

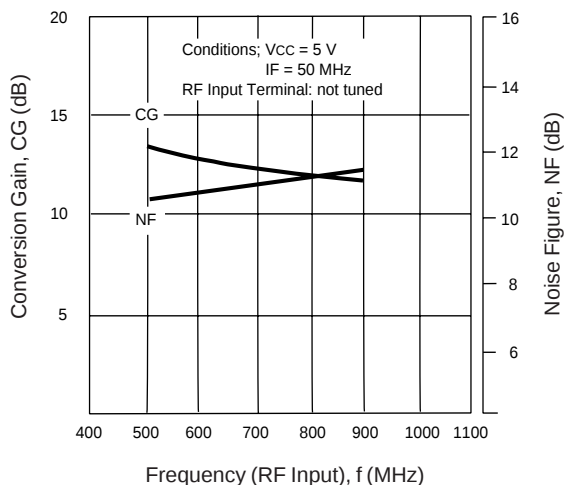
FEATURES

- **WIDE-BAND OPERATION:** DC to 890 MHz
- **SMALL PACKAGE**
- **DOUBLE BALANCED MIXER:**
Low Distortion
Low Oscillator Radiation
- **BALANCED AMPLIFIER FOR VOLTAGE CONTROLLED OSCILLATORS:**
Up to UHF Frequency

DESCRIPTION

The UPC1685 is a silicon monolithic integrated circuit designed as a wide-band mixer/oscillator suitable for TV/VTR tuners up to 890 MHz. Device features include, 11 dB gain from 55 to 890 MHz and an output power of -2 dBm at the saturation point. The device is available in: an 8 pin mini-flat package. The UPC1685G output impedance is the collector of one side of a balanced amplifier pair and operates best into a high impedance load. See internal schematic for details.

CONVERSION GAIN AND NOISE FIGURE
vs. FREQUENCY



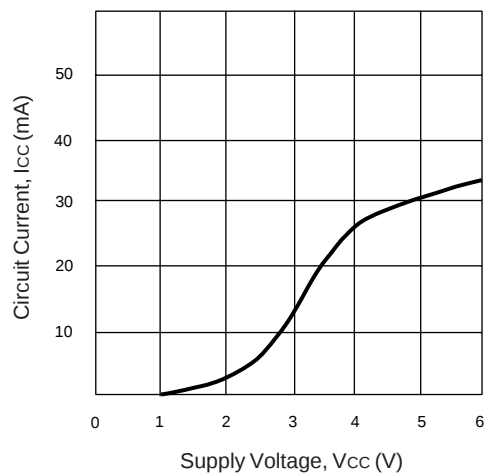
ELECTRICAL CHARACTERISTICS (T_A = 25°C)

PART NUMBER PACKAGE OUTLINE			UPC1685G G08	TEST CIRCUIT
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	TYP	
I _{CC}	Circuit Current, no input signal	mA	32	Fig. 1
CG1	Conversion Gain (RF Input Terminal is not tuned) at IF = 50 MHz, RF = 55 to 890 MHz	dB	11	Fig. 1
CG2	Conversion Gain (RF Input Terminal is tuned) at IF = 50 MHz, RF = 55 MHz	dB	18	Fig. 4
		dB	18	Fig. 4
		dB	16	Fig. 4
		dB	14	Fig. 5
NF	Noise Figure at IF = 50 MHz, RF = 55 to 470 MHz	dB	11.5	Fig. 1 or
		dB	12	Fig. 2 Fig. 3
CM	Cross modulation* at IF = 50 MHz, 75 Ω Open Terminal, RF = 55 to 470 MHz	dBμ	86	Fig. 1
		dBμ	86	Fig. 1
P _{SAT}	Output Power (Saturation Point)	dBm	-2	Fig. 1
f _{STB}	Oscillator Frequency Stability at V _{CC} ± 10% OSC f = 100 to 520 MHz	kHz	100	Fig. 2
		kHz	200	Fig. 3
		kHz		
V _{OSC}	V _{CC} at OSC Stop OSC f = 100 to 520 MHz	V	2.3	Fig. 2
		V	3.0	Fig. 3
		V		
V _{SWR}	IF Output Power		1.3	Fig. 1

