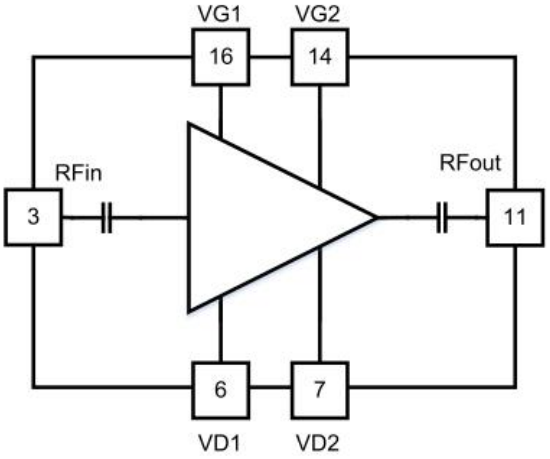
★1. Product Features

- Frequency range: 17.6 GHz ~ 23.7 GHz
- Gain: 21 dB
- In-band gain flatness: ±1 dB
- Noise figure: 5 dB
- Output P1dB: +22 dBm
- Supply: +5.0 V @ 265 mA

Functional Block Diagram



★2. Product Introduction

TFDA2521P is a packaged driver amplifier chip. It is housed in a standard QFN 4 × 4-16L surface-mount package, covers 17.6 GHz ~ 23.7 GHz and measures 4 mm × 4 mm × 0.85 mm (16 pins).

★3. Electrical Characteristics

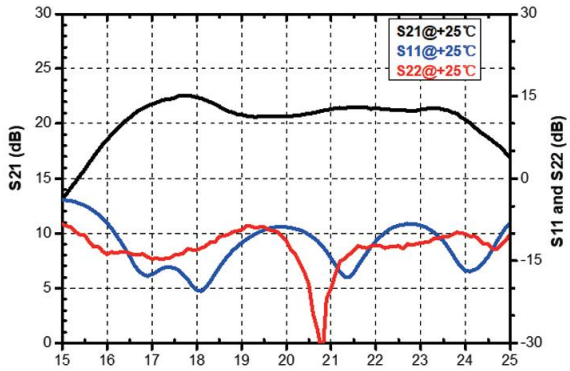
TA = +25°C, Vd = +5.0V, Vg = -0.8V (packaged device test results)

Parameter	Min.	Typ.	Max.	Unit
Frequency range	17.6		23.7	GHz
Gain		21		dB
Noise figure		5		dB
In-band gain flatness			1	dB
Output P1dB		22		dBm
Output IP3		32		dBm
Input return loss		8		dB
Output return loss		8		dB
Operating current		265		mA

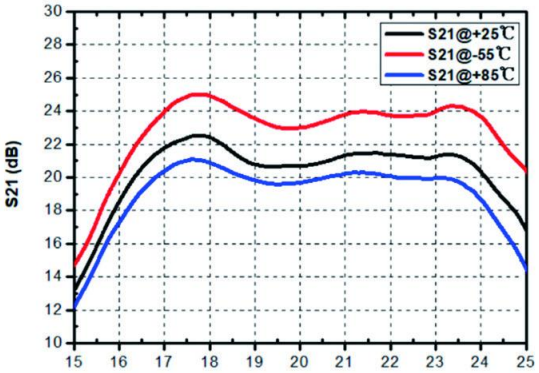
Email: ttf@ttfelectronic.com
Website:ttfelectronic.com
Address: Building 16, Area C, Entrepreneurship and R&D Park, Xi'an High-tech Industrial Development Zone, China

