

TA4303F

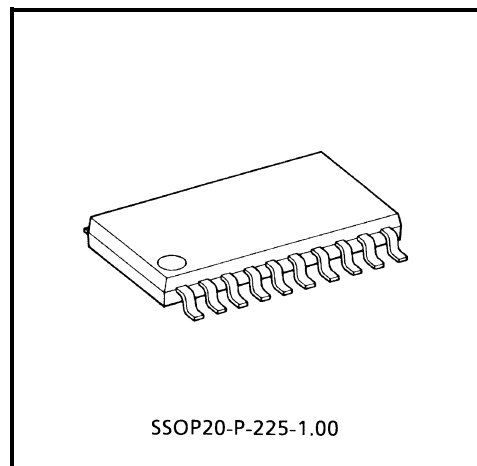
Down Converter for BS/CS Tuner IC

Description

The TA4303F is a monolithic IC to down-convert the L-band (900~2150 MHz) signal for the satellite tuners. It's integrated circuits that perform the mixer/oscillator function. They have double-balanced mixer, local oscillator, IF amplifier, OSC buffer amplifier and prescaler buffer amplifier circuits.

Features

- Single chip full band solution, compatible with digital and analog transmissions.
- Single 5 V power supply operation
- Full band constant conversion Gain and Noise Figure
- Local oscillator output circuit for PLL
- Low Phase Noise local oscillator



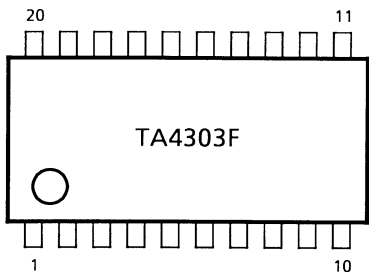
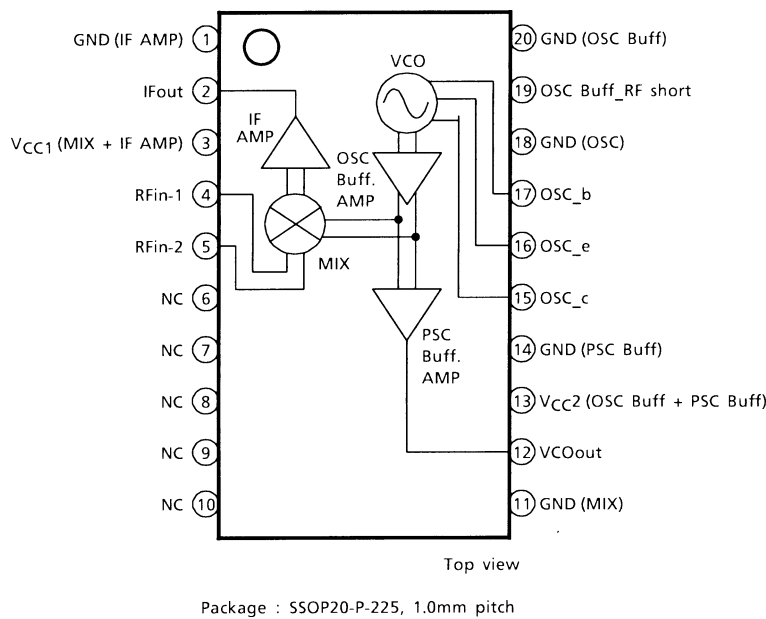
Weight: 0.17 g (typ.)

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Pin Connection Function Block Diagram

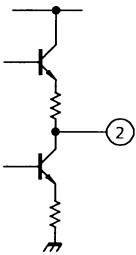
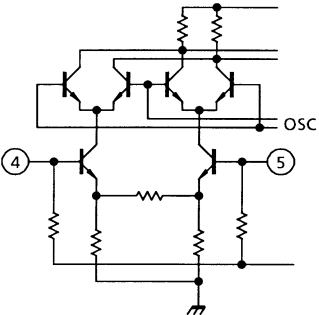
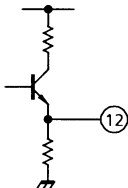
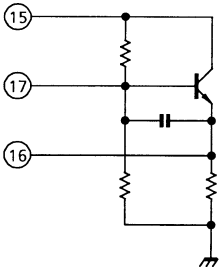
Marking

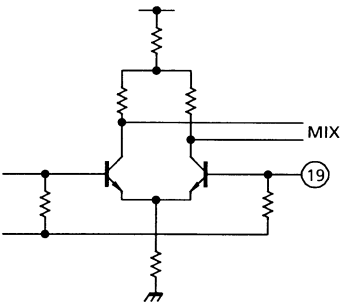


Caution

This devices is electrostatic sensitivity.

