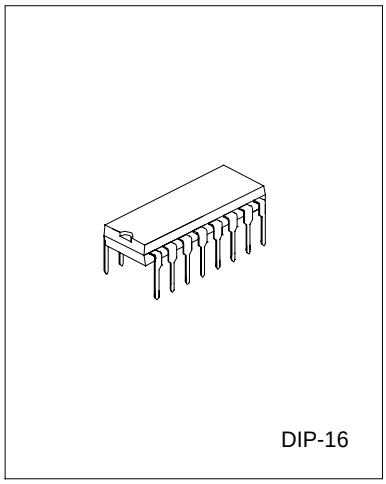
TV VERTICAL AND HORIZONTAL DEFLECTION CIRCUIT



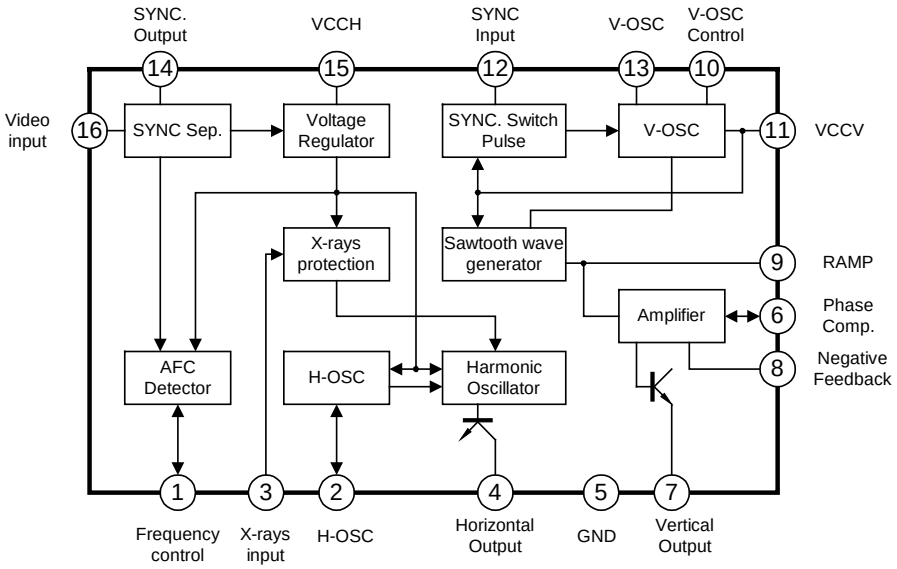
DESCRIPTION

The UTC7609 is a monolithic integrated circuit designed for B.W. and Color TV vertical and horizontal deflection system.

FEATURES

*Excellent temperature stability for the Horizontal Oscillator
*Exact 50% Pulse Duty
*Excellent Scanning performance

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS(Ta=25°C)

Characteristic	Symbol	Value	Unit
Horizontal supply current	I_{CCH}	40	mA
Horizontal output current	I_{OH}	60	mAp-p
Horizontal output operating current	I_{OHOP}	30	mAp-p
Video input voltage	V_{IVF}	5	V
AFC input voltage	V_{AFC}	8	Vp-p
Vertical supply voltage	V_{CCV}	15	V
Vertical SYNC signal input voltage	V_{IS}	5	Vp-p
Vertical output current	I_{OV}	-5	mA
Operating Temperature	Topr	-20 to +70	°C
Storage Temperature	Tstg	-55 to 150	°C
Power dissipation	P_D	800	mW

ELECTRICAL CHARACTERISTICS

(Ta=25°C, unless otherwise specified)

STATICS CHARACTERISTICS

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Horizontal Section						
Regulator Voltage	V_{CCH}	Test Circuit Fig.1	8.9		10.9	V
Supply Current	I_{CCH}	Test Circuit Fig.1	20		30	mA
SYNC High output voltage	V_{OHS}	Test Circuit Fig.3	7.4		9.0	V
SYNC Low output voltage	V_{OLS}	Test Circuit Fig.3			0.5	V
AFC Output Current	I_{AFC}	Test Circuit Fig.9	2.15		4.42	mA
AFC Located Voltage	V_{CLAFC}	Test Circuit Fig.7	3.9		5.1	V
Minimum Horizontal output voltage	V_{OHMIN}	Test Circuit Fig.8			0.3	V
Supply current	I_{CCH}	Test Circuit Fig.2,V_{CCH}=8V	8.4		16	mA
Vertical Section						
Recommended supply voltage	V_{CCV}		10.8		13.2	V
Supply current	I_{CCV}	Test Circuit Fig.12	3.4		6.1	mA
Vertical SYNC operating Voltage	V_{IS}	Test Circuit Fig.15	0.64		0.80	V
Maximum saw tooth wave output voltage	V_{ORAMP}	Test Circuit Fig.17	7.6		8.6	V
Saw tooth wave output current	I_{ORAMP}	Test Circuit Fig.18	12.0		35.7	V
Maximum vertical output voltage	$V_{OV(MAX)}$	Test Circuit Fig.19	5.67		7.13	V
Minimum vertical output voltage	$V_{OV(MIN)}$	Test Circuit Fig.20			0.3	V

