

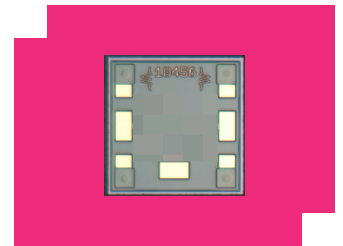
PT-0067CH

RESISTIVE DC - 67 GHz PICK-OFF TEE

DEVICE OVERVIEW

General Description

The PT-0067CH is a broadband DC to 67 GHz pick-off tee featuring a 15 dB pick-off loss and 1 dB through line insertion loss. A pick off tee is a resistive circuit that provides non-directional coupling of microwave signals. In an extremely well-matched system, the PT-0067CH can provide extremely broadband signal monitoring in a very small package. Due to reflections, a directional coupler is typically preferred over a pick off tee for most applications.



[Download s-parameters here](#)

Features

- Broadband (DC – 67 GHz)
- Flat 15 dB pick-off loss
- Excellent pick-off flatness near DC
- Small package size

Applications

N/A

Functional Block Diagram



Part Ordering Options

Part Number	Description	Package	Green Status	Product Lifecycle	Export Classification
PT-0067CH	RESISTIVE DC - 67 GHz PICK-OFF TEE	CH	RoHS REACH	Released	EAR99
<u>PT-0067KGD</u>	Known Good Die, RESISTIVE DC - 67 GHz PICK-OFF TEE	CH	RoHS REACH	Released	EAR99

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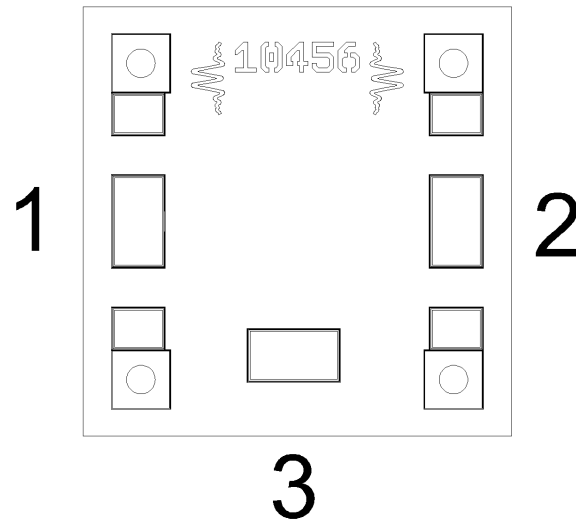
Revision History

Revision Code	Revision Date	Comment
-	2025-09-02	Initial Release

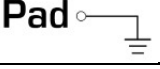
Port Configuration and Functions

Port Diagram

A top-down view of the PT-0067CH package outline drawing is shown below.



Port Functions

Port	Function	Description	Equivalent Circuit for Package
Pad	Ground	CH package ground path is provided through the ground paddle.	
Pad 1	Input	The input port is DC short to the output port and open to ground.	-
Pad 2	Output	The output port is DC short to the input port and open to ground.	-
Pad 3	Pick-Off	The pick-off port is DC connected to a 50 Ω load.	-

Specifications

Absolute Maximum Ratings

Parameter	Maximum Rating	Unit
Average Power Handling	2	W
Input/Output Port to Pick-Off Port Current Handling	30	mA
Maximum Operating Temperature	100	°C
Maximum Storage Temperature	125	°C
Minimum Operating Temperature	-55	°C
Minimum Storage Temperature	-65	°C
Thru Line Input to Output Current Handling	500	mA

Package Information

Parameter	Details	Rating
ESD	1000 to < 2000 Volts	HBM Class 1C
Dimensions	-	0.60 x 0.60 mm

