Microwave Precision

Fixed Attenuator

KAT-SERIES

50Ω Up to 2W DC to 40 GHz

The Big Deal

- Super bandwidth, Up to 40 GHz
- Exceptional Power Handling, Up to 2W
- Small Size, 2 mm x 2 mm



CASE STYLE: MC1630-1

Product Overview

KAT models are a series of absorptive fixed attenuators fabricated using highly reliable and repeatable GaAs MMIC IPD* process. The models operate from DC up to 40 GHz. They have outstanding attenuation accuracy and flatness while maintaining excellent VSWR throughout the entire band. The models can also handle input power up to around 2W, depending on each value, which makes this model series an ideal choice for a wide range of applications.

Key Features

Feature	Advantages
Wideband operation, From DC to 40 GHz	Supports a wide array of applications including 5G, wireless infrastructure, 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 KAT series occupies less board space than a lumped element approach, minimizes component count and ensures repeatable performance over wide frequency range.
Wide range of nominal attenuation values (0,1,2,3,4,5,6,7,8,9,10,12,15,20 & 30)	Small increment offering enables circuit designer to change attenuation values without motherboard redesign making the KAT series ideal for select at test application.
MCLP™ Package	Low Inductance, repeatable transitions, excellent thermal path make the KAT series an ideal solution as an alternative to “do it yourself” lumped element-based approach.

* IPD - Integraded Passive Device.

Microwave Precision

Fixed Attenuator

KAT-12+

50Ω 1.1W 12dB DC to 40 GHz

Product Features

- Small package, 2x2 MCLP™
- Super Wide bandwidth, DC-40 GHz
- Excellent VSWR, 1.16:1 typ.
- High Power Handling, 1.1W



CASE STYLE: MC1630-1

+RoHS Compliant

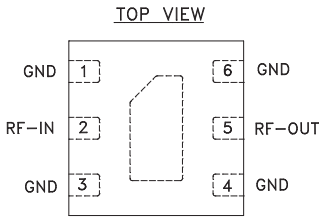
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Typical Applications

- 5G
- Test and Measurement
- Radar
- Communication
- Defense

General Description

KAT-12+ is an absorptive fixed attenuator fabricated using highly reliable and repeatable GaAs MMIC IPD process. The model operates from DC to 40GHz. It achieves outstanding attenuation accuracy and flatness while maintains excellent VSWR throughout the entire band. The model can also handle input power up to 1.1W, which makes this model an ideal choice for a wide range of applications.



Pad Description

Function	Pad Number	Description
RF-IN	2	RF input pad
RF-OUT	5	RF output pad
GND	1,3,4,6 & Paddle	Ground

Electrical Specifications[1] at 25°C, 50Ω , unless noted

Parameter	Condition (GHz)	Min.	Typ.	Max.	Unit
Frequency Range		DC	—	40	GHz
Attenuation	0.01 - 5	11.6	12.0	12.4	dB
	5 - 10	11.6	12.0	12.4	
	10 - 20	11.6	12.1	12.6	
	20 - 30	11.7	12.2	13.0	
	30 - 40	—	12.4	—	
VSWR	0.01 - 5	—	1.06	1.4	:1
	5 - 10	—	1.06	1.3	
	10 - 20	—	1.16	1.8	
	20 - 30	—	1.31	—	
	30 - 40	—	1.48	—	

1. Tested on Mini-Circuits test board TB-934-12C+. See Characterization/Application Circuit in Fig. 1

Absolute Maximum Ratings[2]

Operating Case Temperature[3]	-40°C to 85°C
Storage Temperature	-65°C to 150°C
RF Input Power	1.1W[3]

2. Permanent damage may occur if any of these limits are exceeded.
3. Power rating derated to 0.8W at 85°C

Characterization Test Circuit

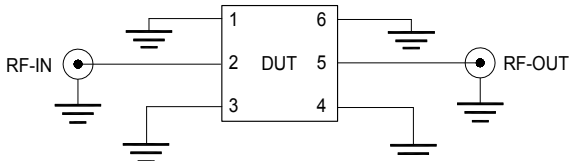
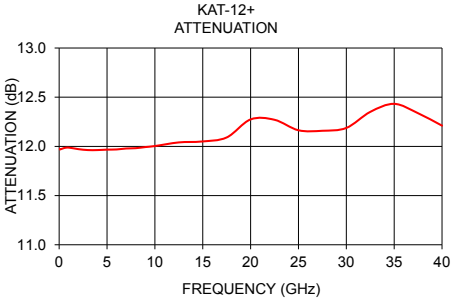
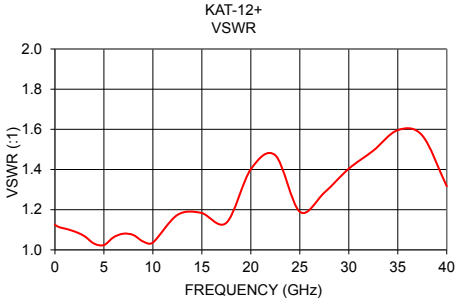


Fig 1. Block diagram of Test Circuit used for characterization, Test board TB-934-12C+
Conditions: Attenuation, VSWR: Pin=0 dBm

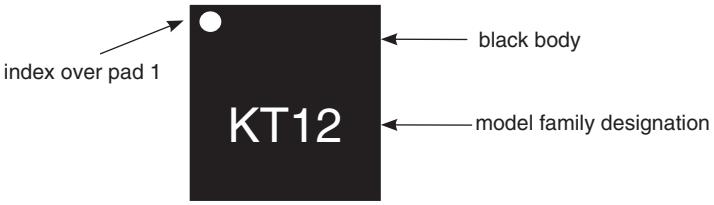
Typical Performance Data at 25°C

Frequency (GHz)	Attenuation (dB)	VSWR (:1)
0.01	11.98	1.13
0.5	11.98	1.11
1.0	11.99	1.11
3.0	11.96	1.07
5.0	11.97	1.02
7.0	11.98	1.08
10.0	12.00	1.04
12.5	12.04	1.17
14.9	12.05	1.18
20.0	12.27	1.40
25.0	12.16	1.19
30.0	12.19	1.40
35.0	12.43	1.60
37.5	12.34	1.57
40.0	12.21	1.32





Product Marking



Marking may contain other features or characters for internal lot control

Additional Detailed Technical Information *additional information is available on our dash board. To access this information click here*	
Performance Data	Data Table
	Swept Graphs
Case Style	MC1630-1 *Plastic package, Terminal finish: Matte Tin*
Tape & Reel **Standard quantities available on reel**	F66 *7" reels with 20, 50, 100, 200, 500, 1K, 2K devices.*
Suggested Layout for PCB Design	PL-586
Evaluation Board	TB-934-12C+
Environmental Ratings	ENV08T1

ESD Rating

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

Additional 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