DYNAMIC CHARACTERISTICS

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Horizontal Frequency	f_H	Test Circuit Fig.6	15125		16125	Hz
Horizontal output Pulse Width	t_{WH}	Test Circuit Fig.8	30.01		33.07	μs
SYNC separation sensitivity	I_{IVF}	Test Circuit Fig.3		13	56	μA
X-rays protection sensitivity	V_{IXP}	Test Circuit Fig.11	0.77	0.91	1.04	V
X-rays protection input impedance	R_{IXP}		0.2			MΩ
SYNC SEP. rise time	tpdr	Test Circuit Fig.5			100	nS
SYNC SEP. fall time	tpdf	Test Circuit Fig.5			100	nS
Horizontal frequency full in range	f_{HP}	Test Circuit Fig.10		±600		Hz
		Test Circuit Fig.10		±1000		Hz
Horizontal Osc. Frequency temperature performance	Δf_{HT}	Test Circuit Fig.6	0	-100	-350	Hz

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
N.F terminal minimum voltage	$V_{MIN(N.F)}$	Test Circuit Fig.4		2.86	3.7	V
RAMP leak current	$I_{L(RAMP)}$	Test Circuit Fig.21	0.25	0.98	4.5	μA
N.F leak current	$I_{L(N.F)}$	Test Circuit Fig.22	0.18	0.94	6.21	μA
Vertical frequency	fv	Test Circuit Fig.13	47	50	54.1	Hz
Vertical frequency pulse width	twv	Test Circuit Fig.14	847	891	933	μS
Vertical frequency full in range	fvp	Test Circuit Fig.16		10		Hz
Vertical SYNC input impedance	R_{IVS}		400	500	600	Ω

TEST CIRCUIT

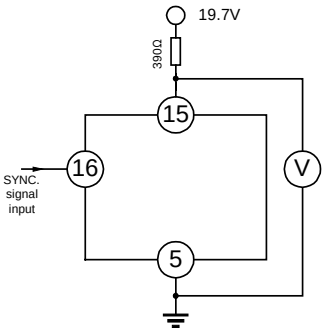


Fig.1

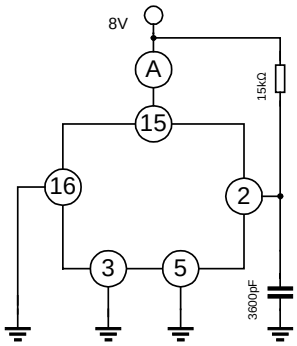


Fig.2

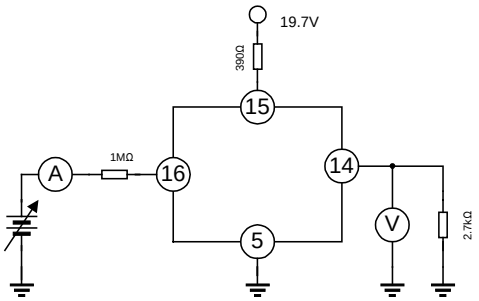


Fig.3

Adjusting the changeable voltage until the pin14 voltage reach to the maximum value, the current of pin 16 is equal to I_{IVF}

