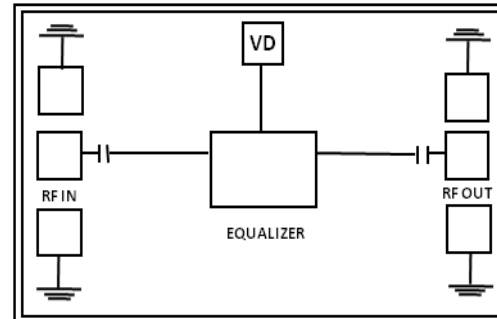


1.8 – 2.8 GHz Gain Equalizer

Features

- ◆ Frequency Range : 1.8 – 2.8GHz
- ◆ 2.5dB Insertion Loss
- ◆ DC Decoupled Input/output
- ◆ No external matching required
- ◆ DC decoupled input and output
- ◆ 0.5 μm InGaAs pHEMT Technology
- ◆ Chip dimension: 1.2 x 1.6 x 0.1 mm

Functional Diagram



Typical Applications

- ◆ Gain Equalization
- ◆ Test Equipments

Description

The AMT2133021 is a 1.8 - 2.8GHz Gain Equalizer.

This Gain Equalizer features 2.5 dB of insertion loss. This Gain Equalizer offers 25dB of Negative Gain Slope Compensation. The die is fabricated using a reliable 0.5 μm InGaAs pHEMT technology. The Circuit grounds are provided through vias to the backside metallization.

Absolute Maximum Ratings ⁽¹⁾

Parameter	Absolute Maximum	Units
Drain bias voltage (Vd)	+10	volts
Drain current (Id)	90	mA
RF input power (RFIn at Vd=9V)	23	dBm
Operating temperature	-50 to +85	$^{\circ}\text{C}$
Storage Temperature	-65 to +150	$^{\circ}\text{C}$

1. Operation beyond these limits may cause permanent damage to the component

Electrical Specifications ⁽¹⁾ @ T_A = 25 °C, V_d = 8V, Z_o =50 Ω

Parameter	Typ.	Units
Frequency Range	1.8 – 2.8	GHz
Insertion Loss	2.5	dB
Gain Slope Compensation	25	dB
Input Return Loss	3	dB
Output Return Loss	3	dB
Supply Current	60	mA

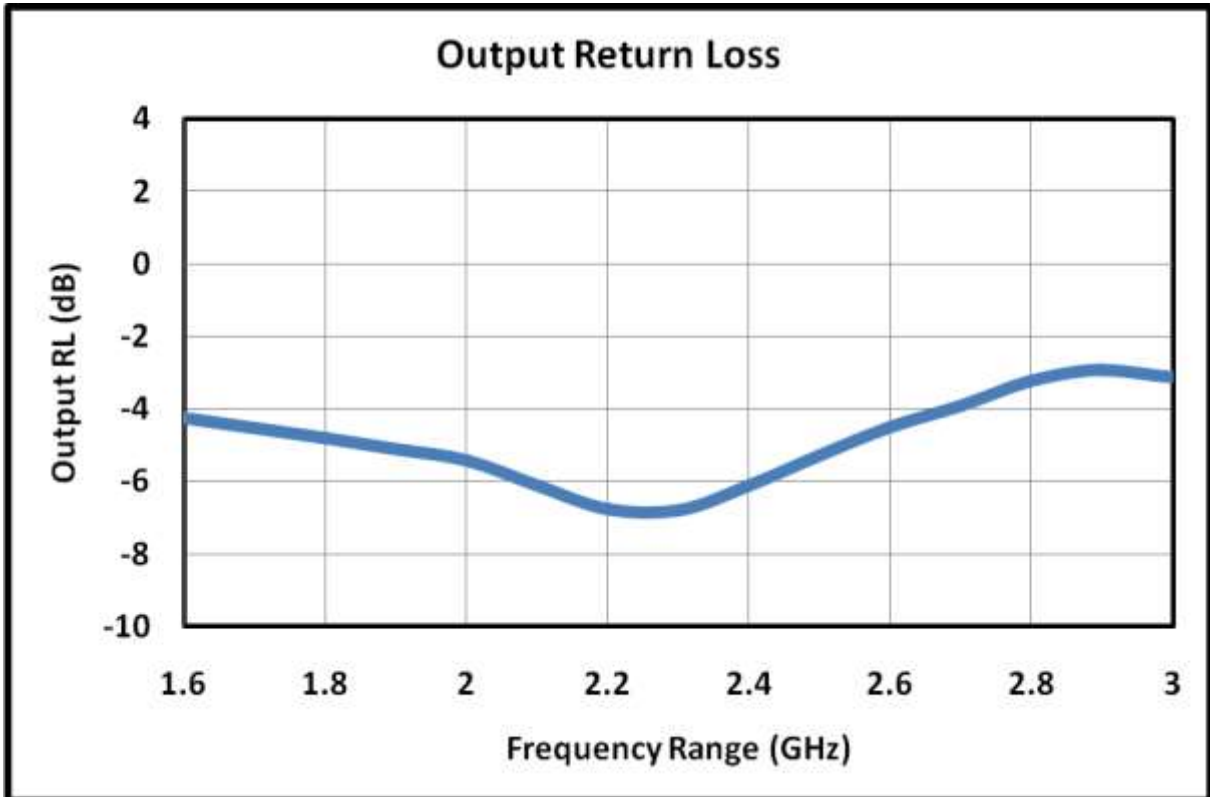
Note:

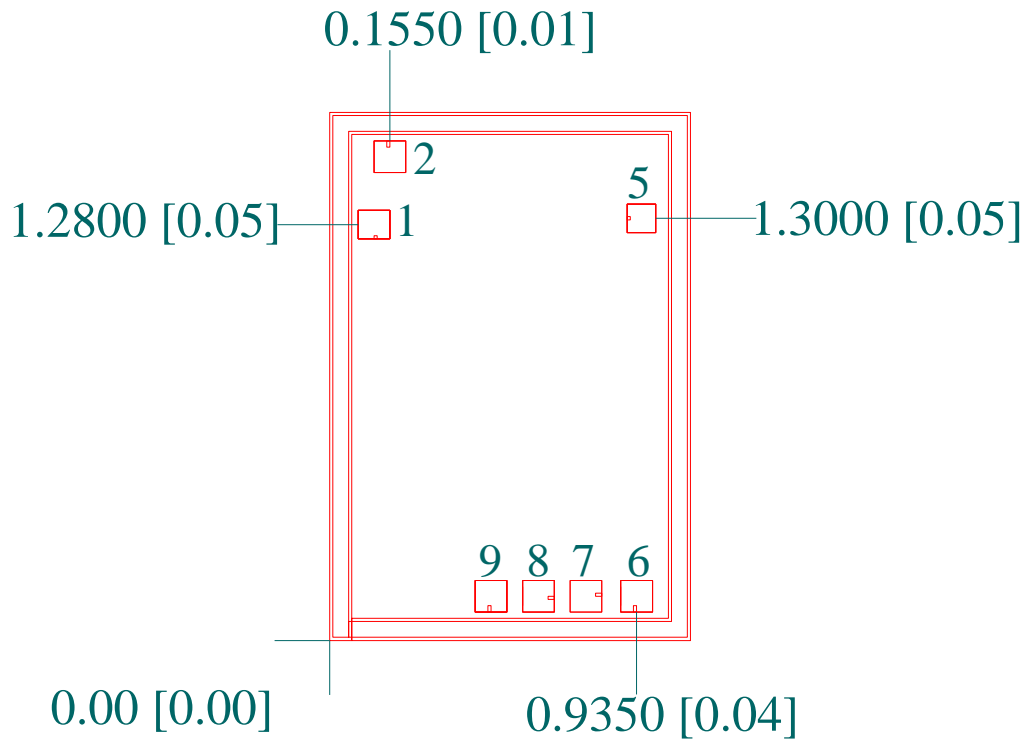
1. Electrical specifications are measured in test fixture.

Test fixture data

$V_d = 8V$, Total Current = 60mA, $T_A = 25^\circ C$



Test fixture data $V_d = 8V$, Total Current = 60mA, $T_A = 25^\circ C$ 

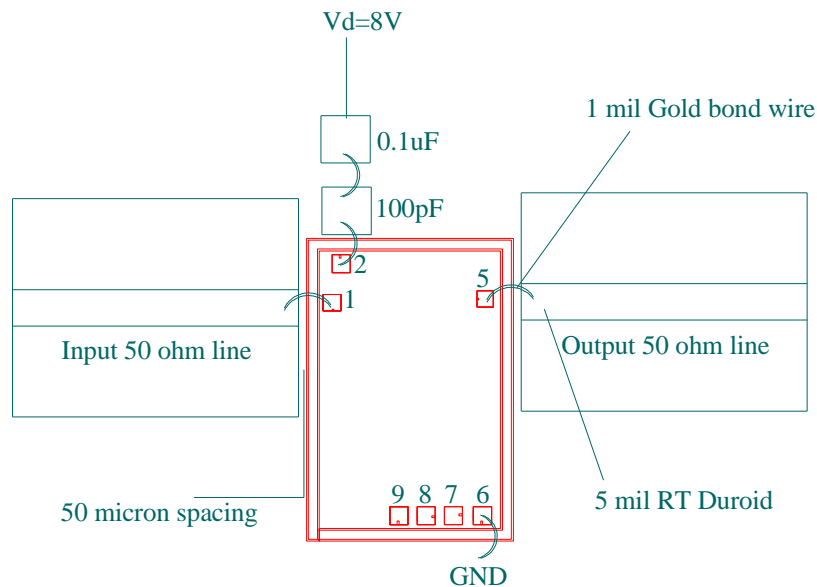
Bond Pad Locations

Units: millimeters

Note:

1. All RF and DC bond pads are 100 μ m x 100 μ m
2. Pad no. 1 : RF IN
3. Pad no. 2 : Drain voltage(V_d)
4. Pad no. 5 : RF Output
5. Pad no. 6 : To be Grounded

Recommended Assembly Diagram



Note:

- Two 1 mil (0.0254mm) bond wires of minimum length should be used for RF input and output.
- Two 1 mil (0.0254mm) bond wires of minimum length should be used from chip bond pad to 100pF capacitor.
- Input and output 50 ohm lines are on 5 mil RT Duroid substrate
- 0.1 μ F capacitors may be additionally used as a second level of bypass for reliable operation
- The RF input & output ports are DC decoupled on-chip.
- Proper heat sink like Copper tungsten or copper molybdenum to be used for better Reliability of chip

Die attach: For Epoxy attachment, use of a two-component conductive epoxy is recommended. An epoxy fillet should be visible around the total die periphery. If Eutectic attachment is preferred, use of fluxless AuSn (80/20) 1-2 mil thick preform solder is recommended. Use of AuGe preform should be strictly avoided.

Wire bonding: For DC pad connections use either ball or wedge bonds. For best RF performance, use of 150 - 200 μ m length of wedge bonds is advised. Single Ball bonds of 250-300 μ m though acceptable, may cause a deviation in RF performance.



GaAs MMIC devices are susceptible to Electrostatic discharge. Proper precautions should be observed during handling, assembly & testing

All information and Specifications are subject to change without prior notice