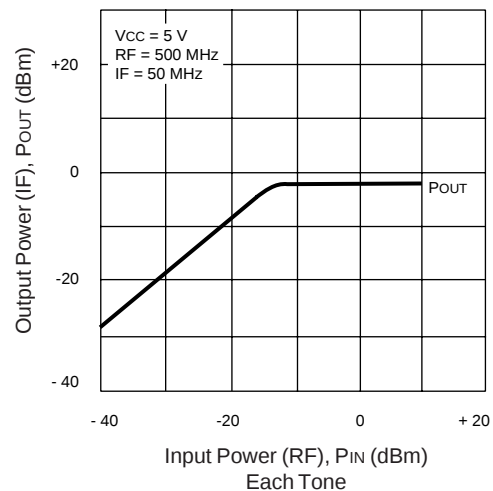
* Undesired = Desired ± 12 MHz, 30% 100 kHz AM S/I Ratio = 46

TYPICAL PERFORMANCE CURVES (T_A = 25°C)

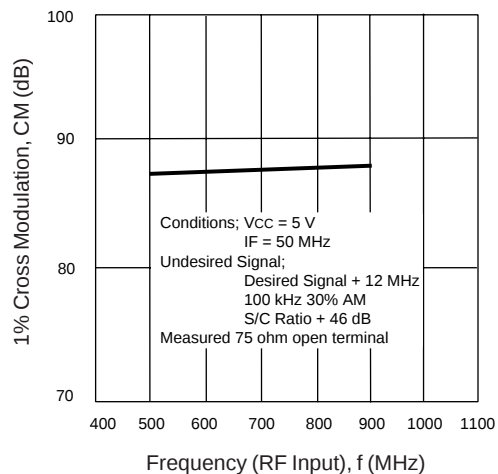
**CIRCUIT CURRENT vs.
SUPPLY VOLTAGE**



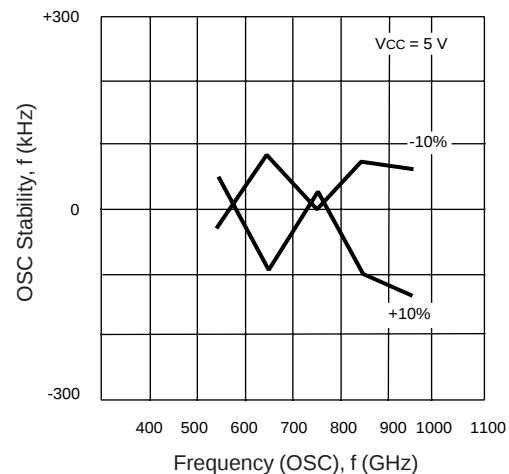
OUTPUT POWER vs. INPUT POWER



