ANALOG PIN ATTENUATORS

FEATURES

- Attenuation range of up to 60 dB
- Up to octave bandwidths
- Analog control voltage
- Lowest insertion loss



Analog PIN attenuators optimized for the communication bands are available from MITEQ. Attenuation ranges up to 60 dB can be obtained with our standard products. We also offer as custom products 5-bit digital attenuators with an LSB of 1 dB and maximum attenuation of 30 dB. This design is ideal in IF applications up to 3 GHz. Custom PIN attenuators that cover octave bands are available. We also offer MESFET-based attenuators covering 0.2 to 40 GHz in multioctave bands. These products offer very broad bandwidths and fast response time.

Frequency Range (GHz)	Model Number	Insertion Loss (dB, Max.)	*VSWR In/Out (Max.)	**Amplitude Response (dB)	Atten. Range Options (dB, Min.)	***Control Options (VDC)	Outline	Additional Features
STANDARD, MULTIOCTAVE BAND MODELS								
0.95-1.45	MPAT-095145-	1.1	1.5:1	See notes	10-60	0-20	1	_
0.95-1.75	MPAT-095175-	1.1	1.5:1	See notes	10-60	0-20	1	_
1.5–1.8	MPAT-150180-	1.1	1.5:1	See notes	10-60	0-20	2	_
2.1-2.7	MPAT-210270-	1.5	1.5:1	See notes	10-60	0-20	2	_
3.4-4.2	MPAT-340420-	2.2	1.5:1	See notes	10-60	0-20	2	_
3.62-4.205	MPAT-362420-	2.2	1.5:1	See notes	10-60	0-20	2	-
4.5-4.8	MPAT-450480-	2.2	1.5:1	See notes	10-60	0-20	2	_
5.845-6.43	MPAT-584643-	2.2	1.5:1	See notes	10-60	0-20	2	_
6.4-7.2	MPAT-640720-	2.2	1.5:1	See notes	10-60	0-20	2	_
7.25-7.75	MPAT-725775-	2.2	1.5:1	See notes	10-60	0-20	2	_
7.9-8.4	MPAT-790840-	2.2	1.5:1	See notes	10-60	0-20	2	_
10.95-11.7	MPAT-109117-	2.2	1.5:1	See notes	10-60	0-20	4	_
10.95-12.2	MPAT-109122-	2.2	1.5:1	See notes	10-60	0-20	4	_
10.7-11.7	MPAT-107117-	2.2	1.5:1	See notes	10-60	0-20	4	_
10.7-12.5	MPAT-107125-	2.2	1.5:1	See notes	10-60	0-20	4	_
10.95-12.75	MPAT-109128-	2.2	1.5:1	See notes	10-60	0-20	4	-
11.7-12.2	MPAT-117122-	2.2	1.5:1	See notes	10-60	0-20	4	_
11.7-12.75	MPAT-117128-	2.2	1.5:1	See notes	10-60	0-20	4	_
12.2-12.75	MPAT-122128-	2.2	1.5:1	See notes	10-60	0-20	4	_
12.75-13.25	MPAT-128133-	2.5	1.5:1	See notes	10-60	0-20	4	_
13.75-14.5	MPAT-138145-	2.5	1.5:1	See notes	10-60	0-20	4	_
14-14.5	MPAT-140145-	2.5	1.5:1	See notes	10-60	0-20	4	_
14-14.8	MPAT-140148-	2.7	1.5:1	See notes	10-60	0-20	4	-
17.3-17.8	MPAT-173178-	2.7	1.5:1	See notes	10-60	0-20	5	-
17.3-18.1	MPAT-173181-	3	1.5:1	See notes	10-60	0-20	5	-
17.7-20.2	MPAT-177202-	3	1.5:1	See notes	10-60	0-20	5	-
18.8-19.6	MPAT-188196-	3	1.5:1	See notes	10-60	0–20	5	-

^{*} VSWR is guaranteed over full attenuation range.

Custom models featuring broader bandwidths, and/or optimized specifications are also available. Consult factory for options.

^{**} Amplitude response: ±0.2 dB p-p over any 40 MHz window, 1 dB p-p over full band from 0-30 dB attenuation.

^{***} Insertion loss occurs at 0 V control.

ANALOG PIN ATTENUATORS (CONT.)

