MICROWAVE

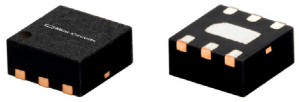
Gain Equalizer

EQY-5-453+

50Ω 5 dB DC to 45 GHz

THE BIG DEAL

- 5.5 dB Slope from DC to 45 GHz
- Small Size, 2x2 mm 6-Lead QFN-Style Package
- Excellent Return Loss, 20 dB Typ.
- Protected by US Patent US11784146B1



Generic photo used for illustration purposes only

CASE STYLE: MC1630-1

+RoHS Compliant
The +Suffix identifies RoHS Compliance.
See our website for methodologies and qualifications

APPLICATIONS

- Cellular Infrastructure
- 5G
- Wideband Communications
- Test Instrumentation
- Defense

PRODUCT OVERVIEW

EQY-5-453+ is an absorptive Gain Equalizer fabricated using highly repetitive GaAs MMIC process incorporating resistors, capacitors, and inductors having negative insertion loss slope. EQY-5-453+ has a nominal attenuation slope of 5.5 dB and is packaged in a tiny 2x2 mm 6-lead QFN-style package.

KEY FEATURES

Feature	Advantages
Negative Insertion Loss Slope vs. Frequency	Useful for compensating negative gain slope of amplifiers, receivers, and transmitters to achieve flat gain versus frequency.
Wide Range of Values 3,4,5,6,7,8,9,10 dB	EQY-XX-453+ Series' identical package and footprint enables circuit designers to swap nominal insertion loss slopes, without board layout redesigns.
Wideband Operation, DC to 45 GHz	Supports a wide array of applications including wireless cellular, microwave communications, satellite, defense and aerospace, medical, and optical applications.
Excellent Power Handling Capability	Enables its use at the output of a variety of amplifiers.
Small Size and Simple to Use (2x2 mm 6-Lead QFN-Style Package)	As a single chip solution, the EQY series occupies less board space than a lumped or distributed element approach, minimizes component count, and ensures repeatable performance over a wide frequency range.

REV. B
ECO-026455
EQY-5-453+
MCL NY
250805

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ELECTRICAL SPECIFICATIONS[1] AT +25°C, 50Ω, UNLESS NOTED OTHERWISE

Parameter	Condition (GHz)	Min.	Typ.	Max.	Units
Frequency Range		DC		45	GHz
Insertion Loss	0.01	6.3	6.6	6.8	dB
	10	5.6	5.9	6.2	
	20		4.4		
	30	2.3	2.8	3.3	
	40		1.5		
	45		1.1		
VSWR	0.01 - 10		1.14		:1
	10 - 20		1.18		
	20 -30		1.29		
	30 - 40		1.33		
	40 - 45		1.39		

1. Measured on Mini-Circuits Characterization Test Board TB-EQY-5-453+. See Characterization Test Circuit (Fig. 1).

ABSOLUTE MAXIMUM RATINGS[2]

Parameter	Ratings
Operating Case Temperature	-55°C to +105°C
Storage Temperature	-65°C to +150°C
RF Input Power[3]	+28 dBm

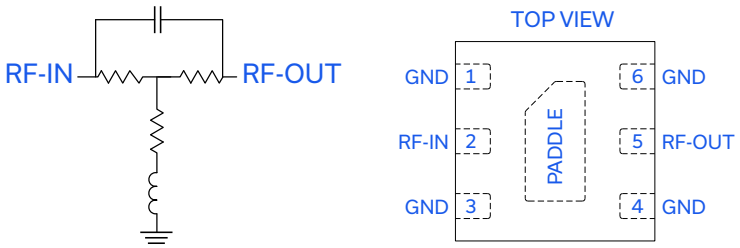
2. Permanent damage may occur if any of these limits are exceeded.
3. Derates linearly to +24 dBm at +105°C.

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SIMPLIFIED SCHEMATIC & 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

CHARACTERIZATION TEST CIRCUIT

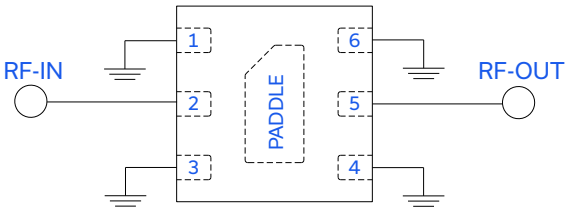
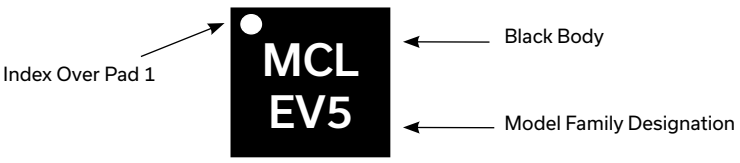


Fig 1. Block Diagram of Test Circuit used for characterization. Test Board TB-EQY-5-453+
Conditions: Attenuation & Return Loss P_{IN}= 0 dBm

PRODUCT MARKING



Marking may contain other features or characters for internal lot control.

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EQY-5-453+

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ADDITIONAL DETAILED TECHNICAL INFORMATION IS AVAILABLE ON OUR DASHBOARD. TO ACCESS CLICK HERE

Performance Data	Data Table Swept Graphs
Case Style	MC1630-1 Plastic package, Lead finish: Matte-tin
Tape & Reel **Standard Quantities Available on Reel**	F66 7" Reels with 20, 50, 100, 200, 500, 1000, 2000, or 3000 devices
Suggested Layout for PCB Design	PL-663
Evaluation Board	TB-EQY-5-453+ & TB-EQY-5-453C+
Environmental Ratings	ENV08T1

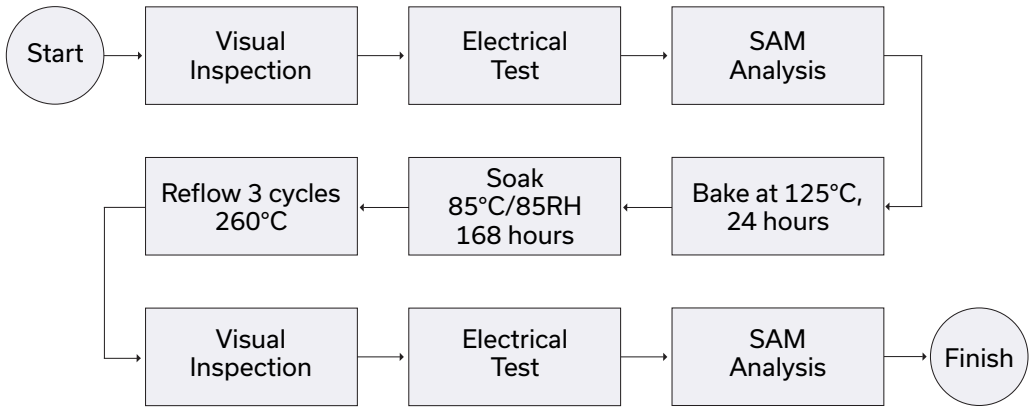
ESD RATING

Human Body Model (HBM): Class 2 (Pass 2000 V) in accordance with ANSI/ESD STM 5.1 - 2001 Machine.

MSL RATING

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

MSL TEST FLOW CHART



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/terms/viewterm.html