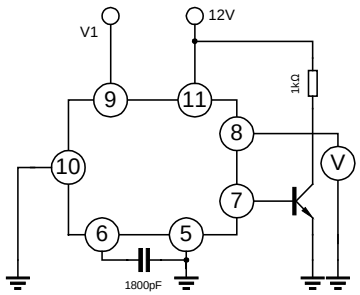


Fig. 4

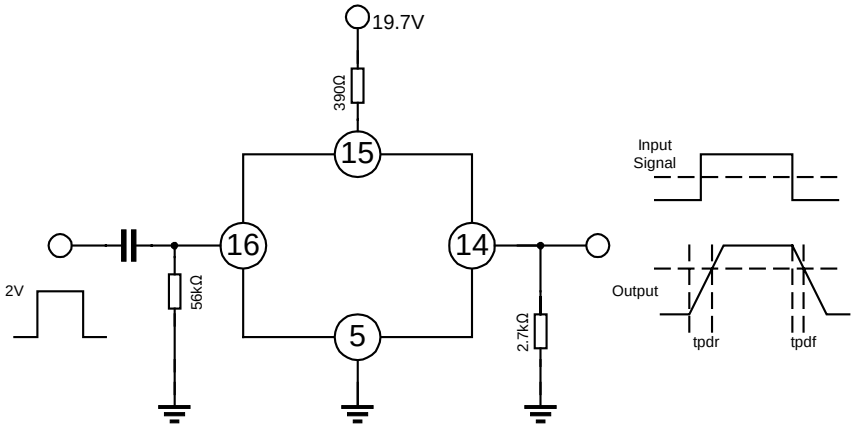


Fig. 5

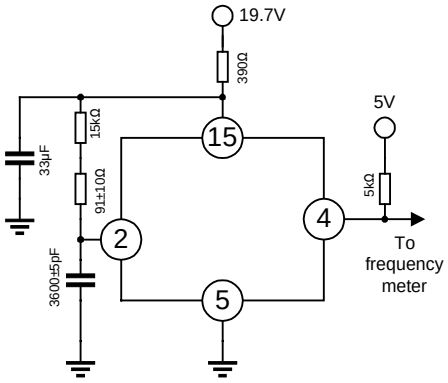


Fig.6

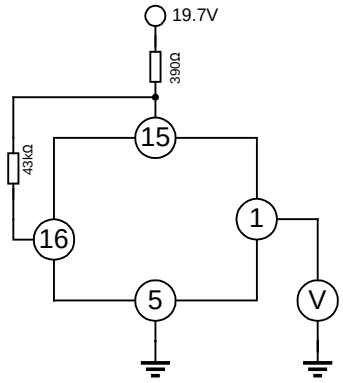


Fig.7

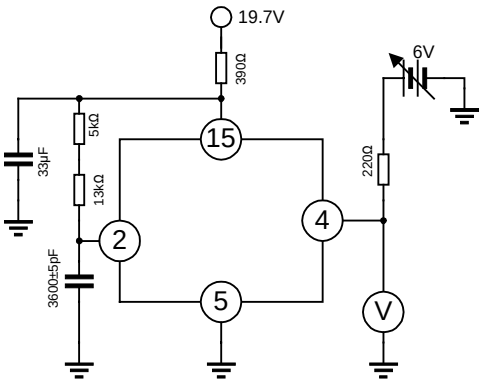


Fig. 8
Measured at f_H=15625Hz

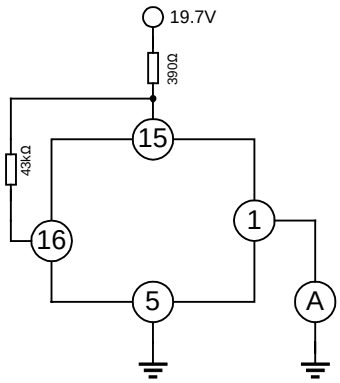


Fig. 9

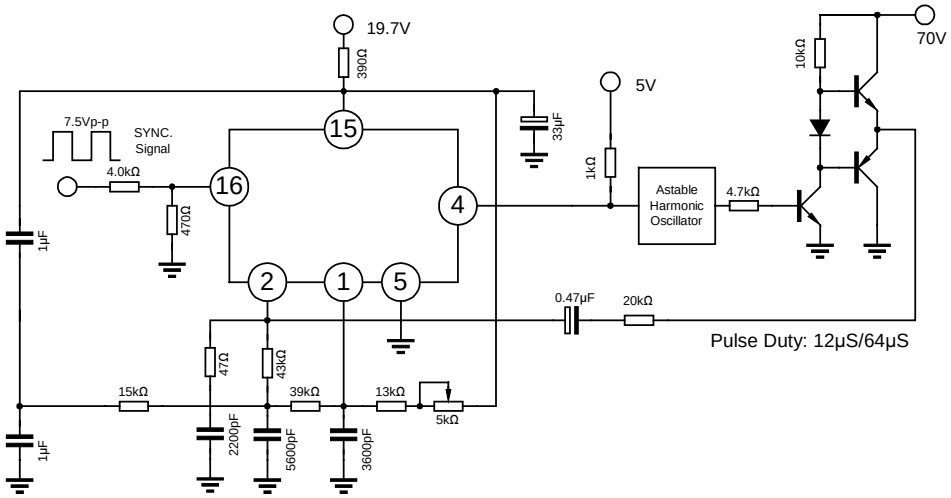


Fig. 10

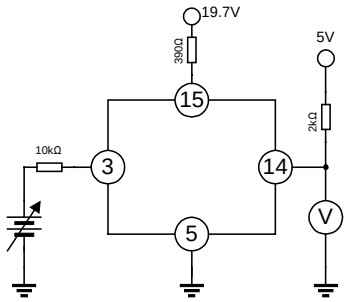


Fig.11

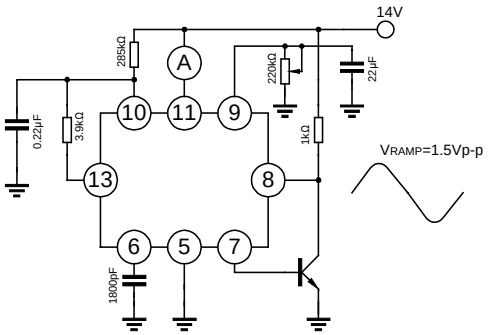