★4. Typical Performance Curves

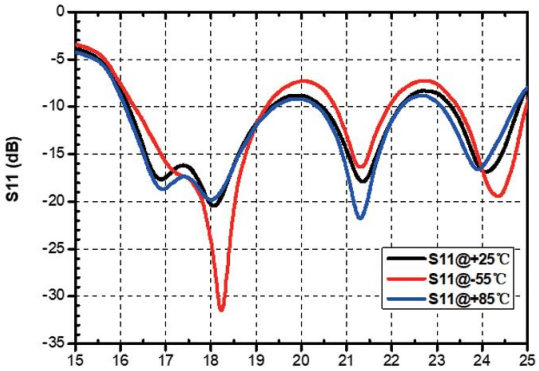
S-parameters vs. frequency



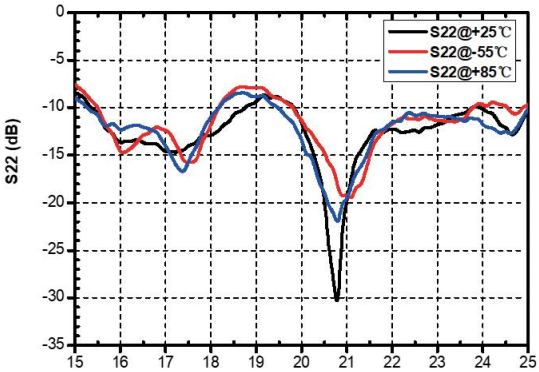
Gain vs. frequency



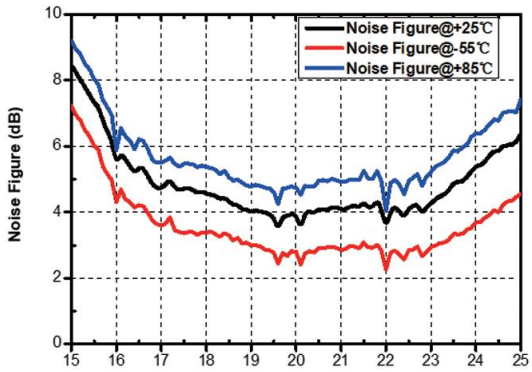
Input return loss vs. frequency



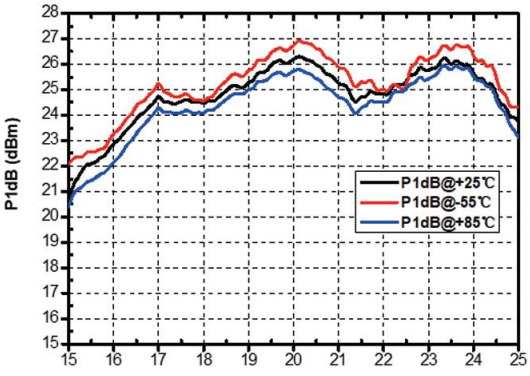
Output return loss vs. frequency



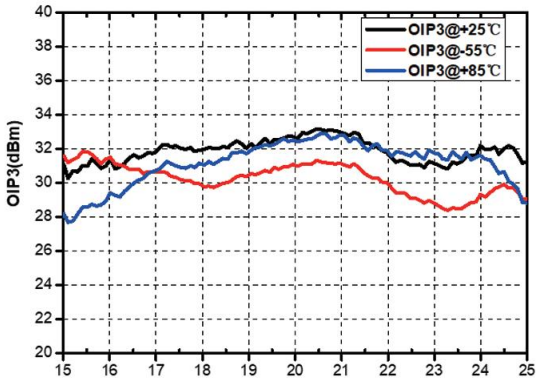
Noise figure vs. frequency



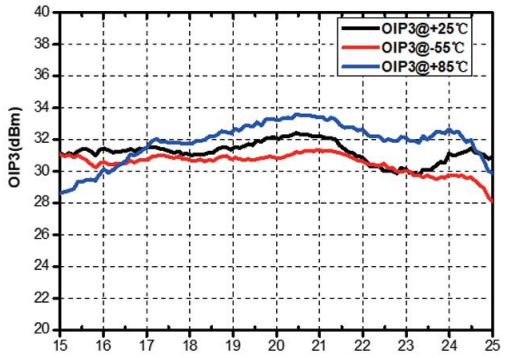
