

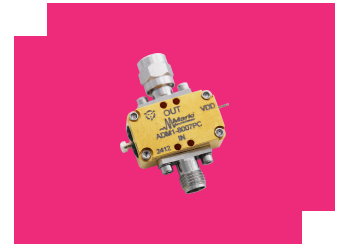
ADM1-8007APC

2 - 40 GHz Wideband LO Driver Amplifier

DEVICE OVERVIEW

General Description

The ADM1-8007APC is a high-linearity, high gain, low noise distributed amplifier capable of providing +22dBm output power up to 35 GHz. When driven with an input power of 0 to +5 dBm, the ADM1-8007APC can provide sufficient LO drive to power all H and most S diode mixers to 40GHz. The amplifier has excellent return losses and gain flatness. The ADM1-8007APC is a single-pin bias variant of the ADM1-8007PC. RF Performance is identical to the ADM1-8007PC.



[Download s-parameters here](#)

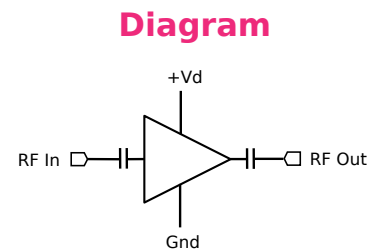
Features

- +22 dBm output power
- +22 dB gain
- 3.3dB Noise Figure
- Excellent gain flatness
- No negative bias or bias sequencing
- No external bias tee required

Applications

- 5G transceivers
- Mobile test and measurement equipment
- SATCOM
- Radar
- Driver Amplifier for H and S - Diode Mixers

Functional Block Diagram



Part Ordering Options

Part Number	Description	Package	Connectors	Green Status	Product Lifecycle	Export Classification
ADM1-8007APC	2 - 40 GHz Wideband LO Driver Amplifier	PC	-	REACH RoHS	Released	EAR99

ADM1-8007APC

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Revision History

Revision Code	Revision Date	Comment
-	2024-09-18	Initial Release

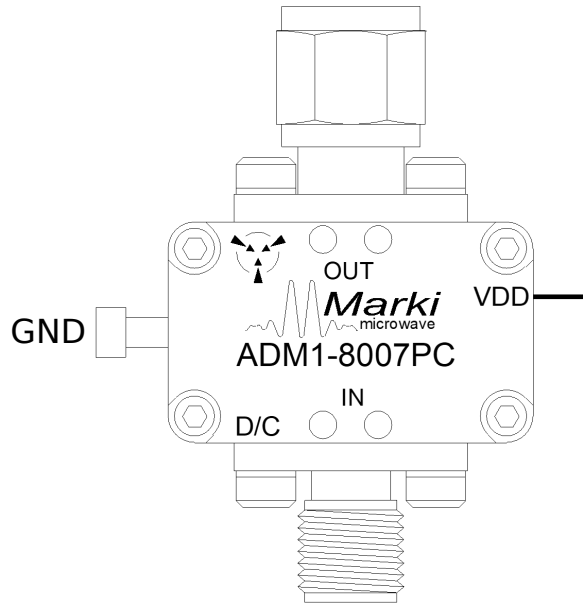
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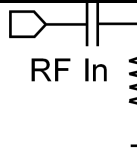
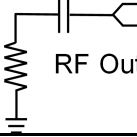
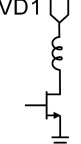
Port Configuration and Functions

Port Diagram

A port diagram of the ADM1-8007PC is shown below. “Version B” pinout is included for legacy product support. All new deliveries have “Version A” pinout.



Port Functions

Port	Function	Connector Type	Description	Equivalent Circuit for Package
GND	Ground	-	Housing or outside of the coaxial cables must be connected to a DC/RF ground potential with high thermal and electrical conductivity.	Gnd 
IN	RF Input	-	This is the RF Input port of the amplifier die. It is RF matched to 50 Ω, and has built-in DC blocking capacitors.	RF In 
OUT	RF Output	-	This is the amplifier’s RF Output. It is RF matched to 50 Ω and has built-in DC blocking capacitors.	RF Out 
VDD	Positive DC Supply Voltage	-	The VDD pin supplies DC voltage to the drain of the amplifier IC.	VD1 

Specifications

Absolute Maximum Ratings

The Absolute Maximum Ratings indicate limits beyond which damage may occur to the device. If these limits are exceeded, the device may become inoperable or have a reduced lifetime. Reliability limits are individual, instantaneous catastrophic limits only. Functional operation limits are indicated below. Operation of the device at multiple absolute maximum limits or for extended periods at a single limit can cause degradation and damage to the device.