Explanation

Pin No.	Pin Name	Pin Voltage	Explanation	Equivalent Circuit
1	GND (IF Amp)	0	GND pin for IF Amp.	—
2	IF out	2.2	IF output pin.	
3	VCC1 (MIX + IF Amp)	5.0	Supply voltage for MIX + IF Amp.	—
4	RFin-1	1.7	RF input pin.	
5	RFin-2	1.7	RF input pin.	
6	NC	—	—	—
7	NC	—	—	—
8	NC	—	—	—
9	NC	—	—	—
10	NC	—	—	—
11	GND (MIX)	0	GND pin for MIX.	—
12	VCOout	2.0	OSC output pin.	
13	VCC2 (OSC Buff + PSC Buff)	5.0	Supply voltage pin for OSC Buff + PSC Buff.	—
14	GND (PSC Buff)	0	GND pin for PSC Buff.	—
15	OSC-c	5.0	OSC collector pin, supply voltage pin.	
16	OSC-e	1.8	Emitter pin for OSC.	
17	OSC-b	2.6	Base pin for OSC.	

Pin No.	Pin Name	Pin Voltage	Explanation	Equivalent Circuit
18	GND (OSC)	0	GND pin for OSC.	—
19	RF GND (OSC Buff)	1.4	RF GND pin.	
20	GND (OSC Buff)	0	GND pin for OSC Buff.	—

Maximum Ratings (Ta = 25°C)

Characteristic	Symbol	Rating	Unit
Supply voltage	V _{CC}	6	V
Total power dissipation	P _D (Note1)	1100	mW
Operating temperature	T _{opr}	-20~85	°C
Storage temperature	T _{stg}	-45~150	°C

Note 1: 100 cm² × 1.6 t (Cu layer area: 36%) on glass epoxy resins.

Recommended Operating Range

Characteristic	Symbol	Rating	Unit
Supply voltage	V _{CC} (Amp)	4.75~5.25	V
Supply voltage	V _{CC} (OSC)	4.75~5.25	V
Input frequency range	f _{in}	900~2150	MHz
IF Input frequency range	f _{IF}	350~550	MHz

Electrical Characteristics (Ta = 25°C) (Note 2)

