

Equalizer, 3 dB, DIE 20 GHz



MAFL-011124-DIE

Rev. V1

Features

- 3 dB Equalizer
- Broadband: 20 GHz
- Low insertion Loss: <1 dB
- Broadband Matched
- Wire Bondable Bare Die
- RoHS* Compliant

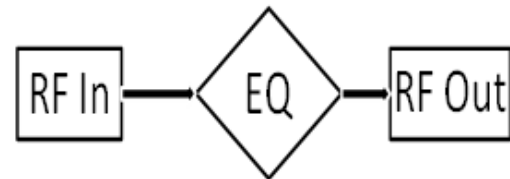
Applications

- Cable Loss Compensation
- Amplifier Gain Slope Compensation

Description

The MAFL-011124 equalizer is broadband matched with excellent power handling. Offering best in class RF performance in a wire bondable die.

Functional Schematic



Pin Configuration^{2,3}

Function
RF Input
RF Output
Ground

2. The exposed pad centered on the package bottom must be connected to RF, DC and thermal ground.
3. MACOM recommends connecting unused package pins to ground.

Electrical Specifications: $T_A = 25^\circ\text{C}$, $Z_0 = 50 \Omega$, $P_{IN} = 0 \text{ dBm}$

Parameter	Test Conditions	Units	Min.	Typ.	Max.
Insertion Loss	0 GHz 20 GHz	dB	—	3.0 0.5	—
Return Loss	0 - 20 GHz	dB	—	20	—

Ordering Information¹

Part Number	Package
MAFL-011124-DIE	Vacuum release gel pack ¹

1. Die quantity varies.

Absolute Maximum Ratings^{4,5}

Parameter	Absolute Maximum
Input RF Power	1 W
DC Current	100 mA
Operating Temperature	-40°C to +85°C

4. Exceeding any one or combination of these limits may cause permanent damage to this device.
5. MACOM does not recommend sustained operation near these survivability limits.

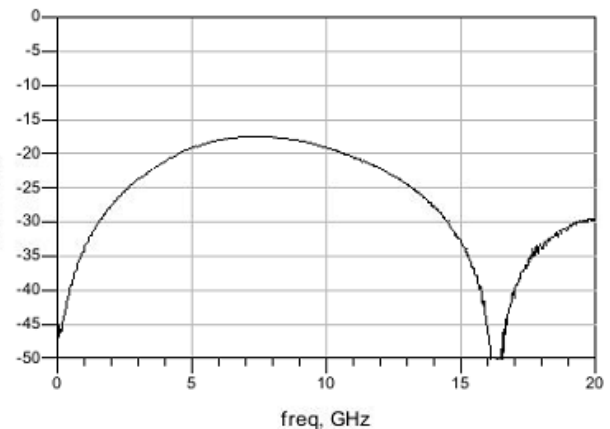
¹ * Restrictions on Hazardous Substances, compliant to current RoHS EU directive.

Typical Performance Curves

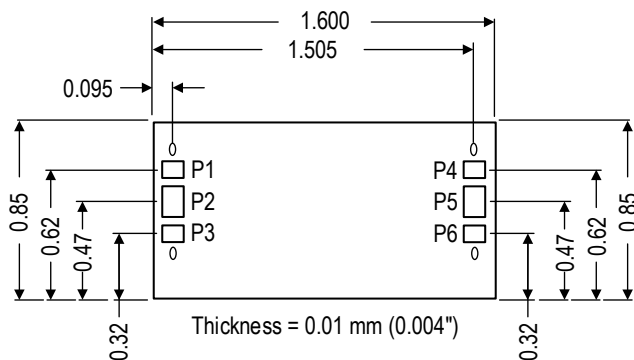
Insertion Loss



Return Loss



Die Dimensions^{6,7,8,9,10,11}



Bond Pad Dimensions (µm)

Pad #	Size (x)	Size (y)	Description
1,3,4,6 ¹²	70	70	GND
2 ¹³	90	150	RF IN
5 ¹³	90	150	RF OUT

6. All dimensions are shown in mm (+/- 5 µm).
7. DIE exterior dimensions are street center to street center.
8. Nominal KERF +/-20 µm.
9. Bond PAD / Backside metallization: Gold
10. DIE thickness: 100 µm (4 mil) +/-10 µm.
11. No exposed airbridges.
12. Capable of having 1 x 25 µm (1 mil) bond wire placed.
13. Capable of having 2 x 25 µm (1 mil) bond wire placed.

Handling Procedures

Please observe the following precautions to avoid damage:

Static Sensitivity

These electronic devices are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these Class 1C devices.

Wire Bonding

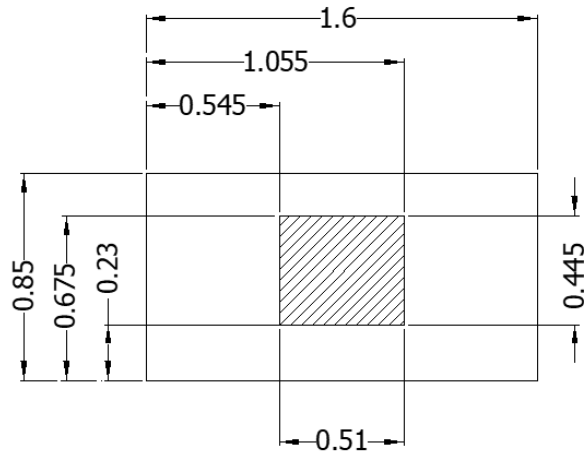
The loop height of the RF bonds should be minimized. Where the die is mounted above the PCB, it is recommended to use Reverse Ball-Stitch-on-Ball bonds (BSOB). If the die is mounted inside a cavity on the board, forward loop bonding may result in a lower loop height. V-shape RF bond with two wires (diameter = 25 µm) along with a ground bond on both sides of the RF, is recommended for optimum RF performance. RF bond wire length to be minimized to reduce the inductance effect.

Die Attach

For mounting the die either an electrically conductive epoxy, or an AuSn eutectic preform can be used. If using eutectic, an 80% Au / 20% Sn preform is recommended.

Die Exclusion Area For Pickup Tool

Keep out area for surface contact type pickup collets



EXCLUSION AREA FOR PICKUP

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