

50Ω DC to 45 GHz

### The Big Deal

- Excellent Return Loss, 20 dB typ.
- Wide bandwidth, DC - 45 GHz
- Small Size, 2 mm x 2 mm



CASE STYLE: MC1630-1

### Product Overview

EQY series of absorptive Gain Equalizers are fabricated using highly repetitive GaAs IPD\* MMIC process incorporating resistors, capacitors and inductors having negative insertion loss slope. EQYs are available with nominal attenuation slope of 3,4,5,6,7,8,9 & 10 dB. They are packaged in tiny 2 x 2 mm 6-Lead MCLP™ package.

### Key Features

| Feature  | Advantages   |
|--|--|
| Negative Insertion Loss Slope vs. Frequency      | Useful for compensating negative gain slope of amplifiers, receivers, transmitters to achieve flat gain versus frequency.  |
| Wide range of values<br>3,4,5,6,7,8,9,10 dB      | Enables circuit designer to change nominal insertion loss values without motherboard redesign making the EQY series ideal for select at test application.  |
| Wideband operation, DC to 45 GHz                 | Supports a wide array of applications including wireless cellular, microwave communications, satellite, defense and aerospace, medical broadband and optic applications.                                   |
| Excellent Power Handling Capability up to 30 dBm | Enables its use at the output of a variety of amplifiers   |
| Small Size and simple to use<br>(2 mm x 2 mm)    | 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 wide frequency range. |

\*GaAs IPD (Gallium Arsenide Integrated Passive Device)

Microwave

# Gain Equalizer

## EQY-7-453+

50Ω 7dB DC to 45 GHz

### Product Features

- 7.4 dB Slope from DC to 45 GHz
- Small Package 2 x 2 mm MCLP
- Excellent Return Loss, 20 dB typ.
- Patent pending

### Typical Applications

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

### General Description

EQY-7-453+ is an absorptive Gain Equalizer fabricated using highly repetitive GaAs IPD MMIC process incorporating resistors, capacitors and inductors having negative insertion loss slope. EQY-7-453+ has a nominal attenuation slope of 7.4 dB and is packaged in tiny 2 x 2 mm, 6-Lead MCLP™ package.



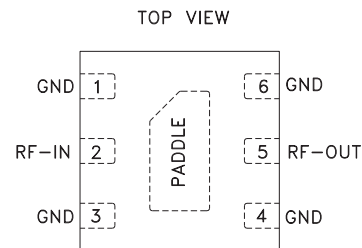
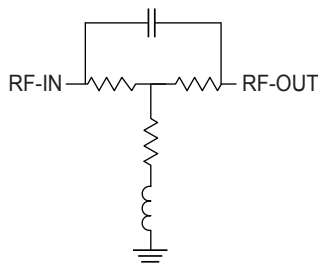
Generic photo used for illustration purposes only

CASE STYLE: MC1630-1

#### +RoHS Compliant

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

### 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        |

**Electrical Specifications<sup>1</sup> at 25°C, 50Ω, unless otherwise noted.**

| Parameter       | Condition (GHz) | Min. | Typ. | Max. | Units |
|-----------------|-----------------|------|------|------|-------|
| Frequency Range |                 | DC   |      | 45   | GHz   |
| Insertion Loss  | 0.01            | 8.4  | 8.7  | 8.9  | dB    |
|                 | 10              | 6.9  | 7.3  | 7.6  |       |
|                 | 20              | —    | 5.0  | —    |       |
|                 | 30              | 2.5  | 3.0  | 3.5  |       |
|                 | 40              | —    | 1.7  | —    |       |
| VSWR            | 45              | —    | 1.3  | —    | :1    |
|                 | 0.01 - 10       | —    | 1.20 | —    |       |
|                 | 10 - 20         | —    | 1.16 | —    |       |
|                 | 20 - 30         | —    | 1.23 | —    |       |
|                 | 30 - 40         | —    | 1.29 | —    |       |
|                 | 40 - 45         | —    | 1.43 | —    |       |

1. Measured on Mini-Circuits Characterization Test Board TB-EQY-7-453+. See Characterization Test Circuit (Fig. 1)

**Absolute Maximum Ratings<sup>2</sup>**

|                             |                |
|-----------------------------|----------------|
| Operating Case Temperature  | -55°C to 105°C |
| Storage Temperature         | -65°C to 150°C |
| RF Input Power <sup>3</sup> | 27 dBm         |

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

3. Derates linearly to 23 dBm at 105°C

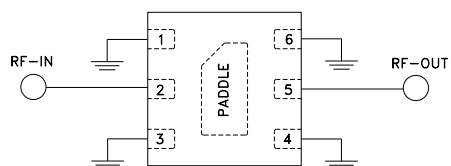
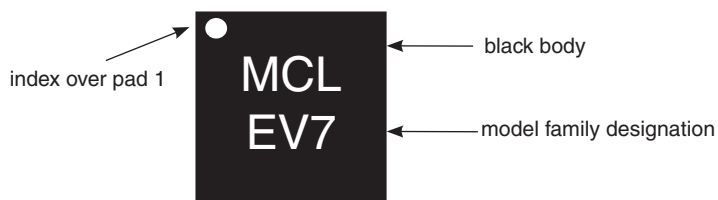
**Characterization Test Circuit**

Fig 1. Block Diagram of Test Circuit used for characterization. Test Board TB-EQY-7-453+  
Conditions: Attenuation & Return Loss Pin=0 dBm

**Product Marking**

Marking may contain other features or characters for internal lot control