12pole male, type SMC Erni

3 General specifications:

3.1	Internal voltage (TTL)	5 VDC ±5 %
3.2	Power consumption	5 mW max.
3.3	Control	8 bit parallel (TTL)
3.4	Operating temperature	-40 °C - +85 °C
3.5	Storage temperature	-55 °C - +150 °C
3.6	Reference temperature of specifications (typ.)	+25 °C
3.7	Dimensions (without connections)	56.4 mm x 48.7 mm x 11.1 mm (LxWxH)
3.8	Case style	Milled aluminium enclosure
3.9	Colour	SurTec650 (Chrome alloy)
3.10	Weight	55 grams

4 Delivered parts:

PAH-4G/95-TTL
Datasheet
Drawing and connector pin assignment

5 Comments:

Warranty	12 months
RoHS-compliant	Yes

6 Recommended accessories:

RF-cables
Processor card

Notes: 1. Exceeding absolute maximum ratings may cause permanent damage.
2. Pulsed, 2.5 % duty cycle of 4620 µs period, 50 Ω. Operation between operating maximum and absolute maximum for extended periods may reduce reliability.

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Typical measurements:

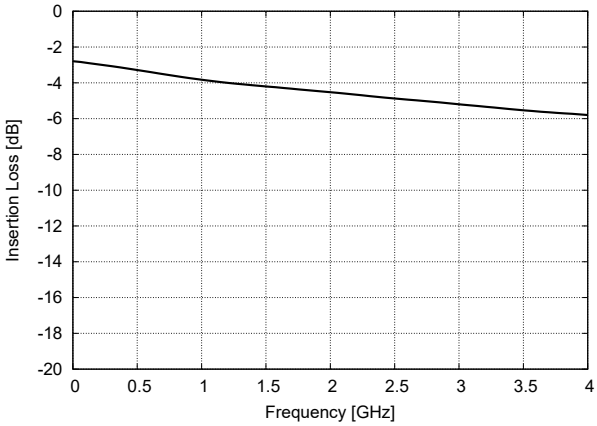

Fig. 1: Input port to output port insertion loss

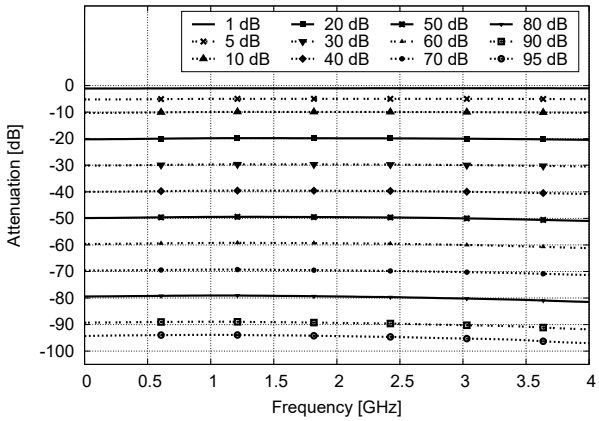

Fig. 2: Attenuation relative to insertion loss

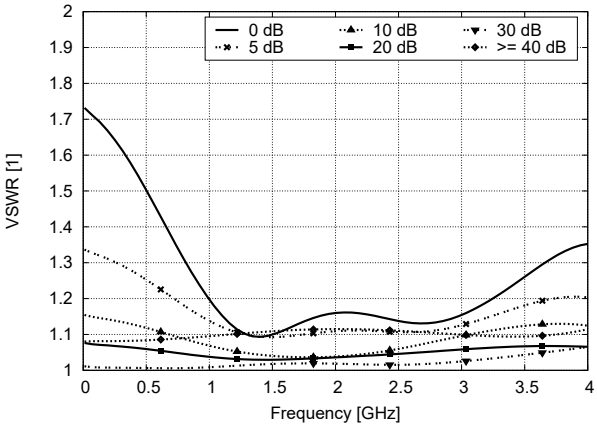

Fig. 3: VSWR for input and output ports