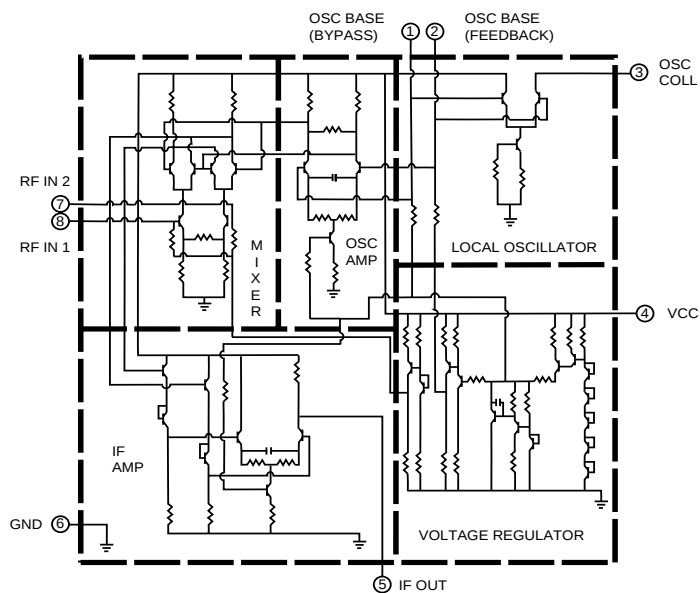
**1% CROSS MODULATION
vs. FREQUENCY**



**OSC-FREQUENCY STABILITY
vs. FREQUENCY**



EQUIVALENT CIRCUIT



TEST CIRCUITS

Figure 1

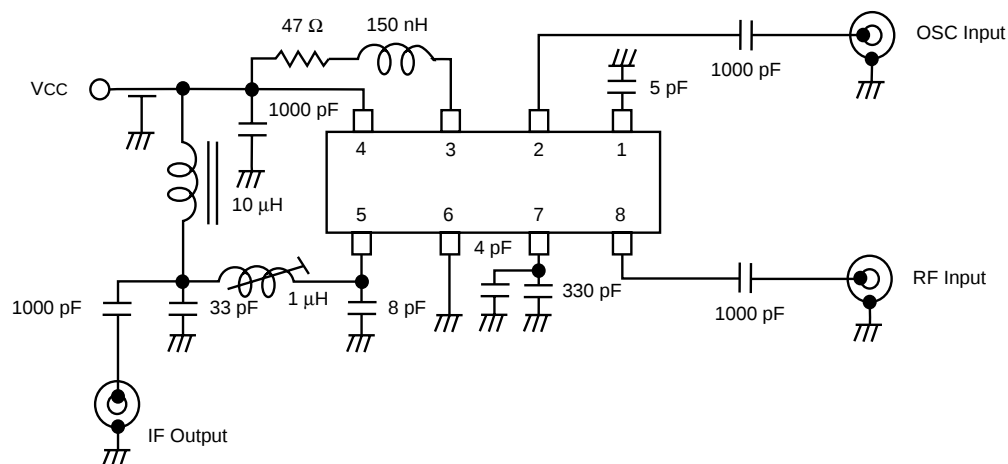


Figure 2

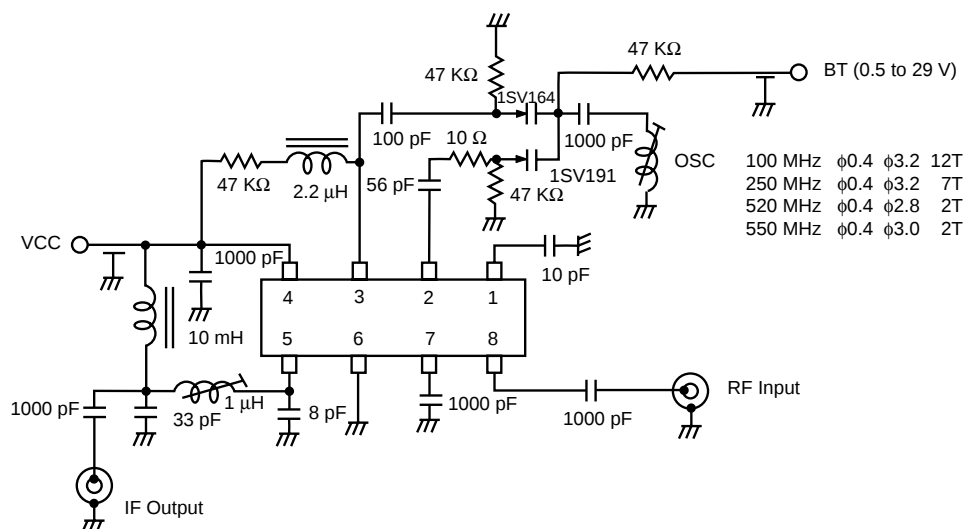
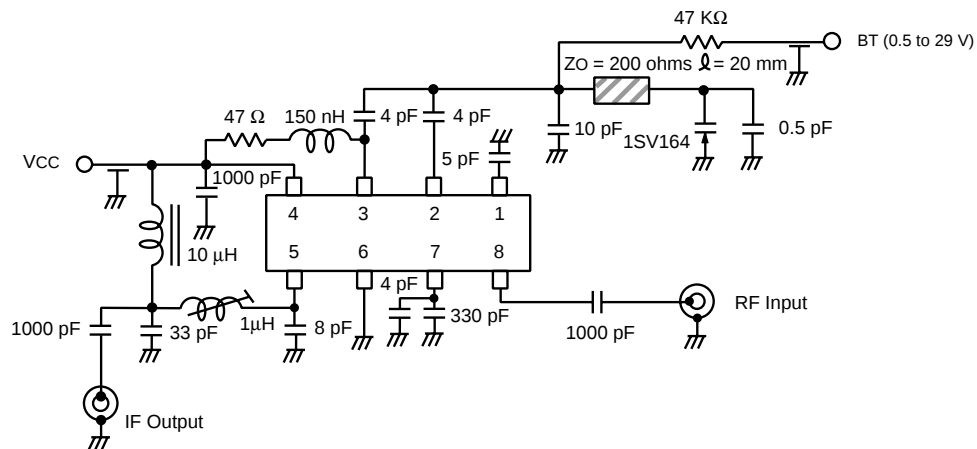