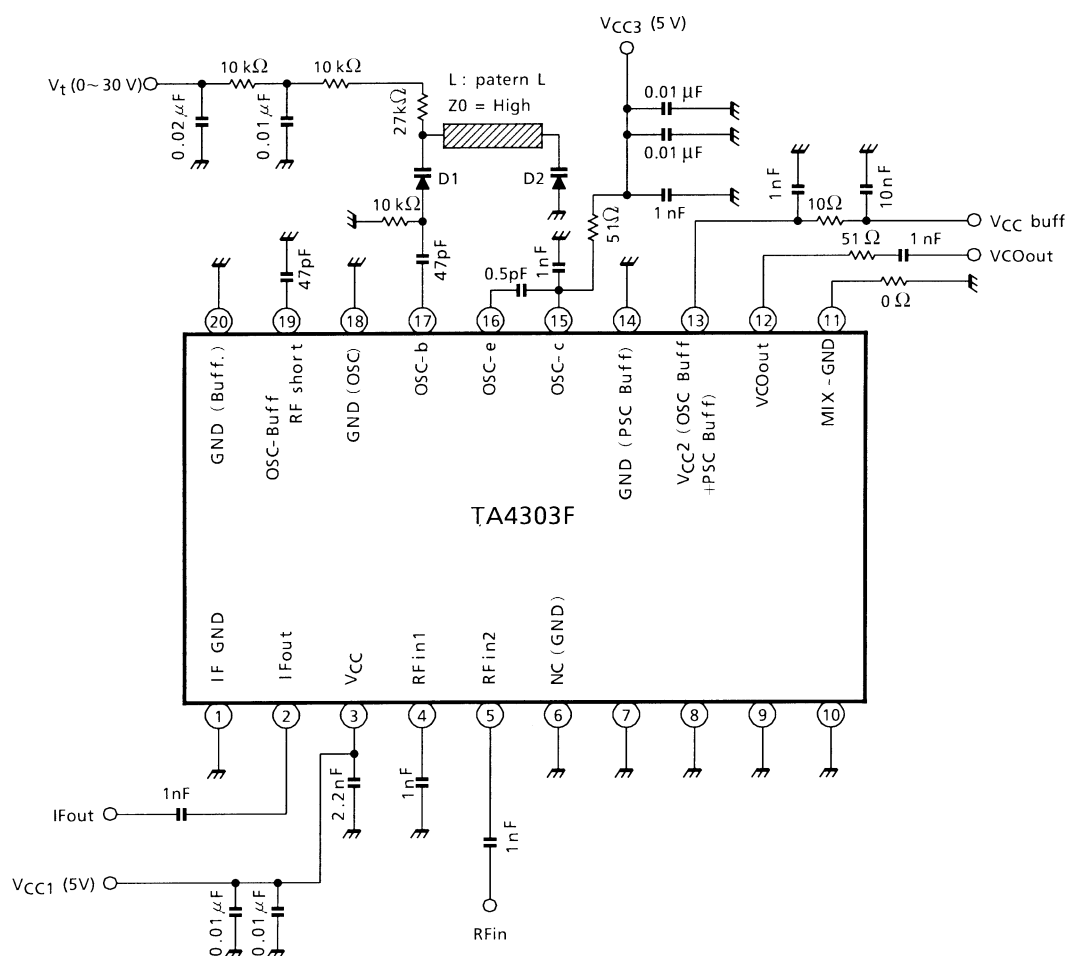
Characteristics	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Supply current	I _{CC} (Total)	1	V _{CC} = 5 V, No RF input	61	74	87	mA
Conversion gain	G _c	1	f _{in} = 1.6 GHz, f _{IF} = 400 MHz	14	18	25	dB
Noise figure	NF	1	f _{in} = 1.6 GHz, f _{IF} = 400 MHz	—	15	22	dB
Saturation output	P _O (sat)	1	f _{in} = 1.6 GHz, f _{IF} = 400 MHz	5	10	—	dBmW
Third-order intercept	IP3	1	f _{in} = 1.596 GHz, 1.6 GHz f _{IF} = 400 MHz, 404 MHz	12	17	24	dBmW
Posc	POSC	1	f _{LO} = 2.0 GHz	-14	-8	—	dBmW

Note 2: All electrical characteristics measured in Supply Voltage 5.0 V (Amp, OSC, OSC Buffer)

