

Fixed Attenuator

50Ω Up to 2W DC to 18 GHz

The Big Deal

- Exceptional Power Handling, Up to 2W
- Wide bandwidth, DC - 18 GHz
- Small Size, 2 mm x 2 mm



CASE STYLE: MC1630

Product Overview

YAT-A attenuators (ROHS compliant) are fixed value, absorptive attenuators fabricated using highly repetitive MMIC processing including thin film resistors on GaAs substrates. YAT-A attenuators contain through-wafer metallization vias to realize low thermal resistance and wideband operation. YAT-As are available with nominal attenuation values of 0 to 10 dB (in 1 dB steps), and 12, 15, 20, and 30 dB. Packaged in tiny 2 mm x 2 mm MCLP™ package fits into tiny spaces.

Key Features

| Feature | Advantages |
|--|--|
| Wideband operation, DC to 18 GHz | Supports a wide array of applications including wireless cellular, microwave Communications, satellite, Defense and aerospace, medical broadband and optic applications. |
| Small Size and simple to use (2 mm x 2 mm) | As a single chip solution, the YAT-A series occupies less board space than a “T” or “Pi” pad configuration, and ensures repeatable performance over wide frequency ranges. |
| High Power, Up to 2W | High power handling in a small size package. |
| Wide range of nominal attenuation values 0 to 10 dB (in 1 dB steps), and 12, 15, 20, and 30 dB | Small increment offering enables circuit designer to change attenuation values without motherboard redesign making the YAT-A series ideal for select at test application. |
| MCLP™ Package | Low Inductance, repeatable transitions, excellent thermal path make the YAT-A series an ideal solution as an alternative to “do it yourself” resistor based attenuators. |

Notes

- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
 B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
 C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp



Microwave Precision Fixed Attenuator

YAT-10A+

50Ω 1.7W 10 dB DC to 18 GHz

Product Features

- Miniature package MCLP™ 2 x 2 mm
- Wide bandwidth, DC-18 GHz
- Excellent attenuation accuracy & flatness



Generic photo used for illustration purposes only
CASE STYLE: MC1630

+RoHS Compliant

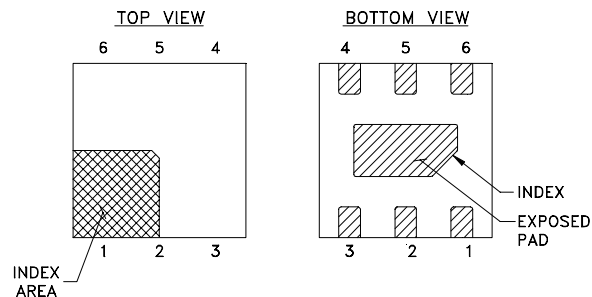
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Typical Applications

- Cellular
- PCS
- Communications
- Radar
- Defense

General Description

YAT-10A+ is a 10-dB absorptive attenuator fabricated using highly repetitive MMIC process including thin film resistors on GaAs substrate. YAT-10A+ attenuator contains through-wafer metallization vias to realize low thermal resistance and wideband operation. Packaged in tiny 2 mm x 2 mm MCLP™ package fits into tiny spaces.



Pad Description

| Function | Pad Number | Description |
|----------|-------------------------------|--------------------------------|
| RF IN | 2 | RF input pad |
| RF-OUT | 5 | RF output pad |
| GND | 1,3,4,6 Bottom Exposed pad | Connected to ground externally |

Notes

- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
 B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
 C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp



Electrical Specifications¹ at 25°C, 50Ω (CPW)

| Parameter | Condition (GHz) | Min. | Typ. | Max. | Unit |
|--------------------------|-----------------|------|------|------|------|
| Frequency Range | | DC | — | 18 | GHz |
| Attenuation | 0.01 | — | 10 | — | dB |
| | DC - 5 | 9.6 | 9.97 | 10.4 | |
| | 5 - 15 | 9.5 | 9.98 | 10.5 | |
| VSWR | DC - 5 | — | 1.09 | 1.25 | :1 |
| | 5 - 15 | — | 1.10 | 1.70 | |
| | 15 - 18 | — | 1.21 | 1.90 | |
| Input Power ² | DC - 18 | — | — | 1.7 | W |

1. Tested on Mini-Circuits test board TB-YAT-10A+ using coplanar wave guide (CPW) input and output traces (see suggested PCB layout on page 4 of this data sheet)
 2. RF Power at 25°C case temperature: 1.7 Watt. Derate linearly to 1.0 W at 85°C.

Absolute Maximum Ratings

| | |
|---|----------------|
| Operating Case Temperature ³ | -40°C to 85°C |
| Storage Temperature | -65°C to 150°C |
| RF Input Power ² | 1.7W |