Figure 3



TEST CIRCUITS

Figure 4

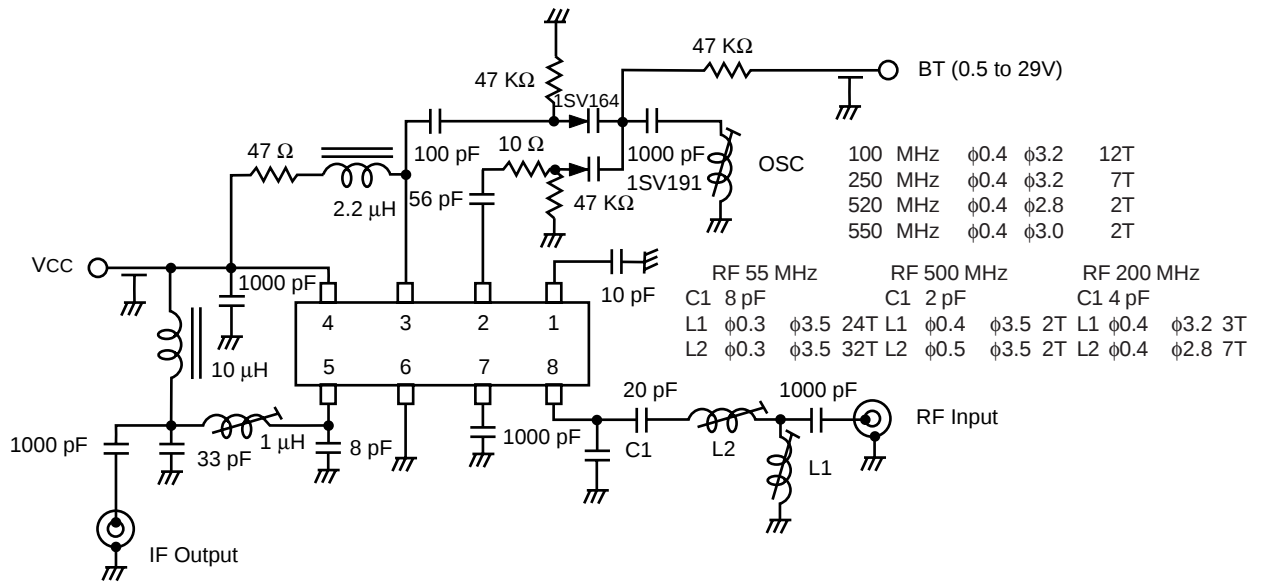


Figure 5

