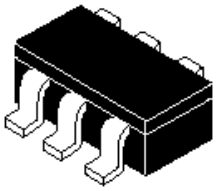
SMA428A

High Gain, Low Noise Amplifier

PRELIMINARY DATA

- HIGH GAIN Gp = 21 dB at 1.85 GHz
- LOW NOISE FIGURE NF = 1.3 dB at 1.85 GHz
- LOW CURRENT CONSUMPTION 5.9 mA
- OPEN COLLECTOR OUTPUT
- TYPICAL SUPPLY VOLTAGE: 2.4-3 V
- GAIN-STEP-MODE (36dB)
- ULTRA MINIATURE SOT323-6L PACKAGE



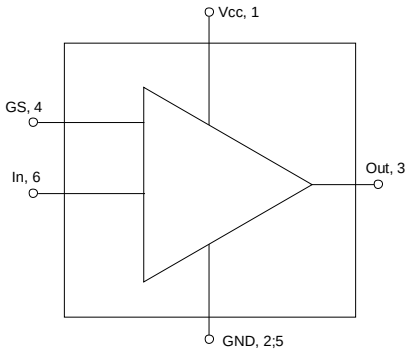
SOT323-6L (SC70)

ORDER CODE	BRANDING
TBD	TBD

APPLICATIONS

- LNA FOR CELLULAR MARKET (ideal for GSM900, DCS1800 and PCS1900).
- LNA FOR GPS APPLICATIONS

BLOCK DIAGRAM



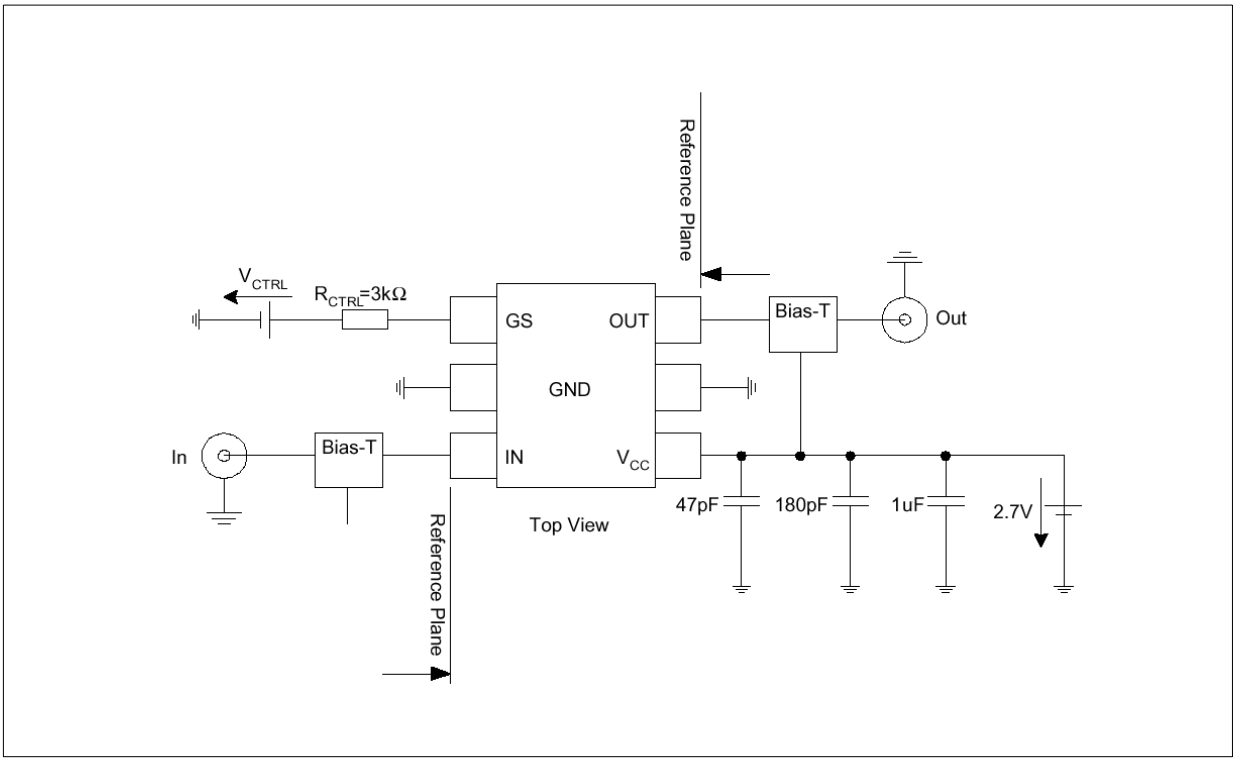
ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{cc}	Device voltage	4.5	V
V_{out}	Voltage at pin Out	4.5	V
V_{GS}	Voltage at pin GS	3.5	V
I_{tot}	Total Device Current	12	mA
I_{in}	Current into pin In	0.5	mA
P_{tot}	Total dissipation, $T_S < 125\ ^oC$	60	mW
P_{IN}	Input Power	8	dBm
T_{op}	Operating temperature	-40 to +85	^oC
T_{stg}	Storage temperature	-65 to +150	^oC
T_j	Max. operating junction temperature	150	^oC

