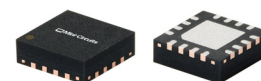


**THE BIG DEAL**

- 18 dB Slope
- Insertion Loss, 20.4 dB Typ. at 6 GHz
- Insertion Loss, 2.2 dB Typ. at 18 GHz
- Return Loss, 20 dB Typ.
- Small Package 3 x 3 mm MCLP



Generic photo used for illustration purposes only

CASE STYLE: DQ3005

**+RoHS Compliant**

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

**APPLICATIONS**

- Test and Measurement
- EW, Radar, and ECM Defense Systems
- Back Haul Radio

**PRODUCT OVERVIEW**

Mini-Circuits' EQY-18-24+ is a MMIC Gain Equalizer fabricated using highly repeatable GaAs IPD MMIC process incorporating resistors, capacitors, and inductors to accomplish a positive Insertion Loss Slope vs. Frequency. EQY-18-24+ has a nominal Insertion Loss Slope of 18 dB across the wide bandwidth of 6 to 18 GHz and can be applied to compensate for the negative Gain Slope of amplifiers to achieve relative Gain Flatness for the overall system. It is packaged in a tiny 3x3mm, 16-lead MCLP package.

**KEY FEATURES**

Features	Advantages
Positive Insertion Loss Slope vs. Frequency	Useful for compensating negative gain slope of amplifiers, receivers, transmitters to achieve flat Gain versus Frequency.
Wideband operation, 6 to 18 GHz	Supports a wide array of applications including Test & Measurement, EW, Radar, and ECM Defense Systems, and Back Haul radio.
Excellent Power Handling Capability	Enables its use at the output of a variety of amplifiers.
Small Size and simple to use (3 mm x 3 mm)	As a single chip solution, the EQY-18-24+ occupies less board space than a lumped element approach, minimizes component count and ensures repeatable performance over wide frequency range.



MMIC SURFACE MOUNT

## Gain Equalizer

EQY-18-24+

Mini-Circuits

50Ω 6 to 18 GHz

ELECTRICAL SPECIFICATIONS<sup>1</sup> AT 25°C, 50Ω, UNLESS OTHERWISE NOTED.

Parameter	Condition (GHz)	Min.	Typ.	Max.	Units
Frequency Range		6		18	GHz
Insertion Loss	6	18.3	20.4	22.4	dB
	10	12.2	13.5	14.9	
	14	6	6.7	7.3	
	16	-	4.1	-	
	18	-	2.2	-	
VSWR	6-10	-	1.11	-	:1
	10-14	-	1.13	-	
	14-16	-	1.17	-	
	16-18	-	1.35	-	

1. Measured on Mini-Circuits Characterization Test Board TB-EQY-18-24C+. See Characterization & Application Circuit (Fig. 1)

MAXIMUM RATINGS<sup>2</sup>

Parameter	Ratings
Operating Case Temperature	-55°C to +105°C
Storage Temperature	-65°C to +150°C
RF Input Power <sup>3</sup>	+33 dBm (5-minute max)
	+30 dBm (continuous)

2. Permanent damage may occur if any of these limits are exceeded.

3. Derates linearly to +29 dBm at +105°C





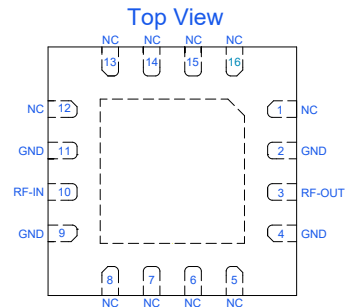
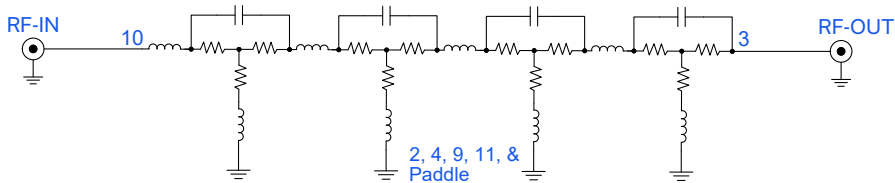
MMIC SURFACE MOUNT

# Gain Equalizer

**EQY-18-24+**

50Ω 6 to 18 GHz

## SIMPLIFIED SCHEMATIC AND PAD DESCRIPTION



Function	Pad Number	Description
RF-IN	10	RF-Input pad
RF-OUT	3	RF-Output pad
NC	1, 5, 6, 7, 8, 12, 13, 14, 15, & 16	Not used internally. Connected to ground on test board.
GND	2, 4, 9, 11, & Paddle	Connects to ground.