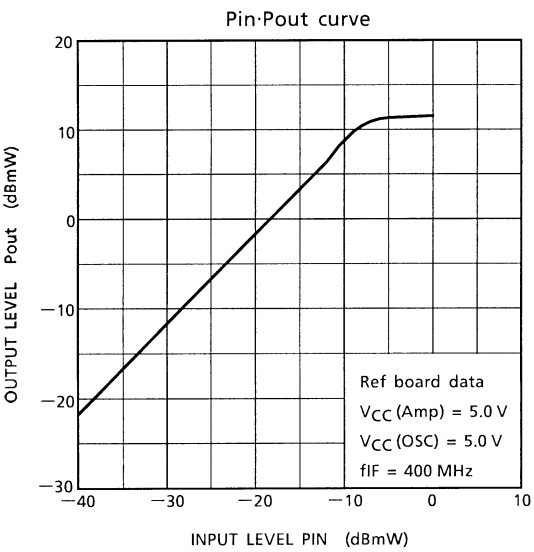
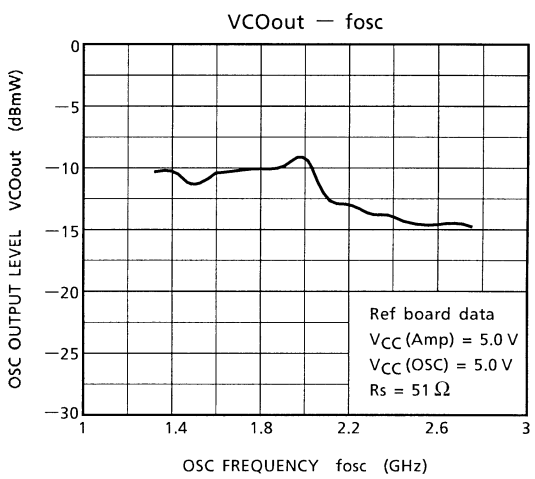
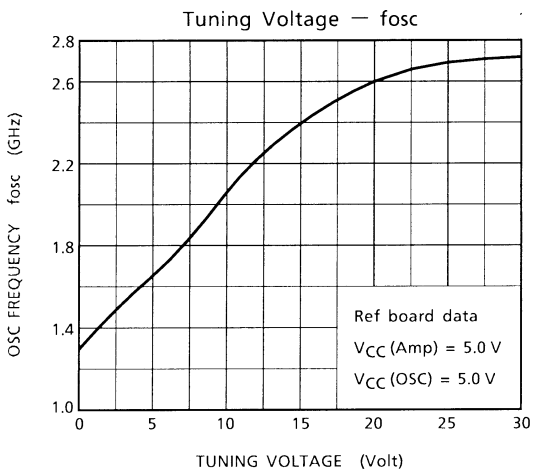
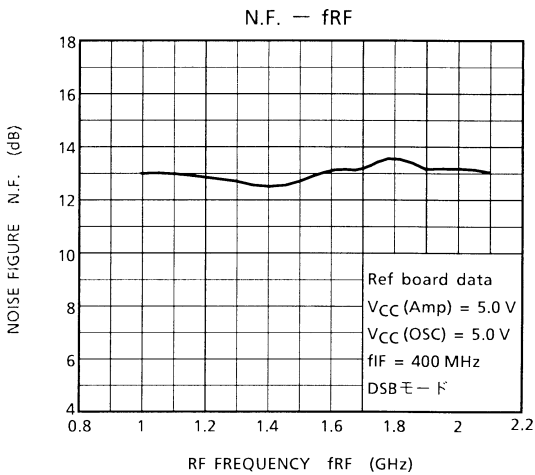
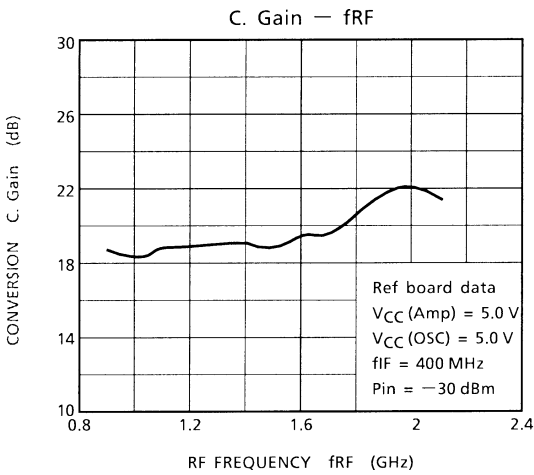
Reference Characteristic (Note 3)