Output P1dB vs. frequency



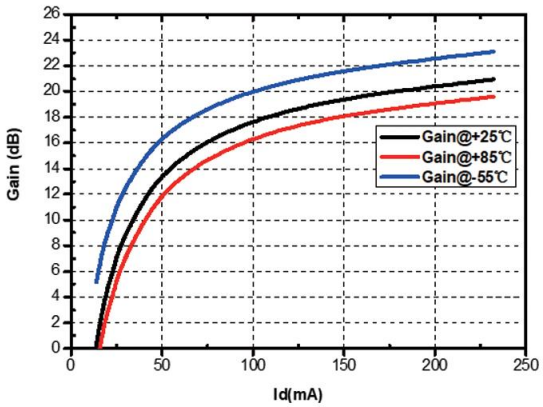
OIP3 (Pin = -14 dBm) vs. frequency



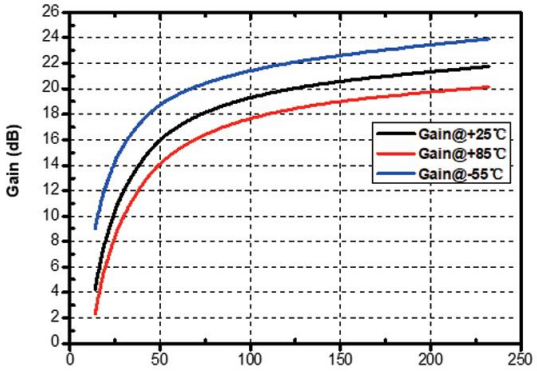
OIP3 (Pin = -9 dBm) vs. frequency



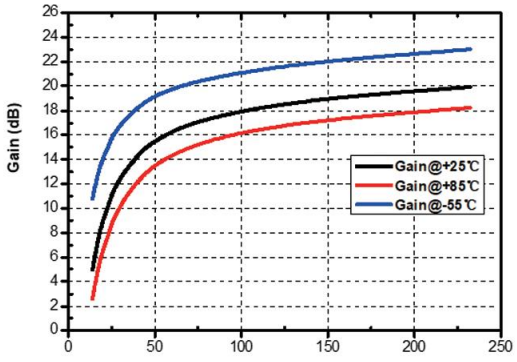
Gain vs. drain current @ 17.6 GHz



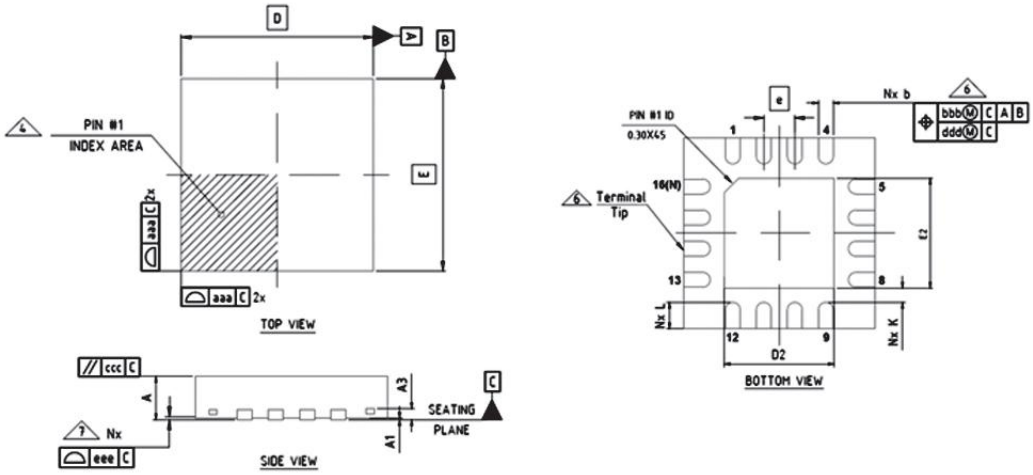
Gain vs. drain current @ 21 GHz



Gain vs. drain current @ 23.7 GHz



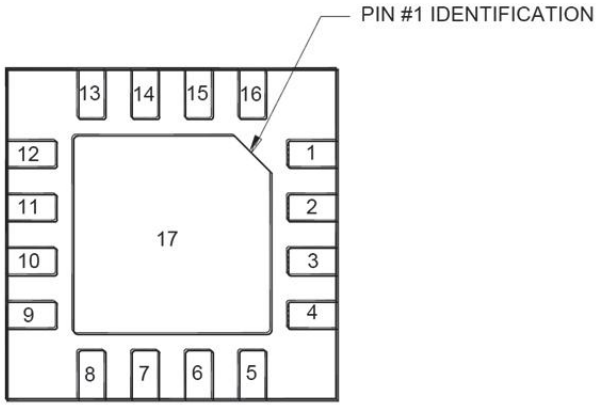
★5. Package Outline Drawing (Unit: mm)