Parameter	Maximum Rating	Unit
Maximum Operating Temperature for MTTF > 1E6 hours	85	°C
Maximum Storage Temperature	125	°C
Minimum Operating Temperature for MTTF > 1E6 hours	-40	°C
Minimum Storage Temperature	-65	°C
Power Supply Current	400	mA
Power Supply Voltage	8	V
RF Input Power	15	dBm

Package Information

Parameter	Details	Rating
Dimensions	-	21.85 x 13.21 mm
Moisture Sensitivity Level	-	MSL 1

Recommended Operating Conditions

The Recommended Operating Conditions indicate the limits, inside which the device should be operated, to guarantee the performance given in Electrical Specifications. Operating outside these limits may not necessarily cause damage to the device, but the performance may degrade outside the limits of the electrical specifications. For limits, above which damage may occur, see Absolute Maximum Ratings.

Parameter	Min	Nominal	Max	Unit
Power Supply DC Voltage	3	5	6	V
Power Supply DC Current	133	232	276	mA
Input Power for Saturation	0	1	8	dBm
Ambient Temperature	-40	25	85	°C

Sequencing Requirements

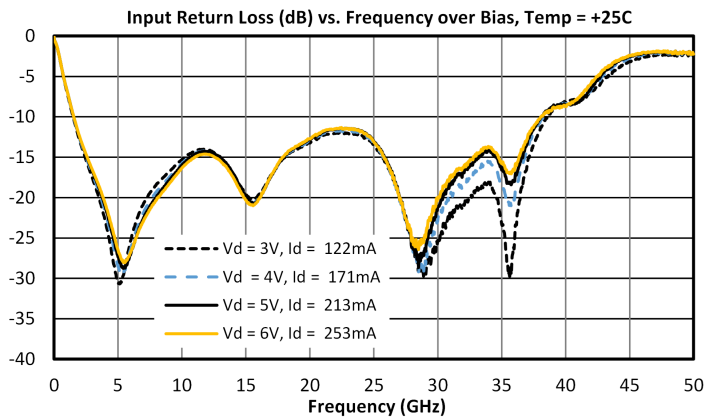
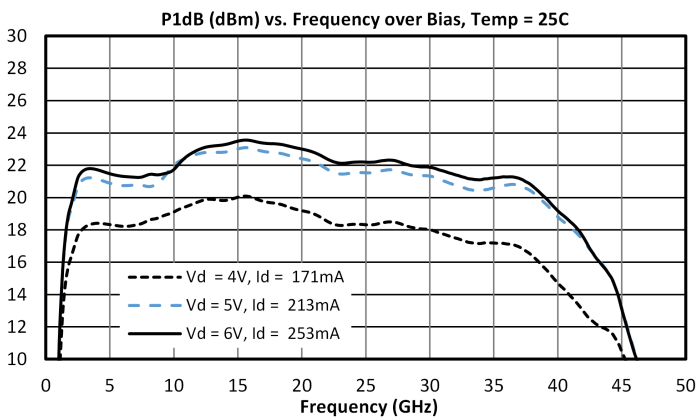
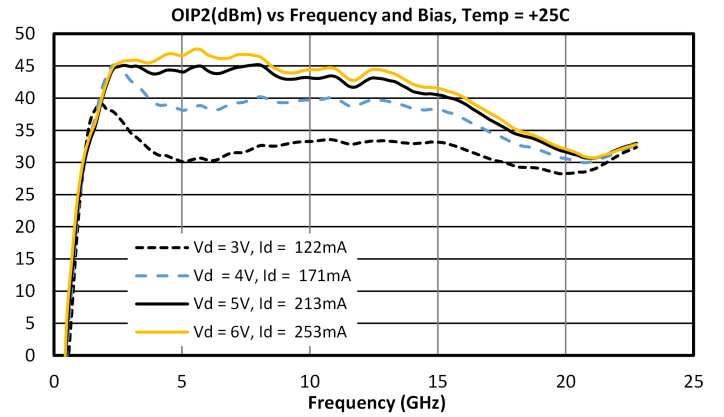
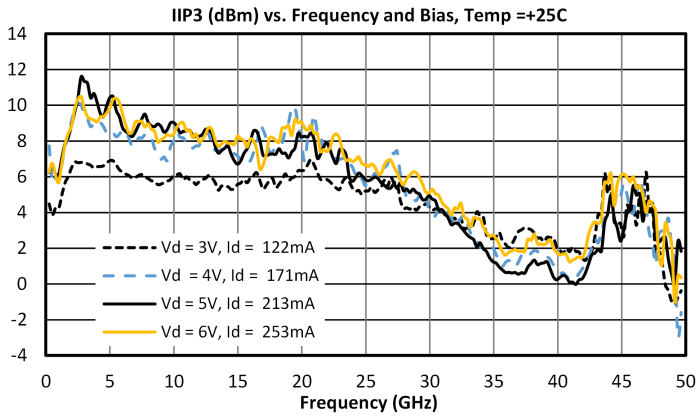
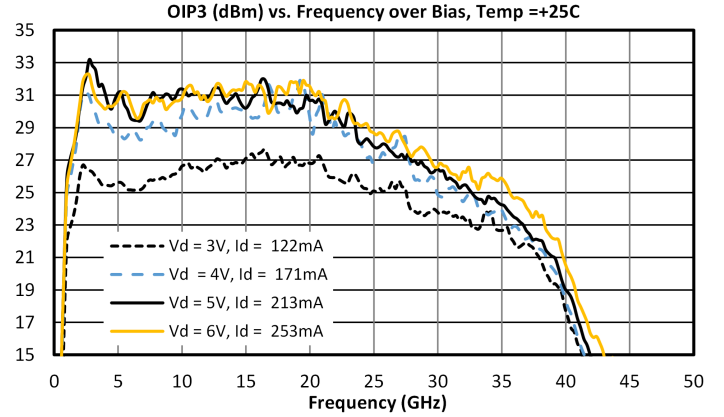
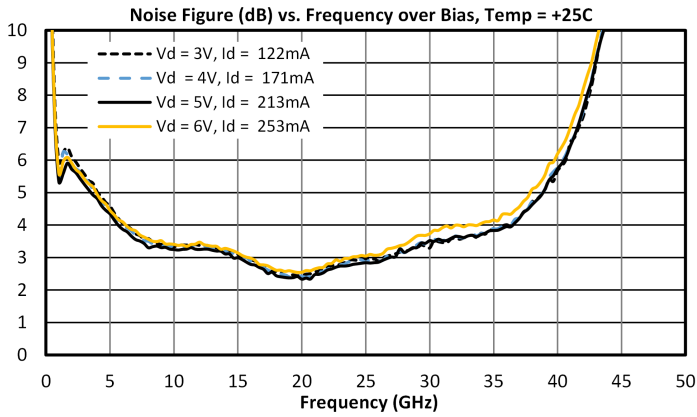
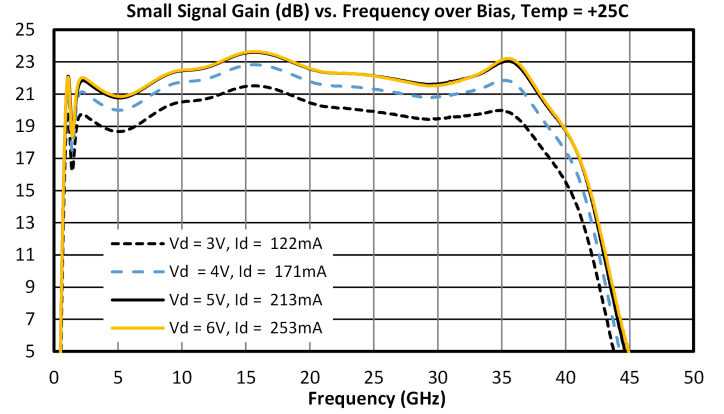
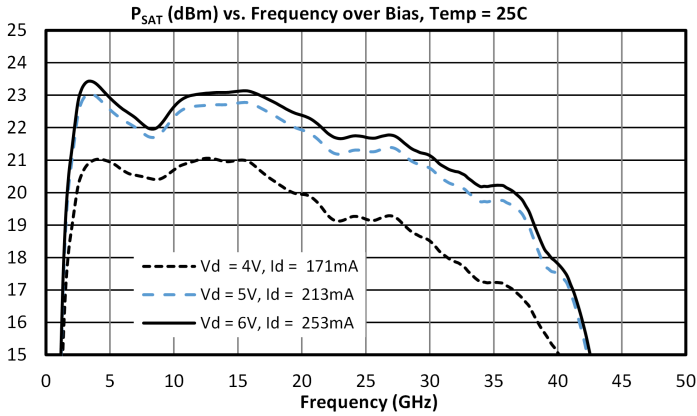
There is no sequencing required to power up or power down the amplifier. The amplifier must have an output load connected during operation.

