

# SAC3136

GaAs MMIC Power Amplifier  
18~29GHz

Rev 1.0

## Features

- Frequency: 18~29GHz
- Gain: 16dB
- Output P<sub>-1dB</sub>: 32dBm Typ. 30dBm Min.
- Supply Voltage: +6V/+Vg
- IM<sub>3</sub>: -23dBc@Pout/Tone=26dBm/28GHz
- Die Size: 3.4mmx2.35mmx0.1mm

## Typical Applications

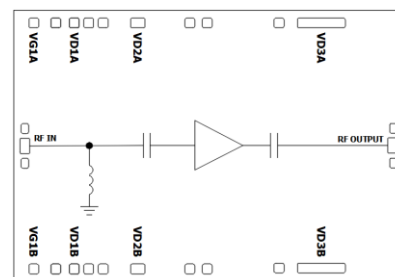
- SDR
- Radar

## General Description

SAC3136 is a GaAs MMIC power amplifier. The SAC3136 provides 16dB of gain, and 32dBm of output power for 1 dB compression and 20% PAE from +5V supply.

The chip has surface passivation for protection and backside via holes and gold metallization to allow a conductive epoxy die attach process.

## Functional Diagram



## Electrical Performance

T<sub>A</sub>=25°C, V<sub>D</sub>=+6V, I<sub>D</sub>=1100mA, Z<sub>0</sub>=50Ω

Parameter	Min.	Typ.	Max.	Units
Frequency Range	18~29			GHz
Gain	14	16	21	dB
Gain Flatness	—	±1	±2	dB
Input Return Loss	—	-7	—	dB
Reverse Isolation	—	-60	—	dB
Output Power for 1 dB Compression (OP <sub>-1dB</sub> )	30	32	—	dBm
IM <sub>3</sub>	—	-23*	—	dBc
Power Added Efficiency	—	20**	—	%
Supply Current(I <sub>D</sub> )	—	1100	1800	mA
Thermal Resistance	—	6.4	—	°C/W

\*Pout/Tone=26dBm,fc=28GHz, Δf=4MHz

\*\*Pout=P<sub>-1dB</sub>

## Absolute Maximum Ratings

Maximum Input Power	+18dBm CW 1min	Operating Temperature	-55°C~+85°C
Channel Temperature	+150°C	Storage Temperature	-55°C~+150°C
Maximum V <sub>D</sub>	+6.5V		

