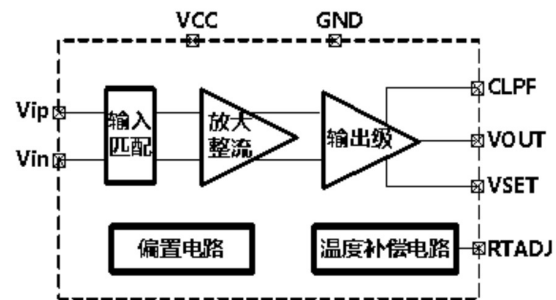


Performance

- Frequency: 2~18GHz
- Accuracy: $\pm 1\text{dB}$ @ $-40\sim+85^\circ\text{C}$
- Dynamic: 59dB @ 3dB log error
- Response: Rise time 17ns/Fall time 10ns
- Adjustable slope: -21mV/dB (normal)
 -42mV/dB (double)
- Single Supply: 3.3V
- Low consumption: 17~35mA
- ESD: Class 1A
- Size: 1.12mm*0.79mm*0.2mm

Function Diagram

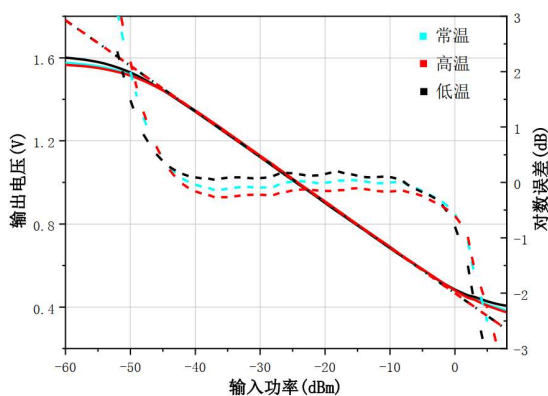


Electrical Specifications ($T_A=25^\circ\text{C}$, $V_{CC}=3.3\text{V}$)

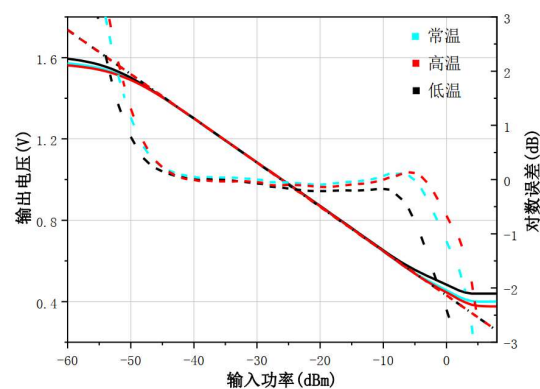
Parameter	Symbol	Condition	Min	Typical	Max	Unit
Input Frequency	Fr _f	RF input Frequency	2		18	GHz
Input Power	P _{in}	Fr _f =16GHz, 3dB Log err	-53		1	dBm
Output Voltage	V _{out}	16GHz @P _{in} =-40dBm 16GHz @P _{in} =-10dBm		1.3 0.65		V
Range of V _{out}	V _r range	(Haploid slope)	0.4		1.56	V
Frequency Flatness	G _{flat}	Full freq. @-20dBm		± 2		dB
Slope	Slope	Output Linearity		-21		mv/dB
Log error	Log Err	At full temperature		± 1		dB
Drive current	I _{drv}	Max. output I _{drv}		30	50	mA
Fall time	T _{fall}	P _{in} =off to -10dBm,90%~10%		10	20	ns
Rise time	T _{rise}	P _{in} =-10dBm to off,10%~90%		10	30	ns
Recovery time	T _{rec}	Video recovery time		25		ns

Test Curves ($T_A=-40\sim+85^\circ\text{C}$)