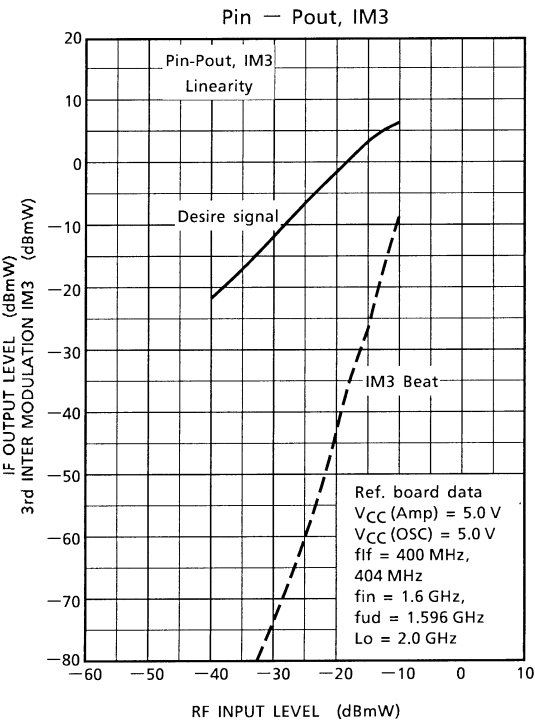
Characteristics	Symbol	Test Circuit	Test Condition	Typ.	Unit
Supply current	I _{CC} (Amp)	1	V _{CC} = 5 V, No RF input	36	mA
Supply current	I _{CC} (OSC)	1	V _{CC} = 5 V, No RF input	38	mA

Note 3: All electrical characteristics measured in Supply Voltage 5.0 V (Amp, OSC, OSC Buffer)



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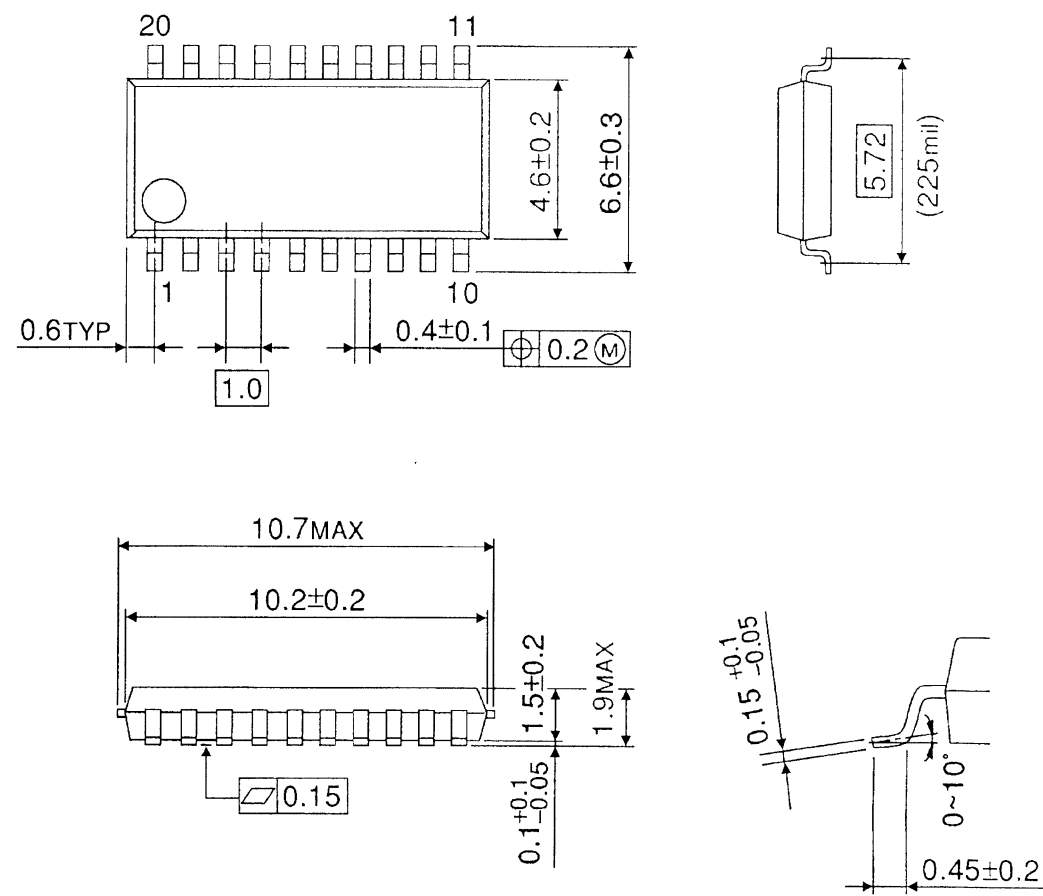




Package Dimensions

SSOP20-P-225-1.00

Unit : mm



Weight : 0.17 g (Typ.)