Electrical Specifications

Unless otherwise specified, electrical specifications apply at TA=+25°C, Vdd = 5 V. Min and Max limits apply only to our connectorized units and are guaranteed at TA=+25°C

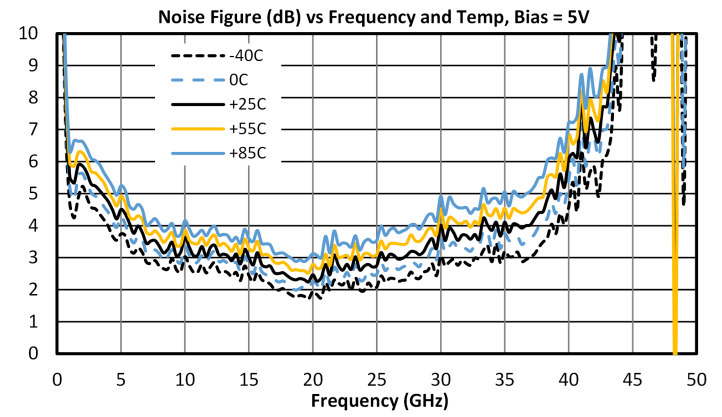
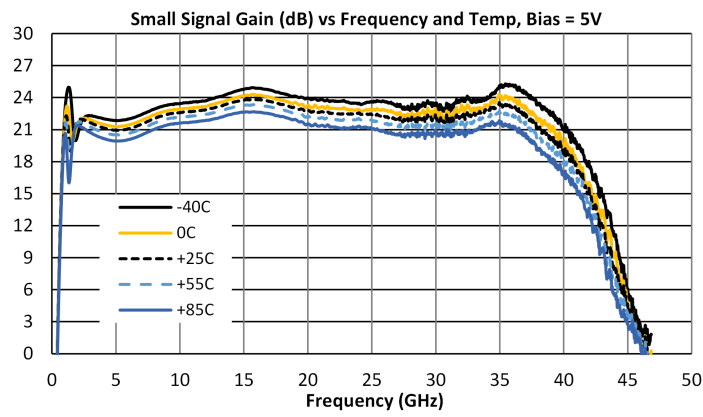
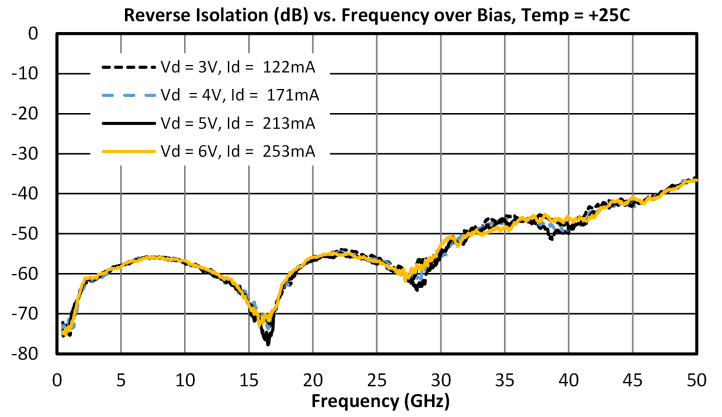
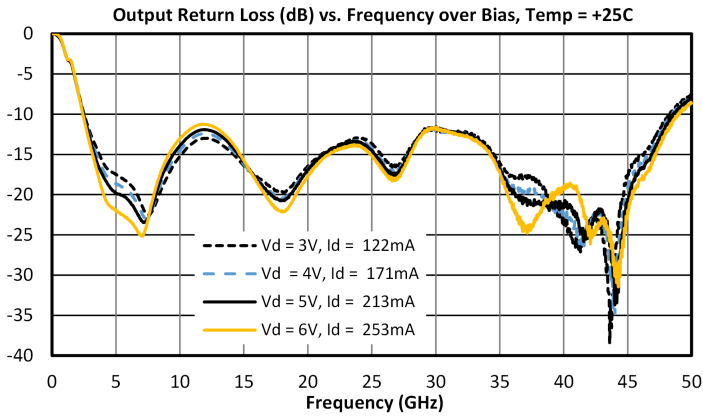
Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Small Signal Gain	Vdd = 5 V Pin = -20 dBm	2	40	-	22	-	dB
Noise Figure	Vdd = 5 V Pin = -20 dBm	2	40	-	3.3	-	dB
Output Power	Vdd = 5 V	2	27	-	22	-	dBm
Output Power	Vdd = 5 V	27	40	-	20	-	dBm
Output IP3	Vdd = 5 V Pin = -24 dBm per tone, 1 MHz tone spacing	2	20	-	30	-	dBm
Output IP3	Vdd = 5 V Pin = -24 dBm per tone, 1 MHz tone spacing	20	40	-	25	-	dBm
Input IP3	Vdd = 5 V Pin = -24 dBm per tone, 1 MHz tone spacing	2	20	-	9	-	dBm
Input IP3	Vdd = 5 V Pin = -24 dBm per tone, 1 MHz tone spacing	20	40	-	5	-	dBm
Output IP2	Vdd = 5 V Pin = -24 dBm per tone, 1 MHz tone spacing	2	12	-	45	-	dBm
Output IP2	Vdd = 5 V Pin = -24 dBm per tone, 1 MHz tone spacing	12	22	-	37	-	dBm
Output P1dB	Vdd = 5 V	2	40	-	21	-	dBm
Input Return Loss	Vdd = 5 V Pin = -20 dBm	2	40	-	15	-	dB
Output Return Loss	Vdd = 5 V Pin = -20 dBm	2	40	-	15	-	dB
Reverse Isolation	Vdd = 5 V Pin = -20 dBm	2	40	-	55	-	dB
Input Power for Saturation	Vdd = 5 V	2	27	-	2	-	dBm
Input Power for Saturation	Vdd = 5 V	27	40	-	0	-	dBm
DC Supply Quiescent Current (Idq) (Drain + Bias Current)	Vdd = 5 V no RF input	-	-	-	232	-	mA

