

FEATURES

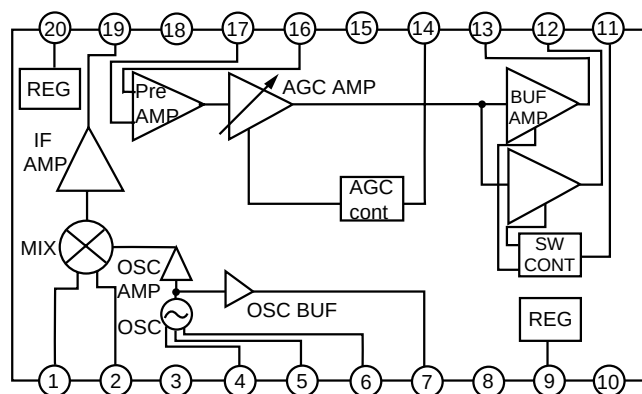
- **L-BAND OPERATION:** 900 MHz to 2.0 GHz
- **ON BOARD OSCILLATOR**
- **AGC AMPLIFIER**
- **20 PIN SOP PACKAGE**
- **TAPE AND REEL PACKAGING OPTION AVAILABLE**

DESCRIPTION

The UPC2731 is a Silicon MMIC manufactured using the NESAT III process. This device is designed for satellite receivers and is suitable for TVRO, DBS and MMDS receivers.

NEC's stringent quality assurance and test procedures assure the highest reliability and performance.

FUNCTIONAL BLOCK DIAGRAM



ELECTRICAL CHARACTERISTICS (T_A = 25°C, V_{CC} = 5 V, Z_L = Z_S = 50 Ω, f_{IF} = 408 MHz)

PART NUMBER PACKAGE OUTLINE				UPC2731GS SOP20		
SYMBOLS	PARAMETERS AND CONDITIONS		UNITS	MIN	TYP	MAX
DOWN CONVERTER	I _{CC}	Down Converter	mA	28.7	42	54
		AGC Amplifier	mA	13.3	27	38
		Total	mA	44	69	92
	f _U	Upper Limit Operating Frequency	GHz			2.0
	f _L	Lower Limit Operating Frequency	GHz	0.9		
	CG	Conversion Gain	f _{RF} = 900 MHz	11.5	14.5	17.5
			f _{RF} = 2.0 GHz	10.5	13.5	16.5
	NF	Noise Figure	f _{RF} = 900 MHz		12	15
			f _{RF} = 2.0 GHz		17	20
	P _{SAT}	Saturated Output Power	f _{RF} = 2.0 GHz	0	+7	+10
AGC AMPLIFIER	f _U	Upper Limit Operating Frequency (The CG is 3 dB down from CG at f _{IF} = 403 MHz)	MHz	550		
	f _L	Lower Limit Operating Frequency (The CG is 3 dB down from CG at f _{IF} = 403 MHz)	MHz			140
	G _S	Small Signal Gain	dB		25	
	GC	Gain Control Range	dB	45	65	

ABSOLUTE MAXIMUM RATINGS¹ (T_A = 25°C)

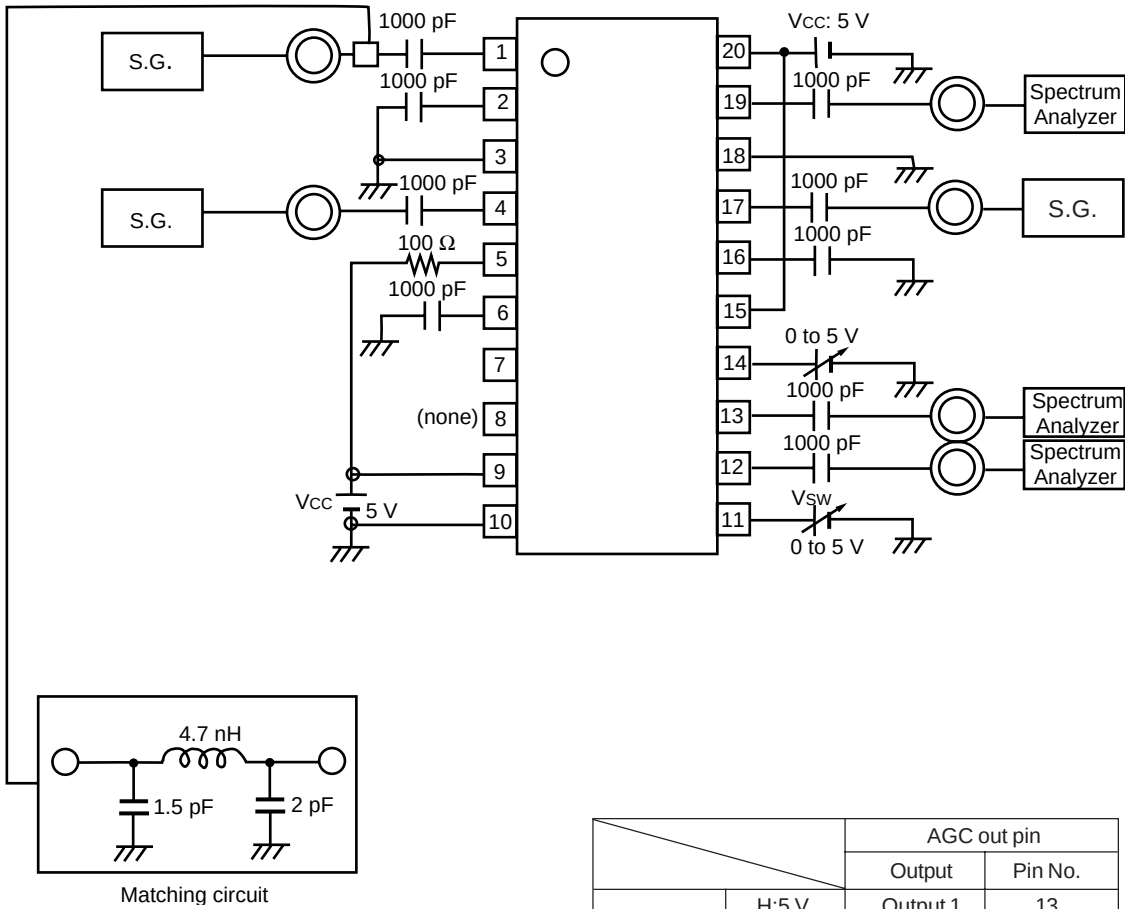
SYMBOLS	PARAMETERS	UNITS	RATINGS
V _{CC}	Supply Voltage	V	6.0
V _{AGC}	AGC Control Voltage	V	5.5
V _{SW}	SW Control Voltage	V	5.5
P _D ²	Power Dissipation	mW	640
T _{OP}	Operating Temperature	°C	-20 to +85
T _{STG}	Storage Temperature	°C	-65 to +150