## CHARACTERIZATION & APPLICATION CIRCUIT

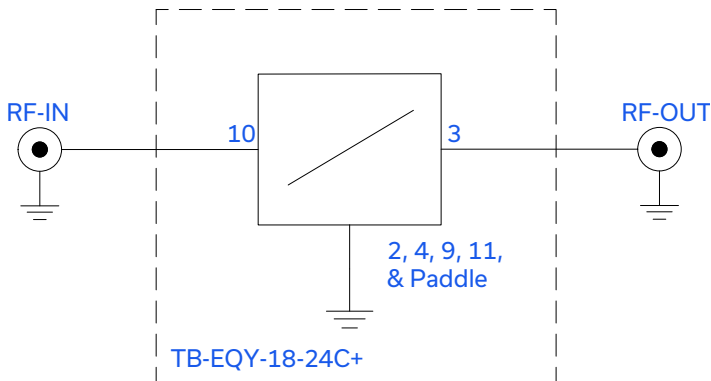
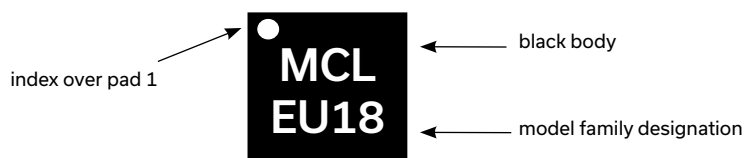


Fig 1. Characterization & Application Circuit  
Note: Block Diagram of Test Circuit used for characterization. TB-EQY-18-24C+ Insertion Loss and Return Loss are measured using Keysight N5245A PNA-X Microwave Network Analyzer.

Condition:  
Insertion Loss & Return Loss: Pin = 0 dBm

## PRODUCT MARKING

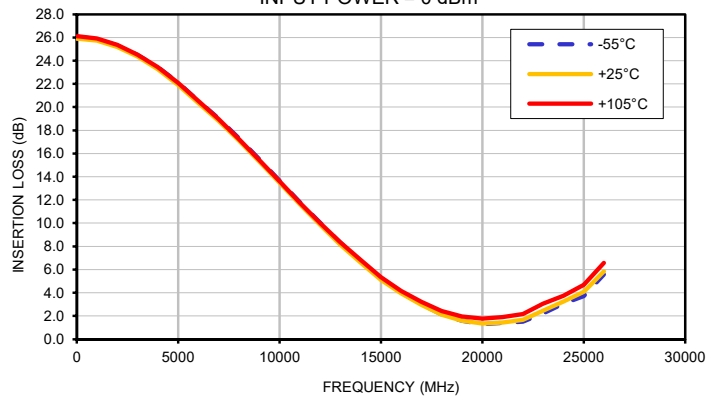
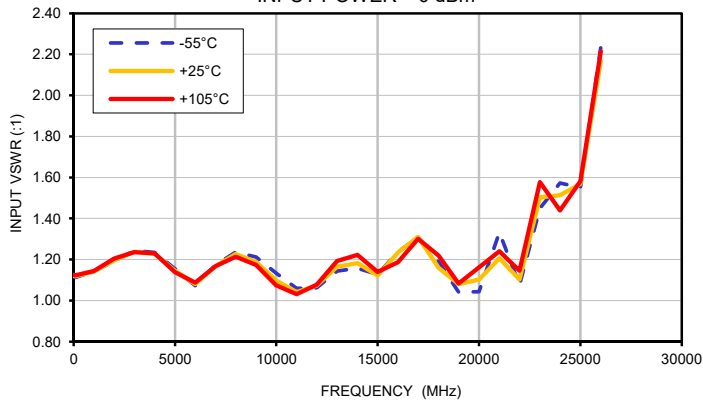
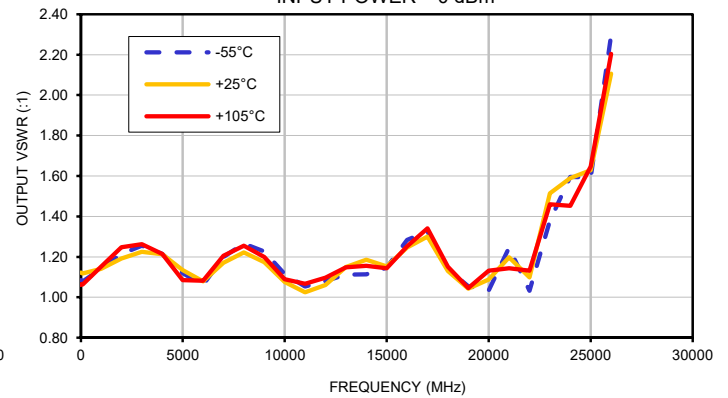