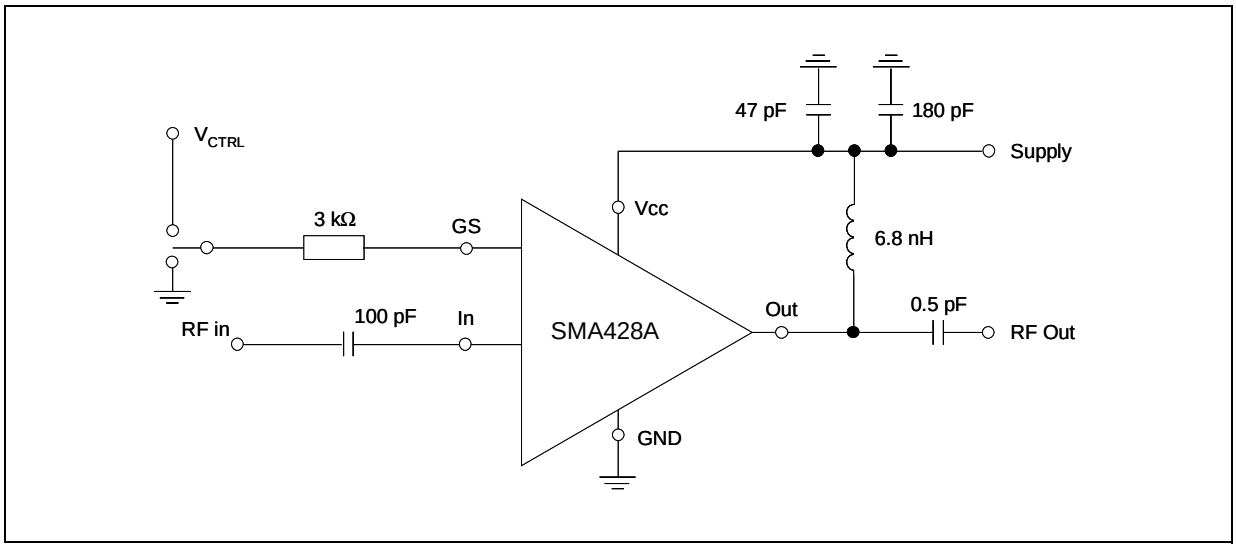
THERMAL RESISTANCE

R_{thjs}	Thermal Resistance Junction soldering point	TBD	$^oC/W$

Test Circuit (Fig. 1)



Typical application circuit (Fig. 2)

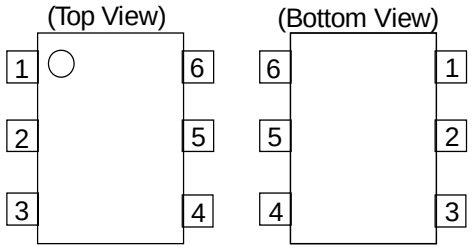


ELECTRICAL CHARACTERISTICS

(Ta = +25°C, V_{CC} = 2.7V, tested in circuit shown in fig.1, unless otherwise specified)