Typical Performance Plots

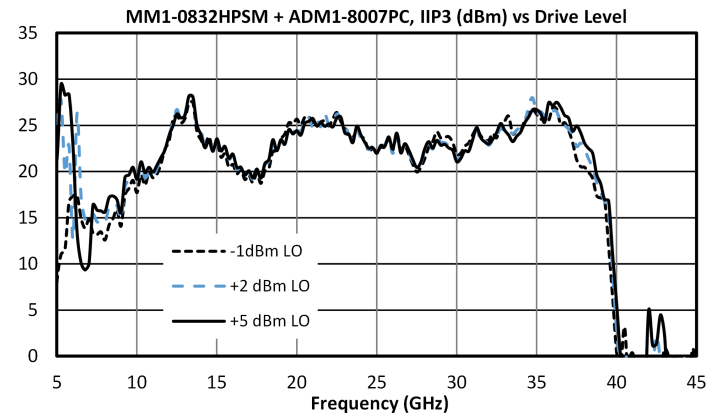
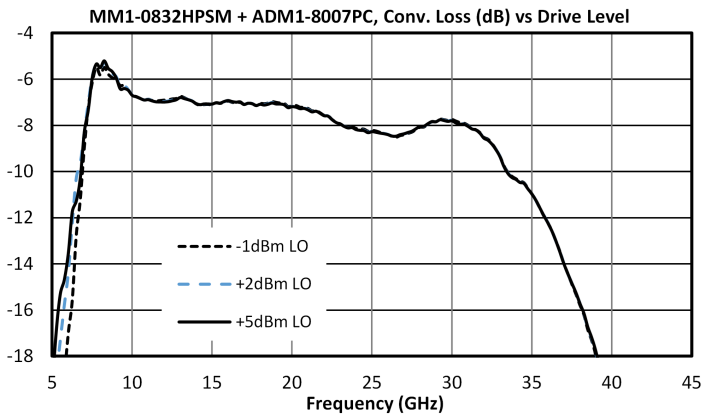