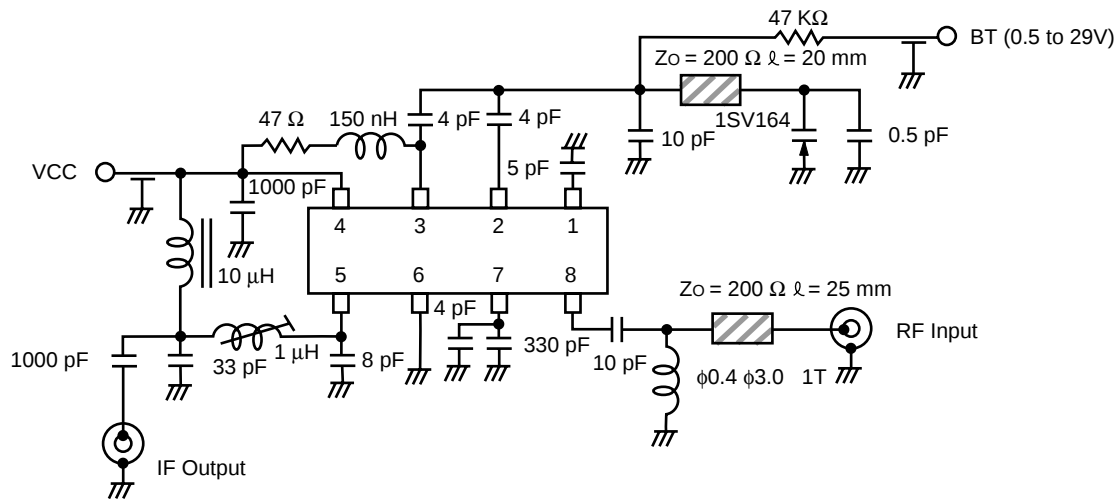
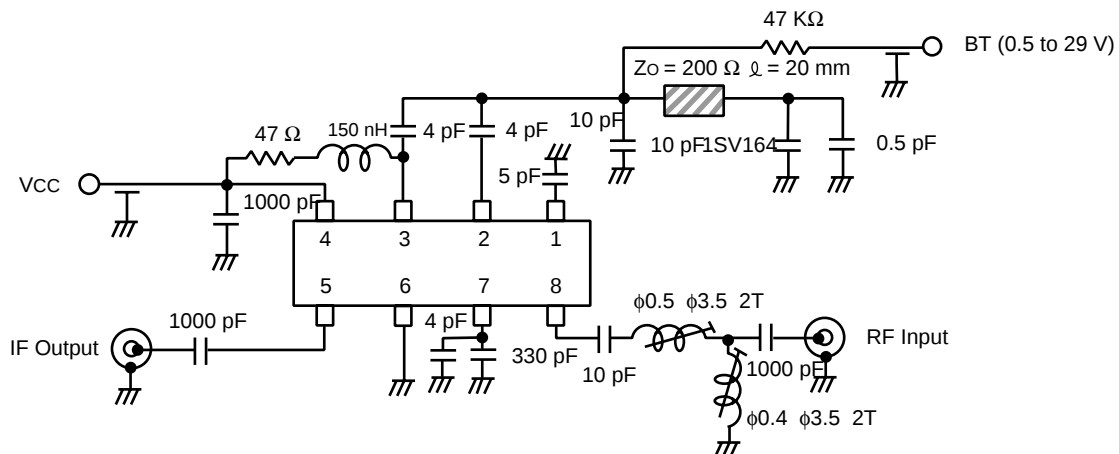
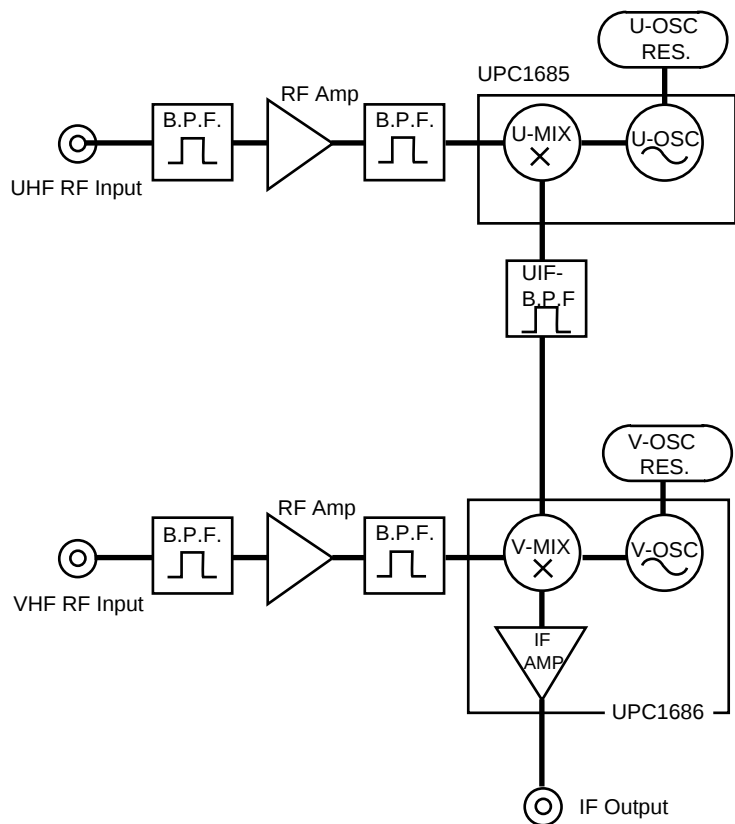