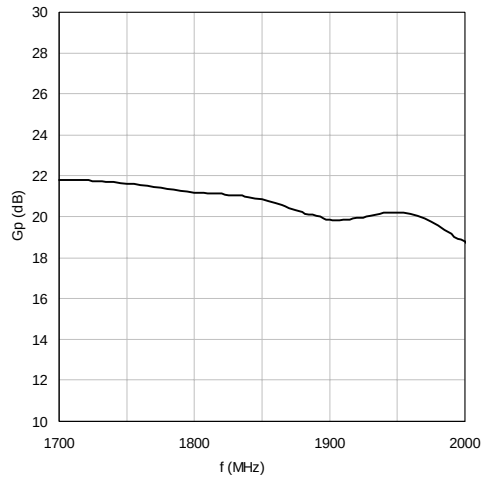
Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
f	Frequency Range			1850		MHz
I_{tot}	Total device current			5.9		mA
Gp	Power Gain			21		dB
NF	Noise Figure (Zs = 50 Ω)			1.3		dB
P_{-1dB}	Input Power at 1 dB Gain Compression			-19		dBm
IIP3	Input third order intercept point			-9.6		dBm
L_{GS}	Insertion Loss in Gain-Step-Mode	Vcc = 0.0 V, V_{CTRL} = 2.7 V, R_{CTRL} = 3 kΩ		15		dB
I_{CTR}	Current consumption in Gain-Step-Mode	Vcc = 0.0 V, V_{CTRL} = 2.7 V, R_{CTRL} = 3 kΩ		0.33		mA

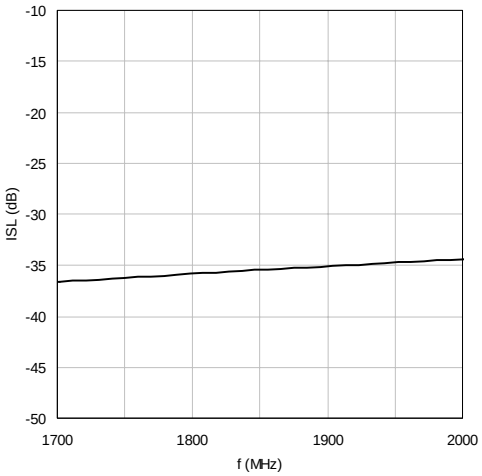
PIN CONNECTION

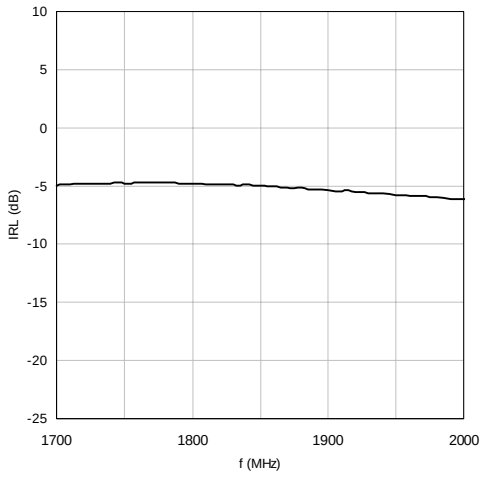


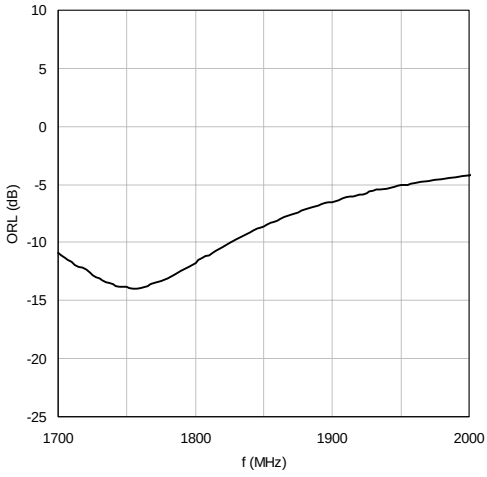
Pin No.	Pin Name
1	VCC
2	GND
3	OUTPUT
4	GS
5	GND
6	INPUT

S-Parameters (Ta = +25 ^{o}C, $Z_L = Z_S$ = 50 Ω, V_{CC} = 2.7V, measured in application circuit shown in fig.2)