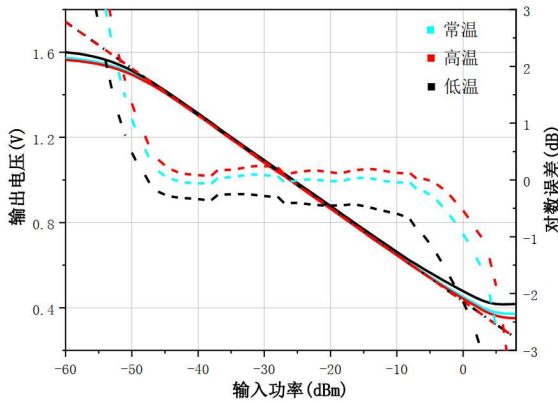
2GHz, log output



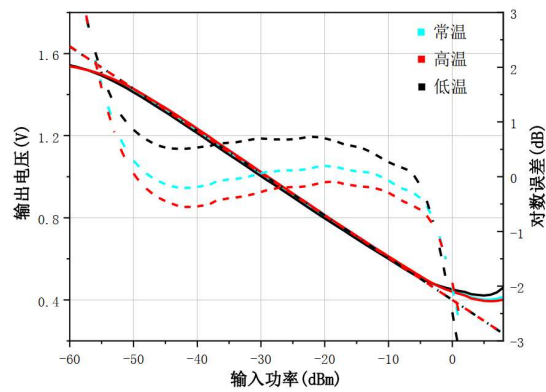
8GHz, log output



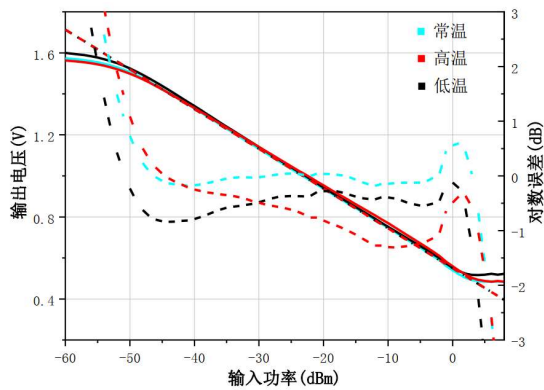
12GHz, log output



16GHz, log output

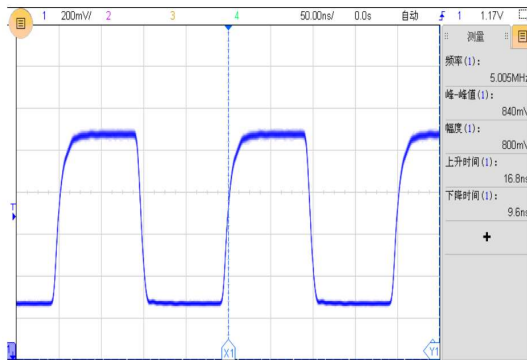


18GHz, log output

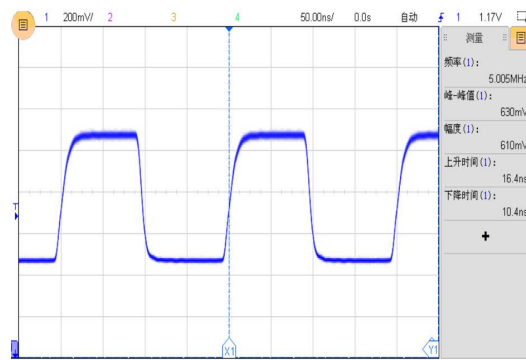


Rise/Fall Time Performance

2GHz input, Rise/Fall time

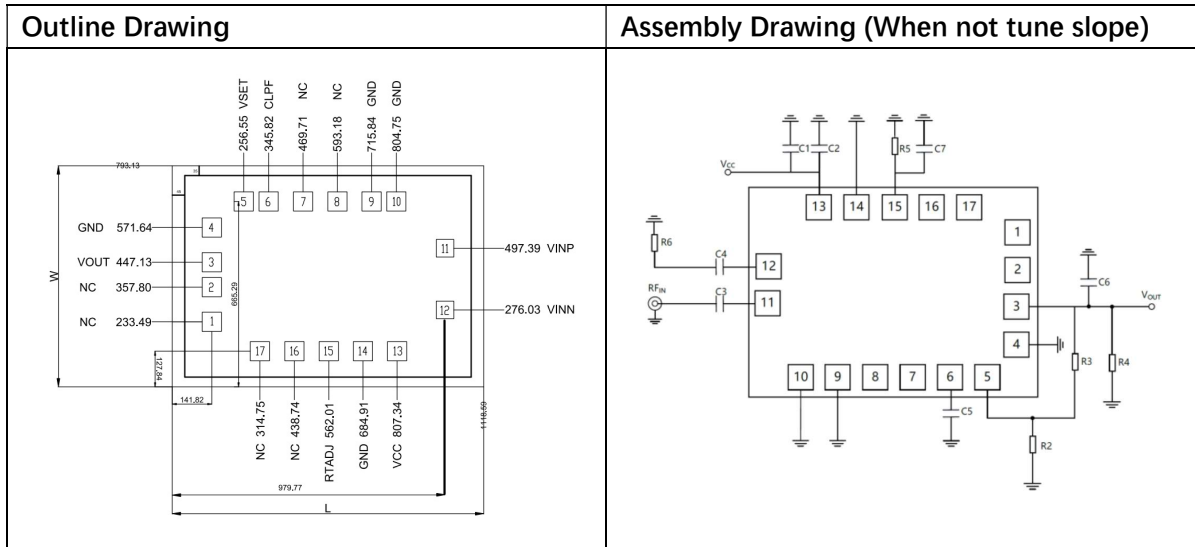


12GHz input, Rise/Fall time



Absolute Max Ratings (TA=25°C)

Parameter	Symbol	Value	Remark
Supply Voltage	Vcc	3.6V	
Input Power	Pin	10dBm	
Operating Temperature	Ta	-55°C~+85°C	Environmental Temperature
Storage Temperature	Tstg	-60°C~+150°C	
Mounting Temperature	Tm	260°C	



Assembly Notes

- Used as quick detect, C6 suspend, C5=6.8pF, R4=130Ω;
 When not tune slope, R3=0Ω, R2 suspend;
 When R2=R3-10KΩ, slope is doubled.
- Used as precise detect, C6=C5=100nF, R4 suspend;
 When not tune slope, R3=0Ω, R2 suspend;
 When R2=R3-10KΩ, slope is doubled.
- Adjust C3, C4, R6, flatness within band can be optimized.