- Notes:
1. Operation in excess of any one of these conditions may result in permanent damage.
 2. Mounted on a 50 x 50 x 1.6 mm epoxy glass PWB (T_A = 85°C).

RECOMMENDED
OPERATING CONDITIONS

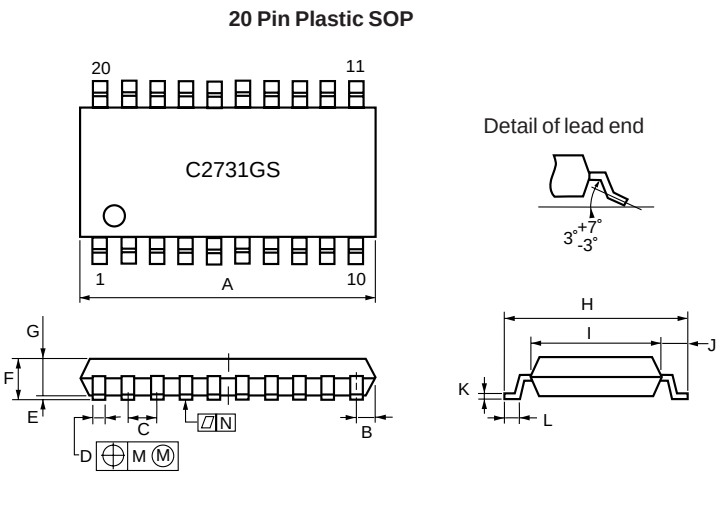
SYMBOLS	PARAMETERS	UNITS	MIN	TYP	MAX
V _{CC}	Supply Voltage	V	4.5	5.0	5.5
V _{AGC}	AGC Control Voltage	V _{AGC}	0		5.0
V _{SW}	SW Control Voltage	V _{SW}	0		5.0
T _{OP}	Operating Temperature	°C	-20 to +85		

TEST CIRCUIT



		AGC out pin	
		Output	Pin No.
V _{SW} 11 pin	H: 5 V	Output 1	13
	L: Open or 0 V	Output 2	12

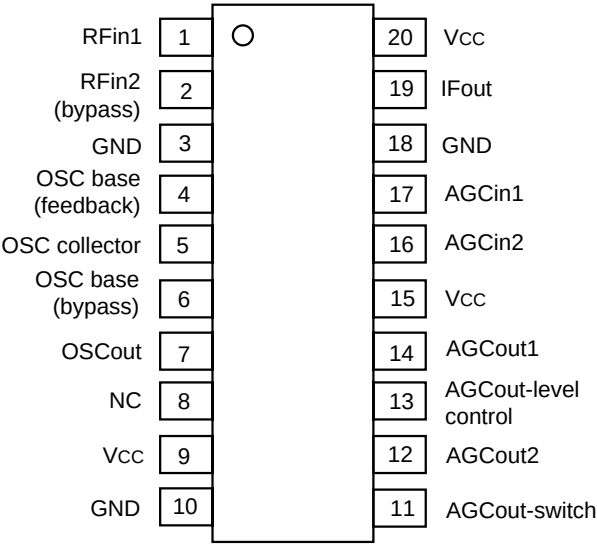
OUTLINE DIMENSIONS



ITEM	MILLIMETERS	INCHES
A	13.00 MAX.	0.512 MAX.
B	0.78 MAX.	0.031 MAX.
C	1.27 (T.P.)	0.0-50 (T.P.)
D	0.40 ^{+0.10} _{-0.05}	0.016 ^{+0.004} _{-0.003}
E	0.1±0.1	0.004±0.004
F	1.8 MAX.	0.071 MAX.
G	1.55	0.061
H	7.7±0.3	0.303±0.012
I	5.6	0.220
J	1.1	0.043
K	0.20 ^{+0.10} _{-0.05}	0.08 ^{+0.004} _{-0.002}
L	0.6±0.2	0.024 ^{+0.008} _{-0.009}
M	0.12	0.005
N	0.10	0.004

NOTE:
Each lead centerline is located within 0.12 mm (0.005 inch) of its true position (T.P.) at maximum material condition.

PIN CONNECTIONS (Top View)



ORDERING INFORMATION

PART NUMBER	QUANTITY
UPC2731GS-E1	2500/Reel

Note: Embossed tape 24 mm wide.
Pin 1 indicates pull-out direction of tape.