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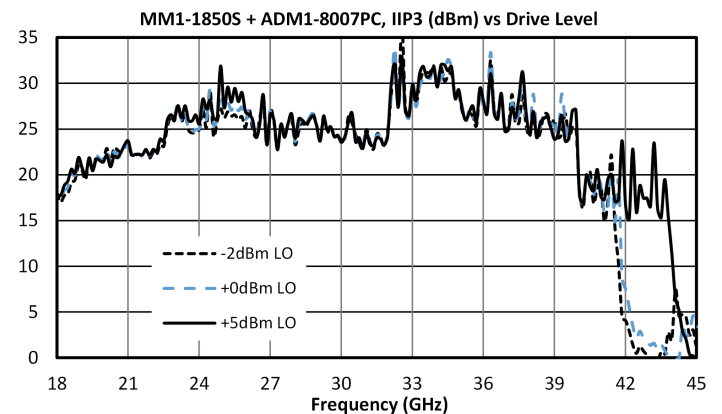
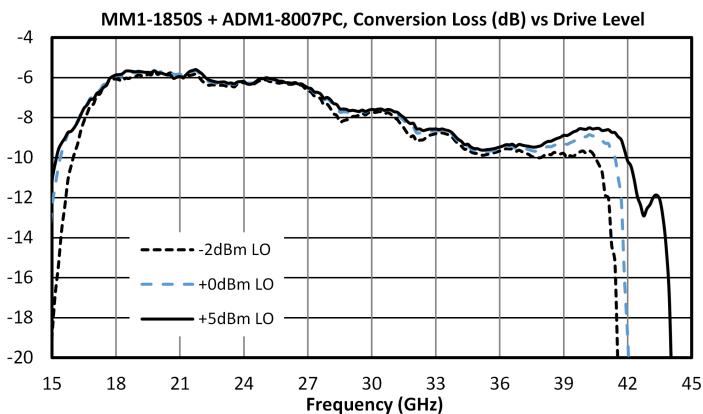
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Typical Performance Plots of Marki MM1-0832HPSM with ADM1-8007PC



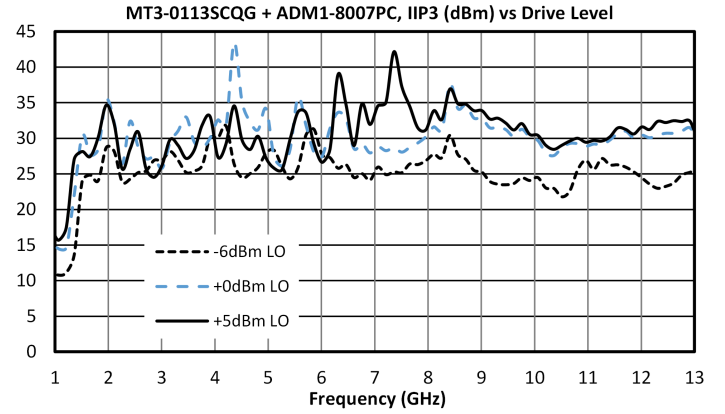
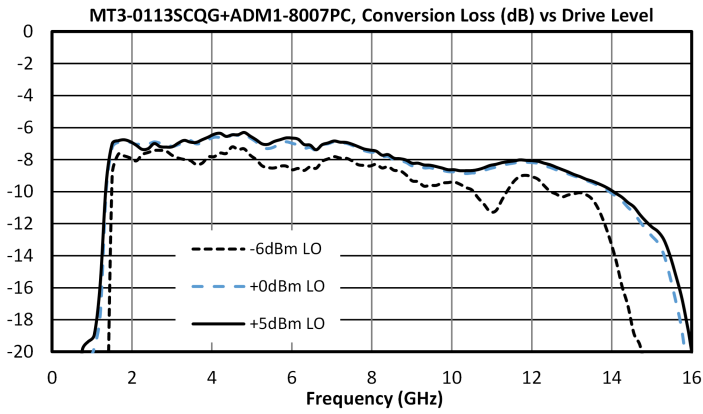
Typical Performance Plots of Marki MM1-1850S with ADM1-8007PC