- R5 is temperature compensation resistor, is adjustable.
- When do quick detect and not tune slope: R6=51Ω, R2 suspend, R3=0Ω, C6 suspend, C5=6.8pF, R4=130Ω, R5=30KΩ, C1=0.1nF, C2=0.1uF, C3=C4=2.2nF, C7=100pF.

Pads Definition

Pad	Name	Function	Description
1,2,7,8, 16,17	NC	Not connected	Recommend to suspend
3	VOUT	Output	Detector voltage output, value of R4, C5, C6 effect response recovery time of VOOUT
4,9,10,14	GND	Grounded	Sintering to GND
5	VSET	Input	R2, R3 is used to adjust output slope of VOOUT, When R2 suspend, R3=0Ω, normal slope; R3=R3=10KΩ, slope is doubled. Same as AD8317
6	CLPF	Output	Connect to GND filter capacitor, capacitance effect response recovery time of VOOUT
11	VINP	Input	RF input, matched by capacitor, AC coupled input, DC voltage ≈ 2.2V
12	VINN	Input	RF input, GND by capacitor resistor AC coupled, DC voltage ≈ 2.2V
13	VCC	Power supply	Power supply 3.3V, connect to 100nF and 100pF capacitor to GND filter
15	RTADJ	Input	Bias to GND resistor, usually 30KΩ, can adjust according to requirement.