Dimension Table				
Thickness / Symbol	VL			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	0.80	0.85	0.90	
A1	0.00	0.02	0.05	
A3	---	0.203 Ref	---	
b	0.26	0.31	0.36	6
D		4.00 BSC		
E		4.00 BSC		
e		0.65 BSC		
D2	2.15	2.30	2.40	
E2	2.15	2.30	2.40	
K	0.20	---	---	
L	0.45	0.55	0.65	
aaa		0.05		
bbb		0.10		
ccc		0.10		
ddd		0.05		
eee		0.08		
N		16		3
ND		4		5
NE		4		5
NOTES		1, 2		
LF PART NO.		445545		

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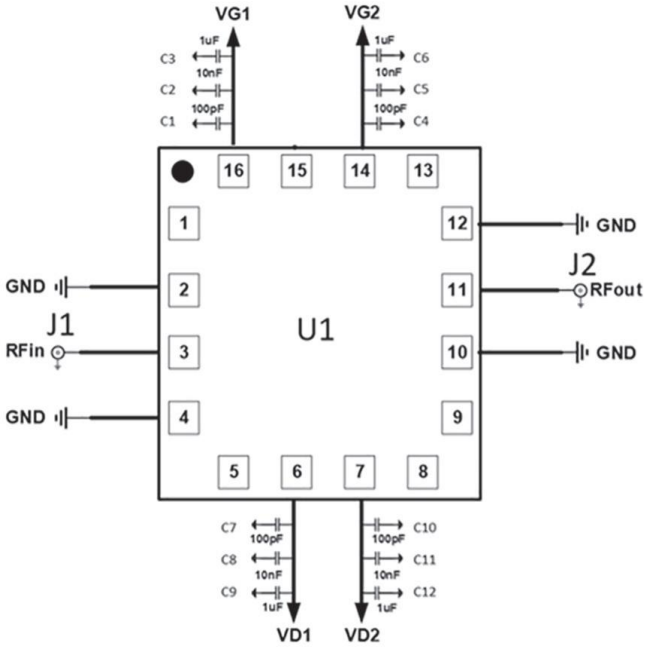
★6. Pin Definitions



BOTTOM VIEW

Pin No.	Function
3	RFin
2, 4, 5, 10, 12	GND
6	Vd1
7	Vd2
11	RFout
14	Vg2
16	Vg1
1, 8, 9, 13, 15	NC

★7. Application Schematic



Pin Number	Function	Description
U1		TFDA2521P
C1, C4, C7, C10	100 pF	0402 SMT ceramic capacitor
C2, C5, C8, C11	10 nF	0603 SMT ceramic capacitor
C3, C6, C9, C12	1 μF	0805 SMT ceramic capacitor
J1, J2	1092-01A-5	Southwest Microwave end launch connector

★8. Absolute Maximum Ratings

Parameter	Limit
Maximum Vdd	6 V
Vg	-3 V ~ -0.4 V
Vd - Vg (without RF)	< 8.5 V
Maximum input power	20 dBm
Operating temperature	-40 ℃ ~ +85 ℃
Storage temperature	-65 ℃ ~ +150 ℃
Moisture sensitivity level	MSL3

Parameter	Limit
Maximum junction temperature	150 ℃
ESD-HBM	> 150 V
ESD-CDM	> 200 V
Thermal resistance	37 ℃/W

*Exceeding any of the above maximum limits may result in permanent damage.

*The passivation layer over the sensitive area of the chip is greater than 100 nm in thickness; if the device is to be used in a sealed environment, it is recommended to control the hydrogen concentration within the cavity and implement a hydrogen-removal process.



This product is sensitive to electrostatic discharge; observe ESD precautions during use.