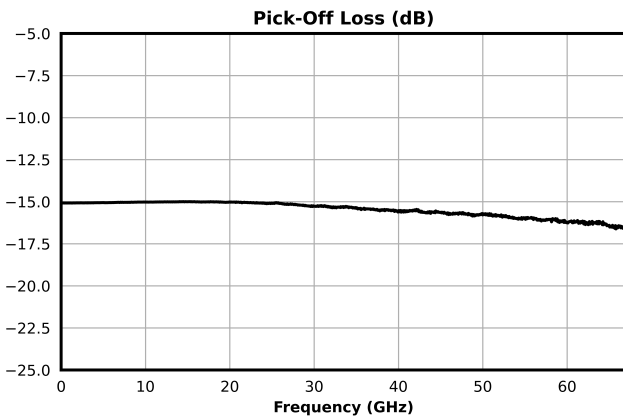
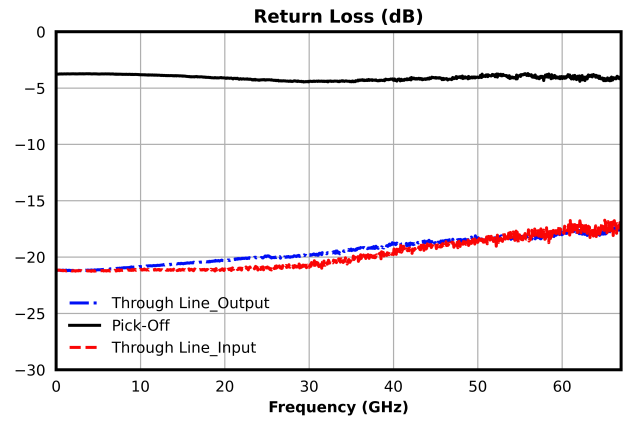
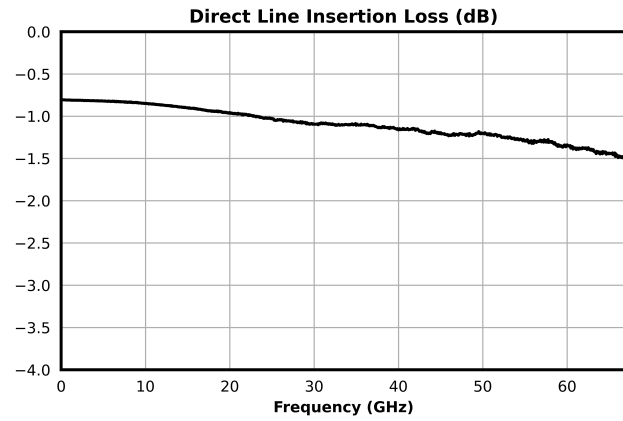
Electrical Specifications

The electrical specifications apply at TA=+25°C in a 50Ω system. Min and Max limits are guaranteed at TA=+25°C. All bare die are 100% visually inspected and RF performance is guaranteed by sample testing.

Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Direct Line Insertion Loss	Configuration A, Temp = 25°C	0	67	-	1.1	-	dB
Pick-Off Loss	Configuration A, Temp = 25°C	0	67	-	15.2	-	dB
Pick – Off Return Loss	Configuration A, Temp = 25°C	0	67	-	4	-	dB
Through Line Return Loss	Configuration A, Temp = 25°C	0	67	-	21	-	dB

Typical Performance Plot

The pick-off port was connected to an external TL with GSG & wire bonds to characterize the chip. The through line directly RF probed.



