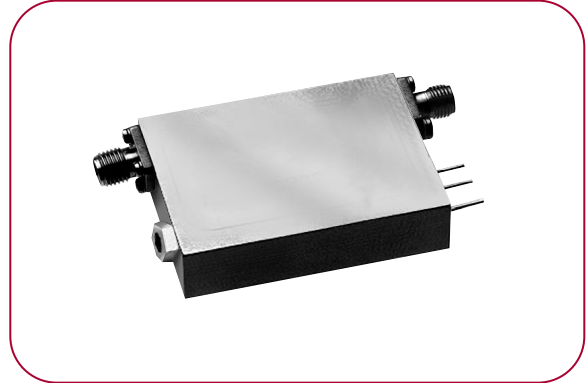


ANALOG PIN ATTENUATORS

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.

** 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.

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

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	MPAT-127148-	2.5	1.5:1	See notes	30	0–20	4	–
1.654–1.746	MPAT-165175-	1.1	1.5:1	0.25 in band	20	0–20	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
CURRENT-CONTROLLED ANALOG PIN ATTENUATORS								
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	– – –
<p>* VSWR is guaranteed over full attenuation range.</p> <p>** Amplitude response: ±0.2 dB p-p over any 40 MHz window, 1 dB p-p over full band from 0–30 dB attenuation.</p> <p>*** Insertion loss occurs at 0 V control.</p>								

ENVIRONMENTAL CONDITIONS

Operating temperature 0 to 70°C
 Storage temperature -30 to +85°C

ORDERING INFORMATION

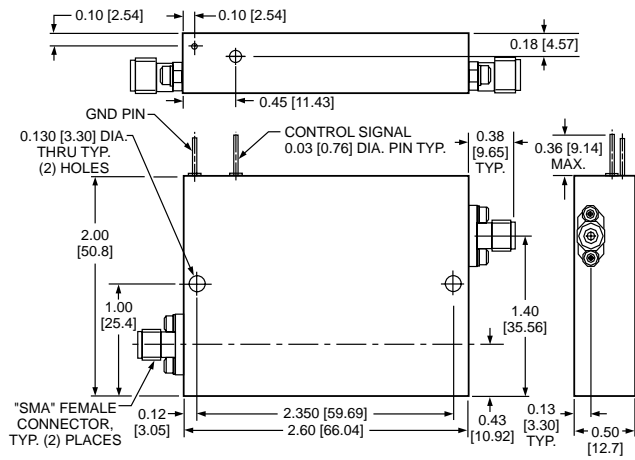
MPAT- Model number - Desired attenuation (10–60 dB) - Desired control voltage (0–20 V)
 Example: To specify a 10.7–12.75 GHz, 40 dB attenuator with a control voltage of 15 volts, the following ordering information would be used: MPAT-107117-40-15.

ORDERING INFORMATION FOR RF CONNECTORS

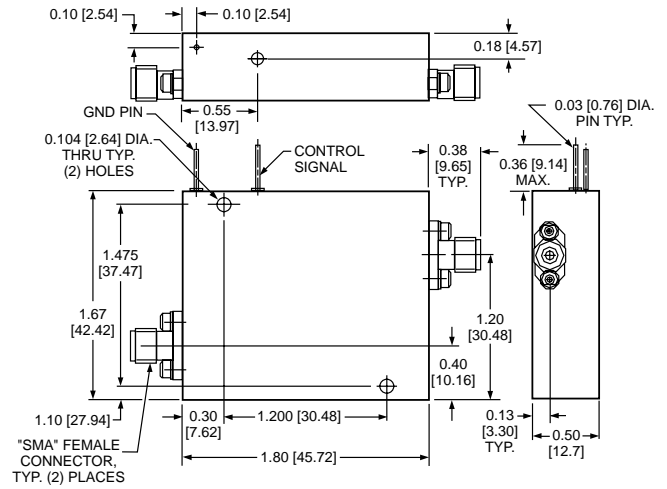
Unless otherwise specified all units will be shipped with field replaceable SMA female connectors on the input and outputs. If male connectors are desired on any ports, please specify on the purchase order.

ANALOG PIN ATTENUATORS OUTLINE DRAWINGS

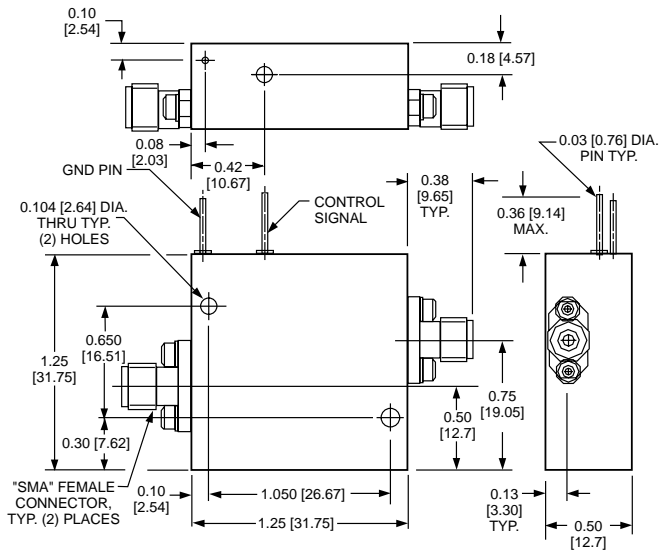
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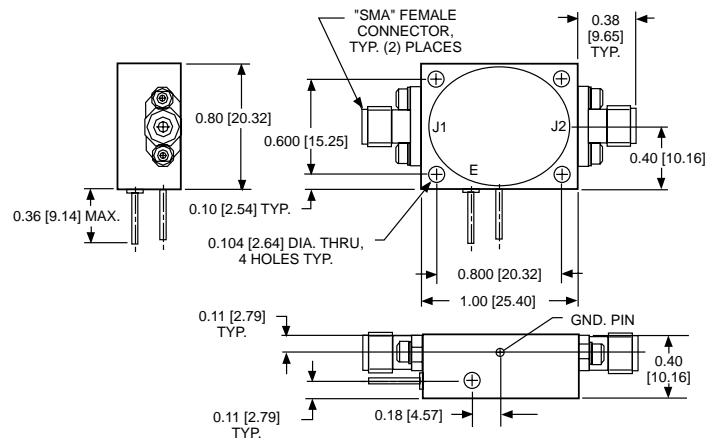
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4



5



GENERAL NOTES:

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



TEL: (631) 439-9137
 FAX: (631) 436-9219
 E-MAIL: jpierro@miteq.com

ANALOG PIN ATTENUATORS

DATE _____

COMPANY _____ **ADDRESS** _____

CONTACT _____

TEL. _____

FAX _____

E-MAIL _____

For additional technical, price and delivery information, please copy, complete and mail or fax this form to (631) 436-9219, or call John Pierro at (631) 439-9137.

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			

Special requirements, such as special testing/screening, or specific operating environment may be listed below:

PLEASE SEND ADDITIONAL INFORMATION ON THE FOLLOWING MITEQ PRODUCTS:

- | | |
|--|---|
| <input type="checkbox"/> Amplifiers
<input type="checkbox"/> Mixers
<input type="checkbox"/> Multipliers
<input type="checkbox"/> Frequency Sources | <input type="checkbox"/> Passive Power Components
<input type="checkbox"/> IF Signal Processing Components
<input type="checkbox"/> Integrated Assemblies
<input type="checkbox"/> SATCOM Products |
|--|---|