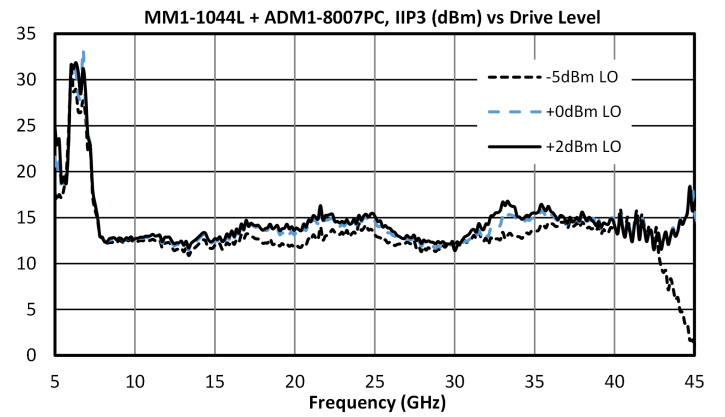
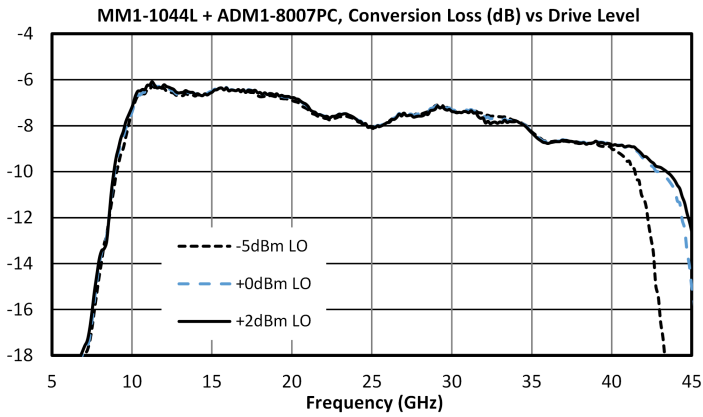
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Typical Performance Plots of Marki MT3-0113SCQG with ADM1-8007PC



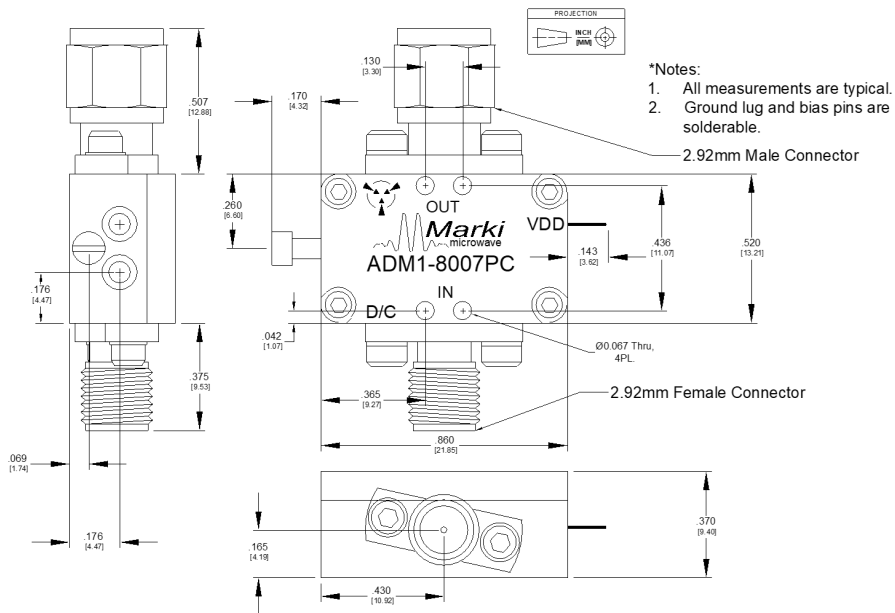
Typical Performance Plots of Marki MM1-1044L with ADM1-8007PC



Mechanical Data

Outline Drawing

Download : [Outline 2D Drawing](#)



Port	Connector Type
Input	2.92 mm Female
Output	2.92 mm Male

See ADM1-8007PC for 4-pin bias variant.

ADM1-8007APC

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