## SuperApex, LLC

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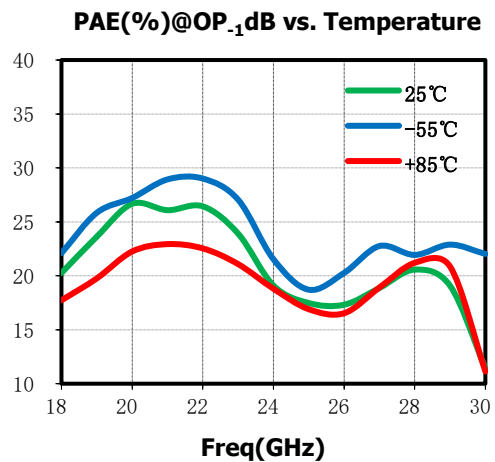
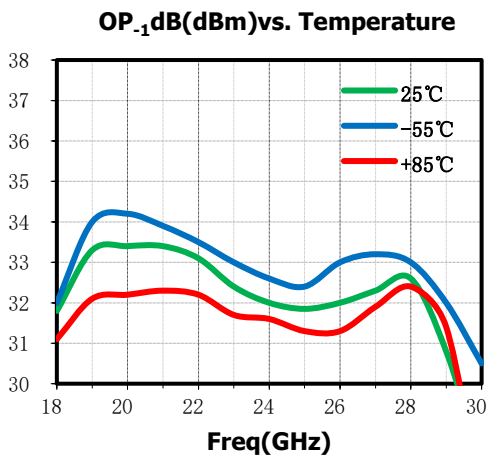
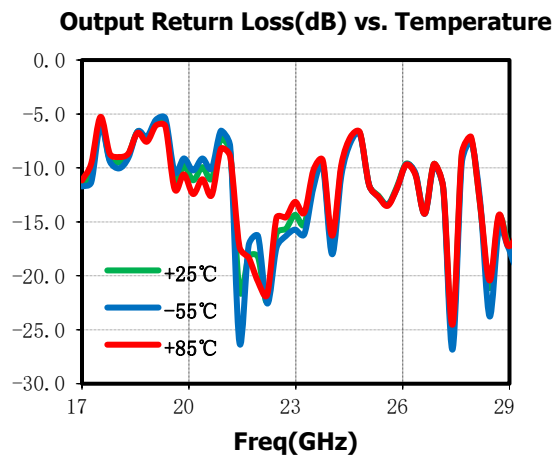
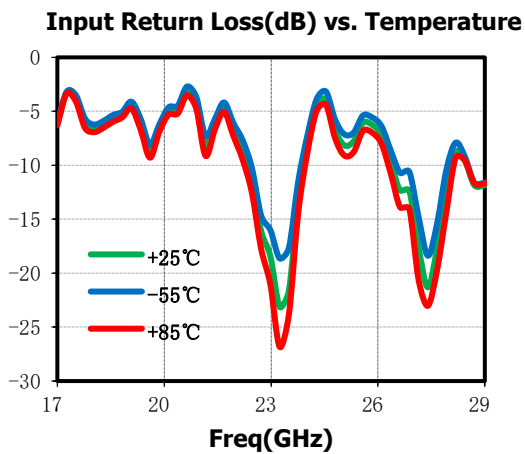
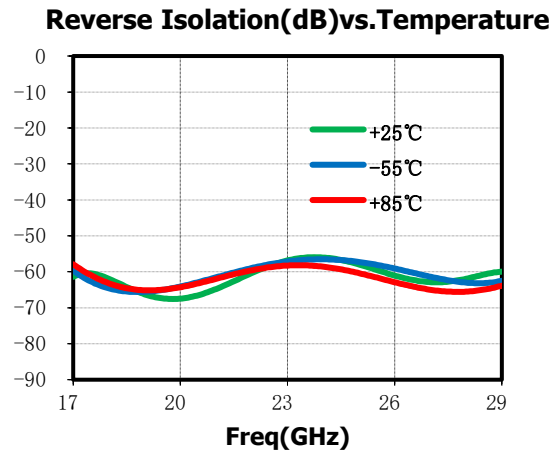
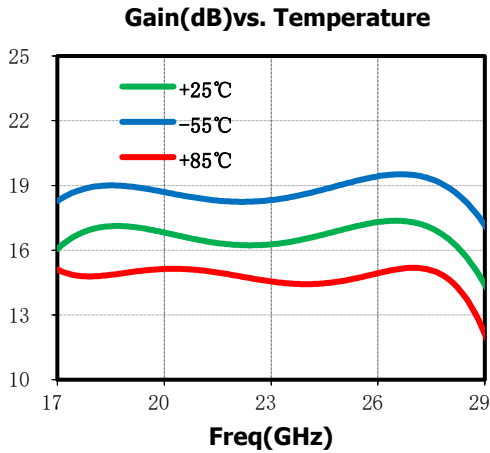


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## Typical Small Signal Performance Curve