3. Case is defined as ground lead.
 Permanent damage may occur if any of these limits are exceeded.

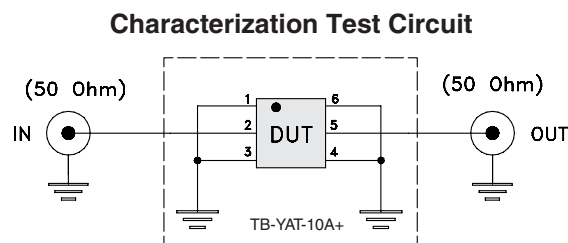
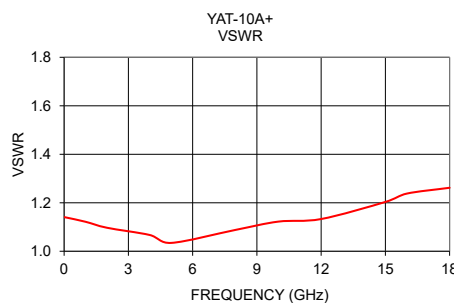
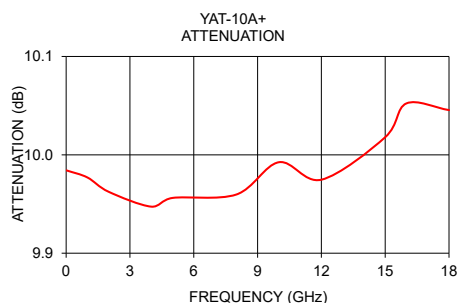


Fig 1. Block diagram of Test Circuit used for characterization, Test board TB-YAT-10A+ Conditions: Attenuation, VSWR: Pin=-10 dBm

Typical Performance Data at 25°C

| Frequency (GHz) | Attenuation (dB) | VSWR (:1) |
|-----------------|------------------|-----------|
| 0.01 | 9.98 | 1.14 |
| 1.0 | 9.98 | 1.12 |
| 2.0 | 9.96 | 1.10 |
| 4.0 | 9.95 | 1.07 |
| 5.0 | 9.96 | 1.03 |
| 8.0 | 9.96 | 1.09 |
| 10.0 | 9.99 | 1.12 |
| 12.0 | 9.97 | 1.13 |
| 15.0 | 10.02 | 1.20 |
| 16.0 | 10.05 | 1.24 |
| 18.0 | 10.05 | 1.26 |

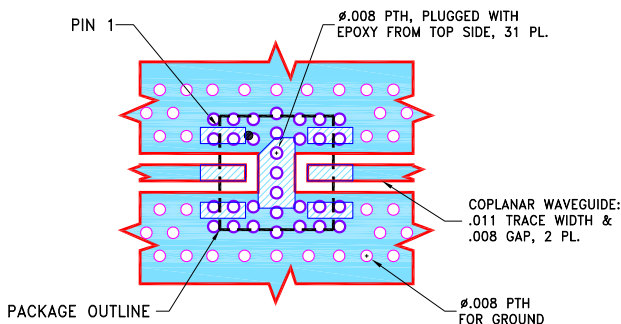


Notes

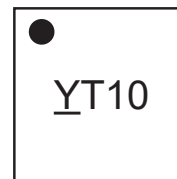
- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuits' applicable established test performance criteria and measurement instructions.
- C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp



Suggested PCB Layout (PL-586)



Product Marking



NOTES:

- TRACE WIDTH & GAP PARAMETERS ARE SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .0066±.0007, COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH & GAP MAY NEED TO BE MODIFIED.
- BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER).
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

| Additional Detailed Technical Information | |
|---|---|
| <i>additional information is available on our dash board. To access this information click here</i> | |
| Performance Data | Data Table |
| | Swept Graphs |
| Case Style | MC1630 <i>Plastic package, Terminal finish: Matte Tin Plate</i> |
| Tape & Reel Standard quantities available on reel | F108 <i>7" reels with 20, 50, 100, 200, 500, 1K, 2K devices.</i> |
| Suggested Layout for PCB Design | PL-586 |
| Evaluation Board | TB-YAT-10A+ |
| Environmental Ratings | ENV08T1 |

ESD Rating

Human Body Model (HBM): Class 2 (Pass 2000 V) per ANSI/ESD STM 5.1-2001

MSL Rating

Moisture Sensitivity: MSL1 in accordance with IPC/JEDEC J-STD-020D

Notes

- Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp



X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [Attenuators](#) category:

Click to view products by [Mini-Circuits](#) manufacturer:

Other Similar products are found below :

[HMC305SLP4ETR](#) [MAAD-009195-000100](#) [TGL4201-00](#) [TGL4201-02](#) [TGL4201-03](#) [TGL4201-06](#) [TGL4201-10](#) [ATN3590-15](#) [20-50TPC](#)
[D10AA5Z4](#) [18AH-01](#) [18AH-08](#) [ATN3590-09](#) [20-50RP](#) [PCAF-10](#) [EXB-24AT9AR5X](#) [ATN3580-06](#) [ATN3580-10](#) [HMC539ALP3ETR](#)
[ATN3580-02](#) [WA04P006XCTL](#) [SKY12408-321LF](#) [ATN3580-03](#) [WA04P005XBTL](#) [HMC-VVD104-SX](#) [WA04P007XCTL](#) [SKY12236-11](#)
[MAATSS0018TR-3000](#) [HMC656-SX](#) [WA04P001XBTL](#) [MAAV-007941-TR3000](#) [WA04P004XBTL](#) [WA04P002XBTL](#) [EXB-24N182JX](#)
[EXB-24N181JX](#) [EXB-24N183JX](#) [C3A50Z4](#) [HMC941A](#) [PAT0816-C-0DB-T5](#) [PAT0816-C-8DB-T5](#) [PAT1632-C-3DB-T1](#) [PAT1632-C-6DB-](#)
[T1](#) [PAT1632-C-10DB-T1](#) [PAT1632-C-1DB-T1](#) [PAT0816-C-2DB-T5](#) [PAT0816-C-4DB-T5](#) [DHM510-0100-006](#) [CMD172](#) [MAT10300](#)
[MAT10180](#)