Marking may contain other features or characters for internal lot control





## TYPICAL PERFORMANCE CURVES

INSERTION LOSS vs. TEMPERATURE  
INPUT POWER = 0 dBmINPUT VSWR vs. TEMPERATURE  
INPUT POWER = 0 dBmOUTPUT VSWR vs. TEMPERATURE  
INPUT POWER = 0 dBm



ADDITIONAL DETAILED TECHNICAL INFORMATION IS AVAILABLE ON OUR DASH BOARD. TO ACCESS [CLICK HERE](#)

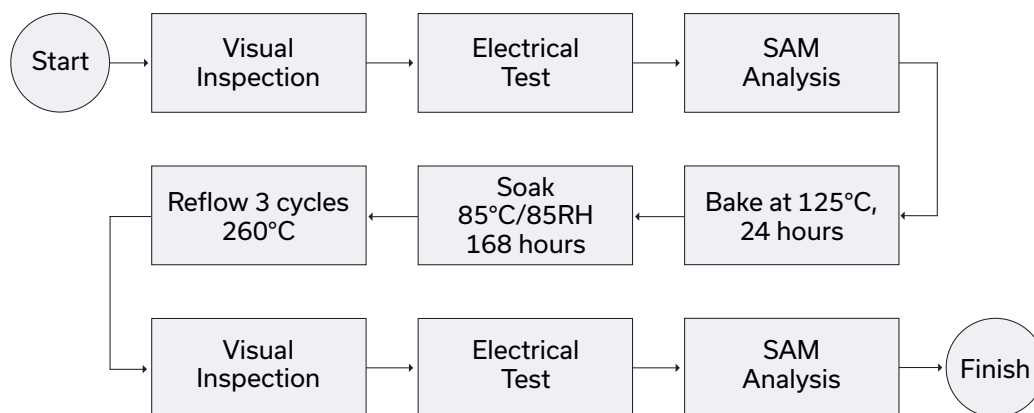
Performance Data	Data Table Swept Graphs S-Parameter (S2P Files) Data Set (.zip file)
Case Style	DQ3005 Plastic package, exposed paddle, lead finish: Matte-Tin
Tape & Reel Standard quantities available on reel	TR-F68 7" reels with 20, 50, 100, 200, 500 or 2K devices
Suggested Layout for PCB Design	PL-736
Evaluation Board	TB-EQY-18-24+ (Without connectors) TB-EQY-18-24C+ (With connectors)
Environmental Ratings	ENV08T1

**ESD RATING**

Human Body Model (HBM): Class 1C (1000V to < 2000V) in accordance with ANSI/ESD STM 5.1 – 2001  
Charged Device Model (CDM): Class 1B (500V to < 1000V) in accordance with ANSI/ESD 5.2-2001

**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](http://www.minicircuits.com/terms/viewterm.html)

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