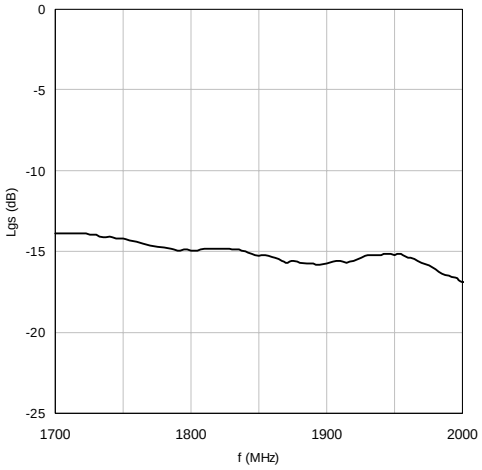






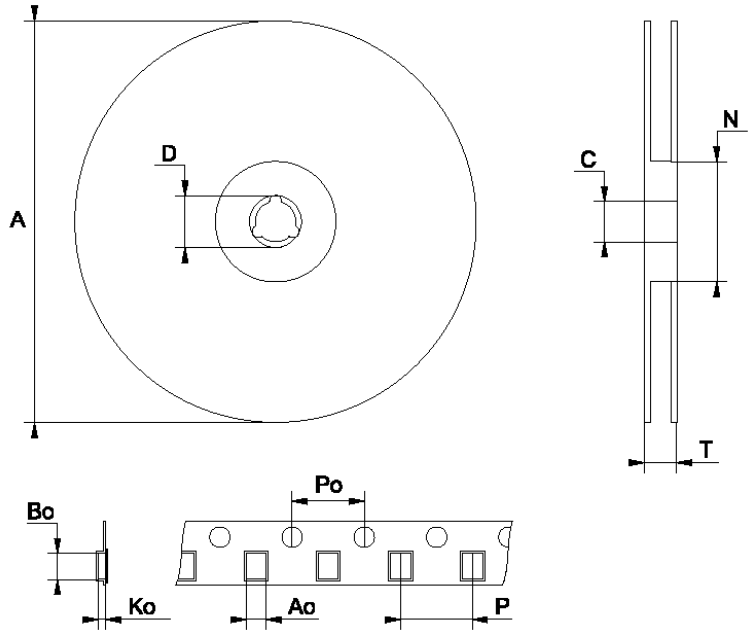


Off-Gain *(Vcc = 0V, Vctrl = 2.7V, Rctrl = 3Kohm)*

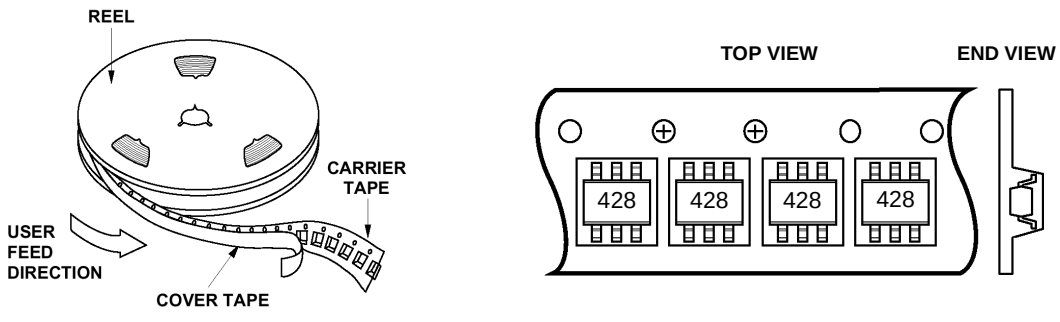


TAPE & REEL DIMENSIONS

	mm		
	MIN.	**TYP.**	**MAX**
A	178.5	179	179.5
C	12.8	13.0	13.5
D	20.2		
N	54.5	55	55.5
T			14.4
Ao		2.25	
Bo		2.7	
Ko		1.2	
Po	3.8 (cumulative 10 Po)	4.0	4.2 (cumulative 10 Po)
P		4.0	



DEVICE ORIENTATION



SOT323-6L MECHANICAL DATA

DIM.	mm			Inch		
	MIN.	TYP.	MAX	MIN.	TYP.	MAX
A	0.8		1.1	0.031		0.043
A1	0		0.1	0		0.004
A2	0.8		1	0.0031		0.039
b	0.15		0.3	0.006		0.012
c	0.1		0.18	0.004		0.007
D	1.8		2.2	0.071		0.088
E	1.15		1.35	0.045		0.59
e		0.65			0.025	
H	1.8		2.4	0.071		0.094
Q	0.1		0.4	0.004		0.016