$V_D = +6V$   $I_D = 1100mA$



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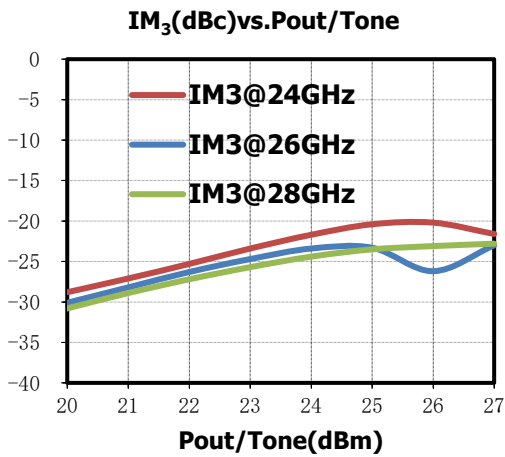
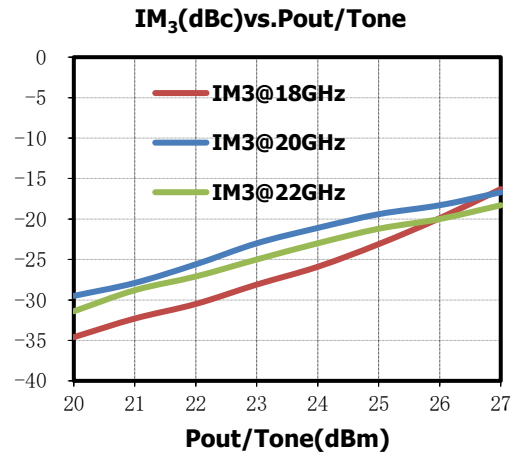
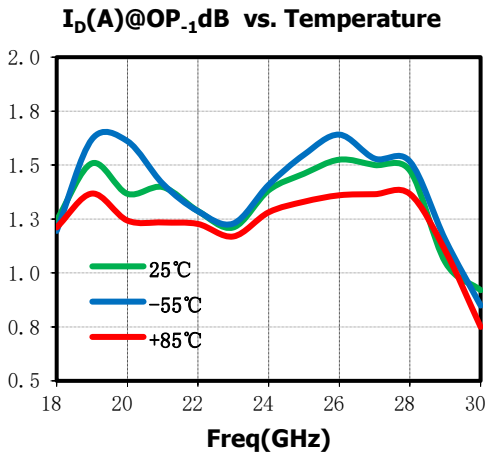
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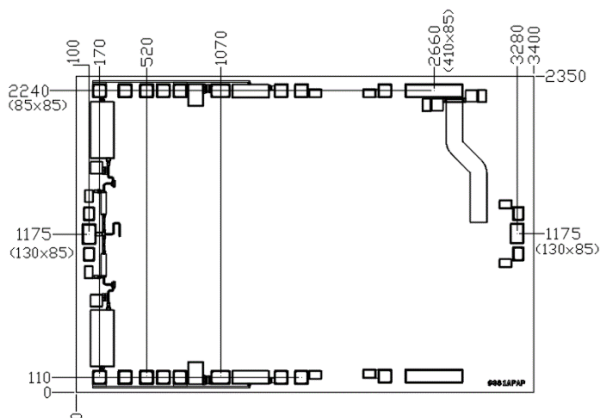
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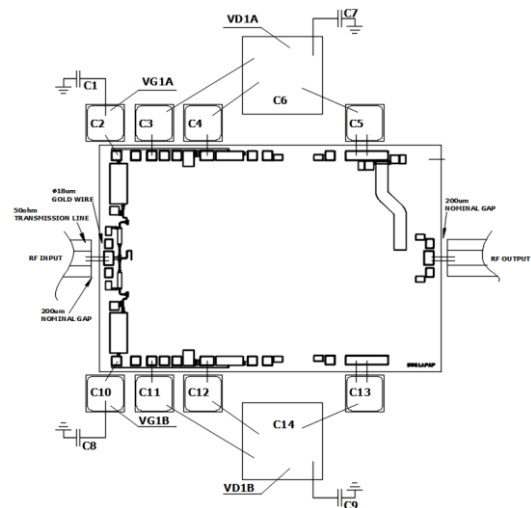


## Die Outline

(All dimensions in  $\mu\text{m}$ )



## Assembly Diagram



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## Components List

Reference Des.	Value	Part Number	Manuf.
C2、C3、C4、C5、C10、C11、C12、C13	300pF	SLC	-
C6、C14	1000pF	SLC	-
C1、C7、C8、C9	1uF	C1005X5RC105KT	TDK

### Attention:

GaAs MMIC devices are susceptible to damage from Electrostatic Discharge. Proper precautions should be observed during handling, assembly and test.