Die Mounting Recommendations

Mounting and Bonding Recommendations

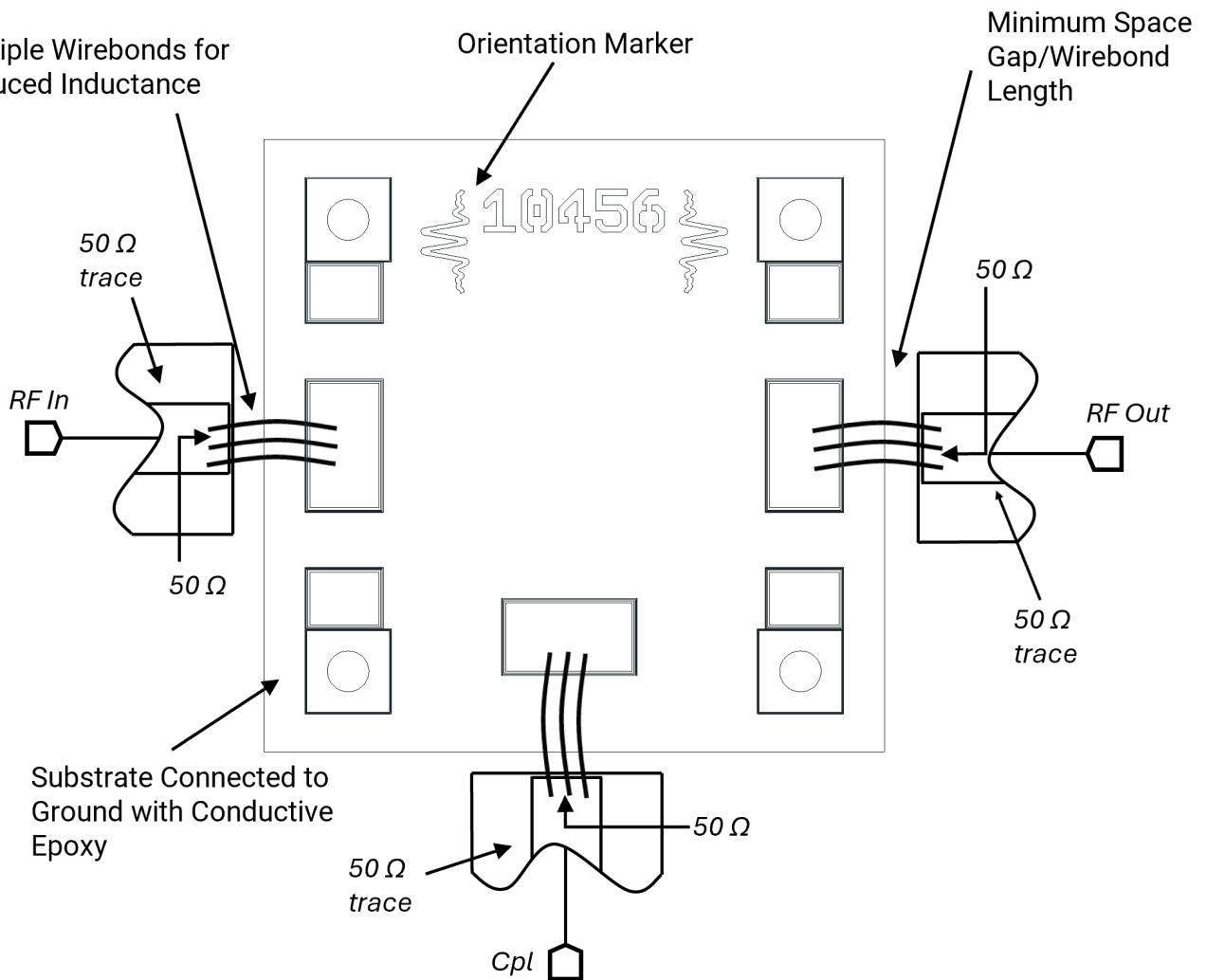
Marki MMICs should be attached directly to a ground plane with conductive epoxy. The ground plane electrical impedance should be as low as practically possible. This will prevent resonances and permit the best possible electrical performance. Datasheet performance is only guaranteed in an environment with a low electrical impedance ground.

Mounting - To epoxy the chip, apply a minimum amount of conductive epoxy to the mounting surface so that a thin epoxy fillet is observed around the perimeter of the chip. Cure epoxy according to manufacturer instructions.

Wire Bonding - Ball or wedge bond with 0.025 mm (1 mil) diameter pure gold wire. Thermosonic wirebonding with a nominal stage temperature of 150 °C and a ball bonding force of 40 to 50 grams or wedge bonding force of 18 to 22 grams is recommended. Use the minimum level of ultrasonic energy to achieve reliable wirebonds. Wirebonds should be started on the chip and terminated on the package or substrate. Bond wire inductance will improve return loss. Bondwire inductance in the range of 30pH to 200pH will improve performance.

Circuit Considerations – 50 Ω transmission lines should be used for all high frequency connections in and out of the chip. Wirebonds should be kept as short as possible, with multiple wirebonds recommended for higher frequency connections to reduce parasitic inductance. In circumstances where the chip more than .001” thinner than the substrate, a heat spreading spacer tab is optional to further reduce bondwire length and parasitic inductance.

Bonding Diagram



Handling Precautions

General Handling

Chips should be handled with care using tweezers or a vacuum collet. Users should take precautions to protect chips from direct human contact that can deposit contaminants, like perspiration and skin oils on any of the chip's surfaces.