Frequency Range (GHz)	Model Number	Insertion Loss (dB, Max.)	*VSWR In/Out (Max.)	**Amplitude Response (dB)	Atten. Range Options (dB, Min.)	***Control Options (VDC)	Outline	Additional Features
VOLTAGE CONTROLLED								
1.275–1.48 1.654–1.746	MPAT-127148- MPAT-165175-	2.5 1.1	1.5:1 1.5:1	See notes 0.25 in band	30 20	0–20 0–20	4 2	- -
2–2.2	MPAT-124068-	1.7	1.5:1	0.3 in band	37	0–6	2	Input P1 dB = 20 dBm High power: 20 W peak operating. 40 W peak, survival.
3.1-3.5	124082	2.2	1.3:1	0.25 in band	15	0–5	-	
3.8–4.1	126149	1.3	1.5:1	1 max. at 20– 60 dB atten.	10–60	0–5	2	_
7.5-8.5	125964	1.8	1.5:1	0.25 in band	10	0–10	5	_
8–12	124792	2.2	1.8:1		60	-	4	Attenuation flatness: ±1.6 dB maximum 150 ns switch speed maximum
		CURRE	NT-CONT	ROLLED ANA	LOG PIN ATT	ENUATORS		
4–8	123293	2	1.7:1	0.3 at 10 dB 1.5 at 40 dB 1.6 at 60 dB	10–60	-	2	50 ns switch speed maximum
8–12	124782	2.2	1.7:1	0.5 at 10 dB 1.5 at 40 dB 1.6 at 60 dB	10–60	-	4	- - -

^{*} VSWR is guaranteed over full attenuation range.

ENVIRONMENTAL CONDITIONS

ORDERING INFORMATION

MPAT- Model number - Desired attenuation (10-60 dB) - Desired control voltage (0-20 V)

Example: To specify a 10.7–12.75 GHz, 40 dB attenuator with a control voltage of 15 volts, the following ordering information would be used: MPAT-107117-40-15.

ORDERING INFORMATION FOR RF CONNECTORS

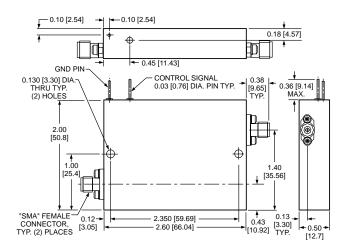
Unless otherwise specified all units will be shipped with field replaceable SMA female connectors on the input and outputs. If male connectors are desired on any ports, please specify on the purchase order.

^{**} Amplitude response: ±0.2 dB p-p over any 40 MHz window, 1 dB p-p over full band from 0-30 dB attenuation.

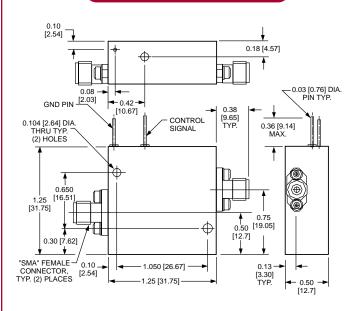
^{***} Insertion loss occurs at 0 V control.

ANALOG PIN ATTENUATORS OUTLINE DRAWINGS

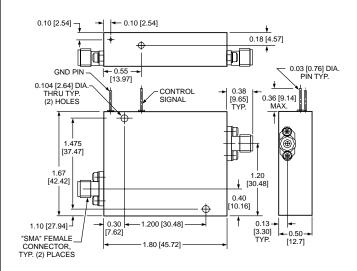
1



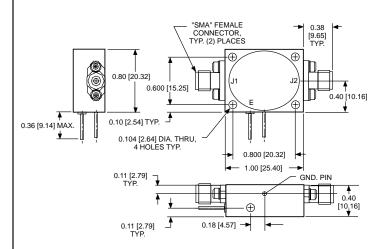
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GENERAL NOTES:

- Dimensions shown in brackets [] are in millimeters.
 Unless specified, all connectors are type SMA female field replaceable.
- 3. Tolerance as follows:
 - .xx = ± 0.01 [.xx = ± 0.25]
 - $.xxx = \pm 0.005 [.xxx = \pm 0.13]$



ANALOG PIN ATTENUATORS

E-MAIL: jpierro@miteq.com		·	
OMPANY	ADDRESS	6	
ONTACT			
EL.			
XX			
MAIL			
For additional technical, price and delivery 9219, or call John Pierro at (631) 439-913		omplete and mail or fax	this form to (631)
SPECIFICATION PARAMETER	REQUIREMENT 1	REQUIREMENT 2	REQUIREMENT 3
Frequency range (GHz)			
Insertion loss (dB, maximum)			
Input/output VSWR (maximum)			
Amplitude response (dB, MHz)			
Attenuation range (dB, minimum)			
Control options (VDC)			
Connectors			
Operating temperature			
Quantity			
pecial requirements, such as special tested below:	sting/screening, or specific	operating environm	ent may be
PLEASE SEND ADDITIONAL INF Amplifiers	<u></u>	OLLOWING MITEO Power Components	

MITEQ

Mixers
Multipliers

Frequency Sources

IF Signal Processing Components

Integrated Assemblies

SATCOM Products