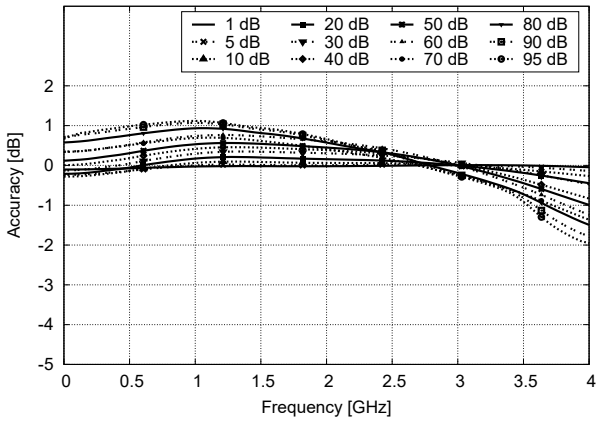

Fig. 4: Attenuation accuracy

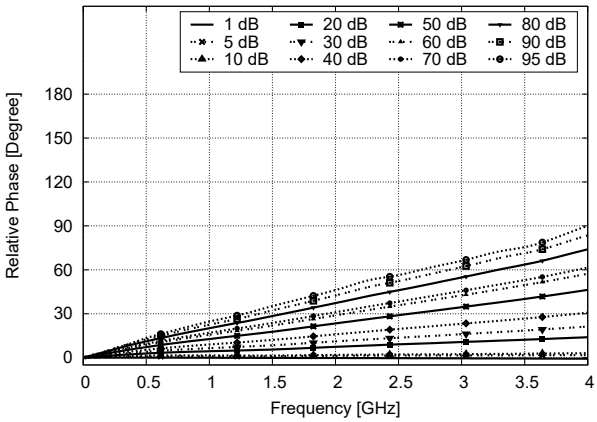

Fig. 5: Phase relative to insertion loss

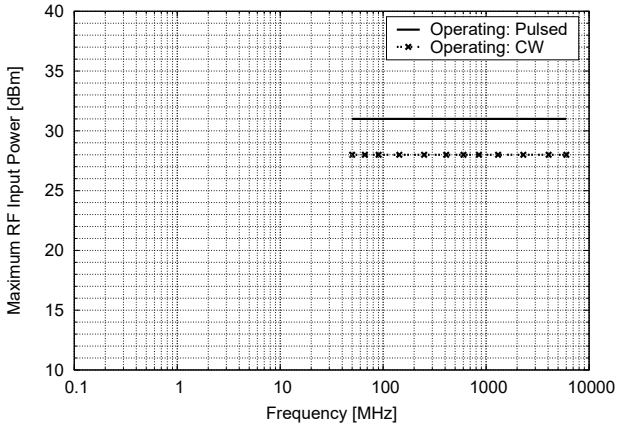

Fig. 6: Power derating curve

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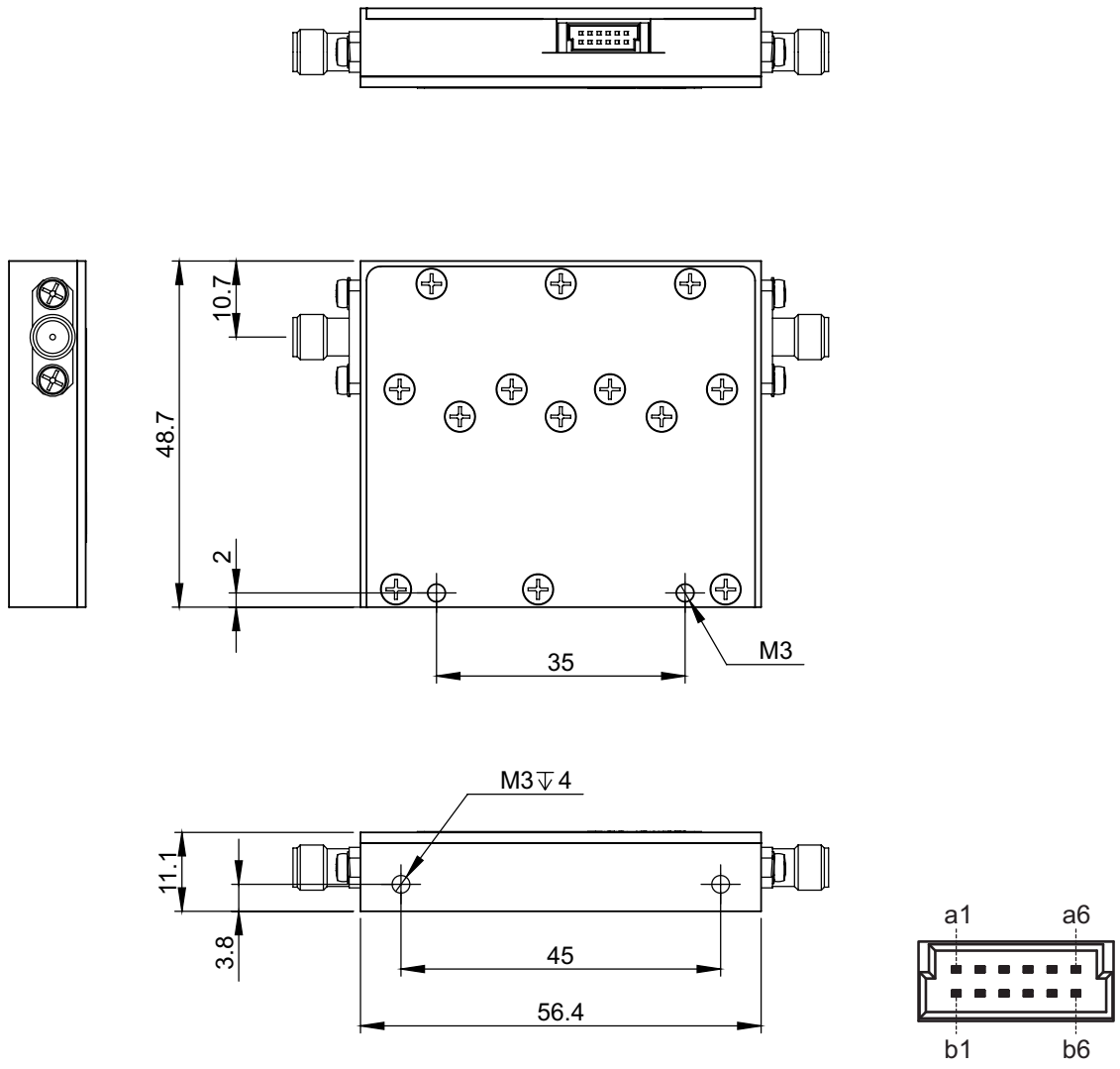
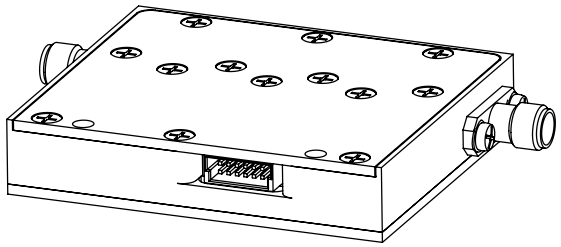
Views:





Pin assignment

Pin	Grade	Pin	Grade
a1	D0 (0.5 dB)	b1	D1 (1 dB)
a2	D2 (2 dB)	b2	D3 (4 dB)
a3	D4 (8 dB)	b3	D5 (16 dB)
a4	D6 (32 dB)	b4	D7 (0.25 / 31.5 dB)
a5	+5V	b5	+5V
a6	GND	b6	GND

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