Figure 6*

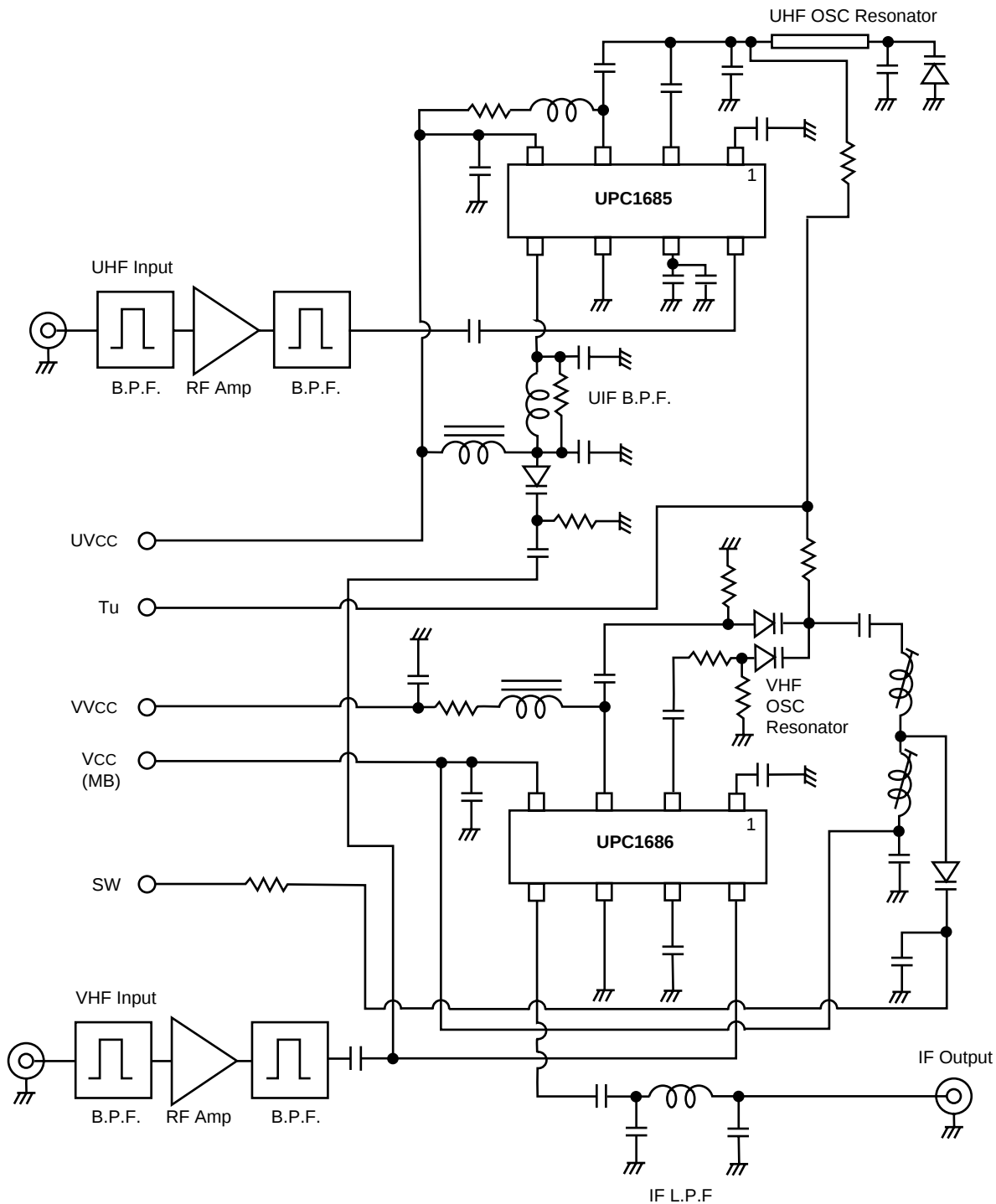


* This test circuit is used to match the device from 500 to 890 MHz. 500 MHz matching is shown.

APPLICATION BLOCK DIAGRAM FOR T.V. TUNER



APPLICATION CIRCUIT FOR T.V. TUNER

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