Static Sensitivity

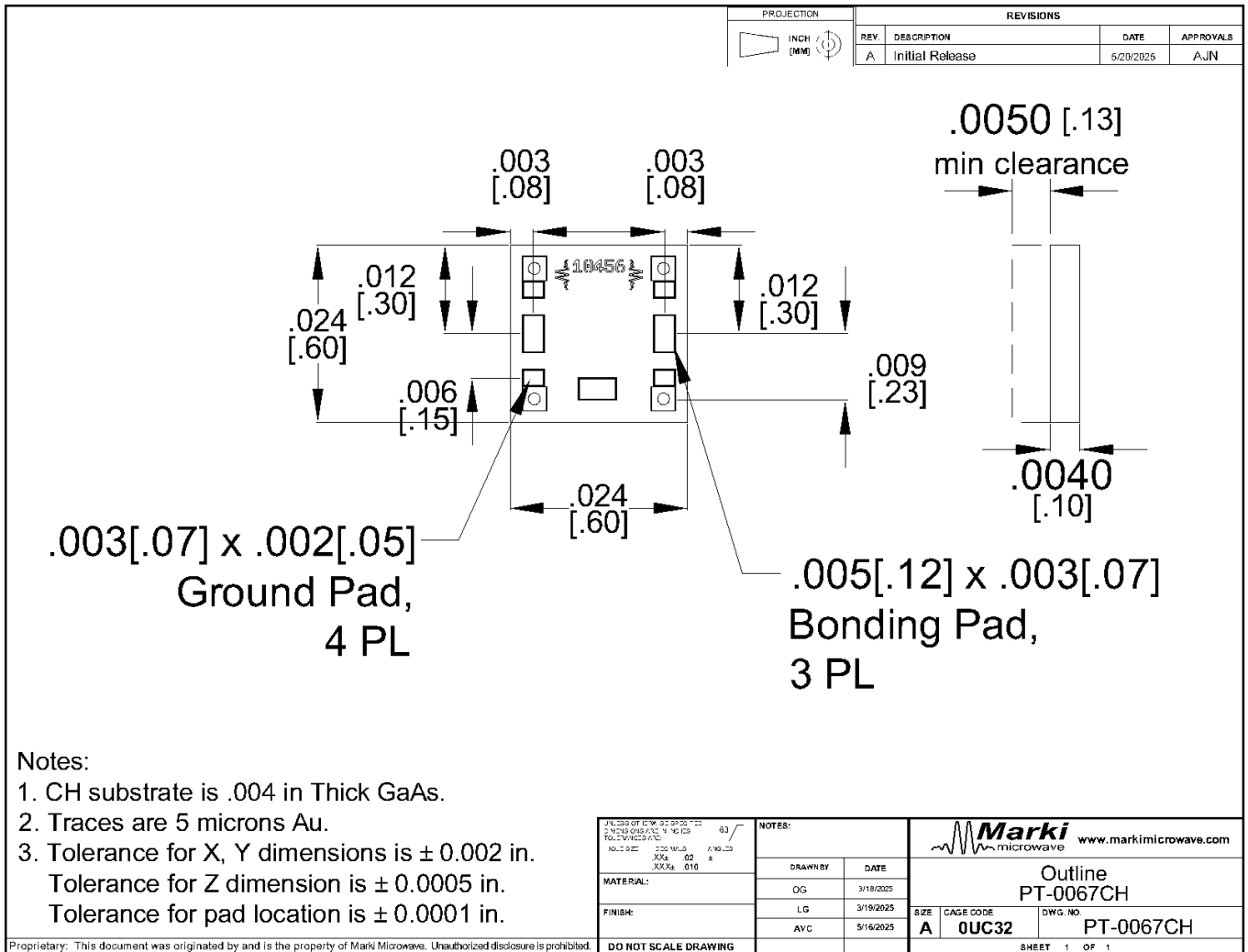
GaAs MMIC devices are sensitive to ESD and should be handled, assembled, tested, and transported only in static protected environments.

Cleaning and Storage: Do not attempt to clean the chip with a liquid cleaning system or expose the bare chips to liquid. Once the ESD sensitive bags the chips are stored in are opened, chips should be stored in a dry nitrogen atmosphere.

Mechanical Data

Outline Drawing

Download : [Outline 2D Drawing](#)



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