Fig.12

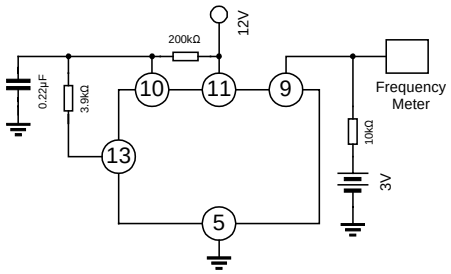


Fig. 13

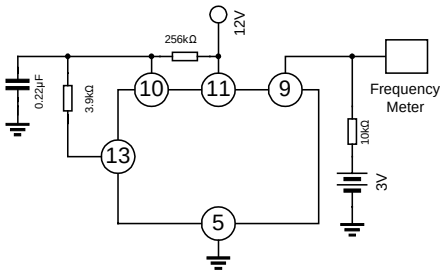


Fig. 14

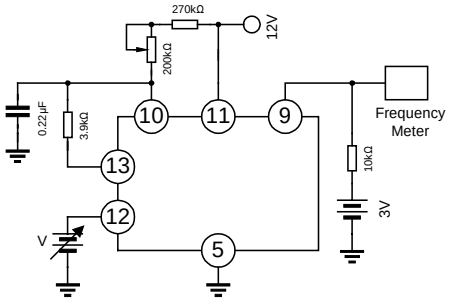


Fig. 15

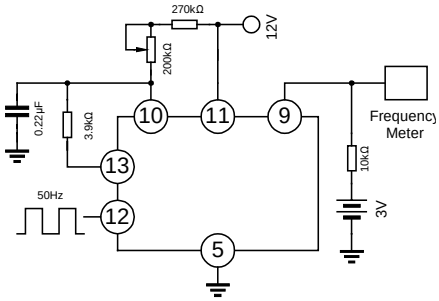


Fig. 16

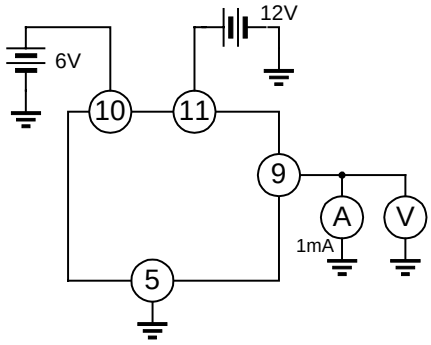


Fig. 17

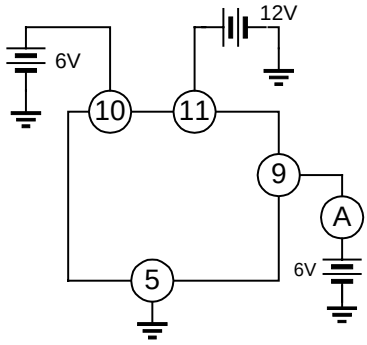


Fig. 18

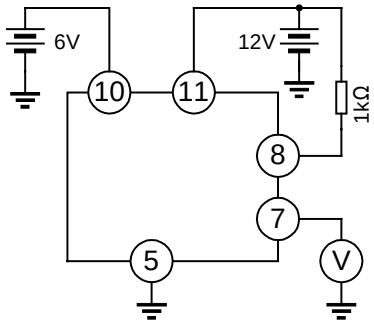


Fig. 19

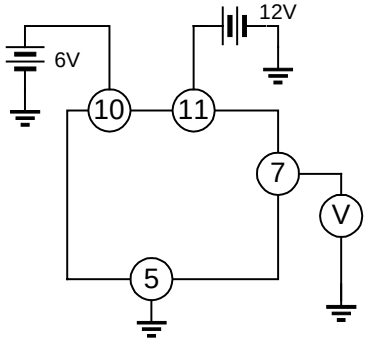


Fig. 20

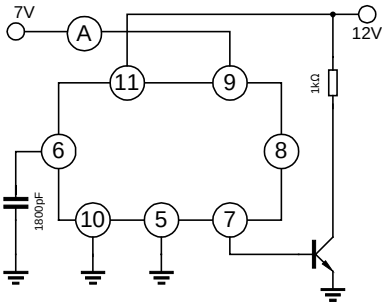


Fig. 21

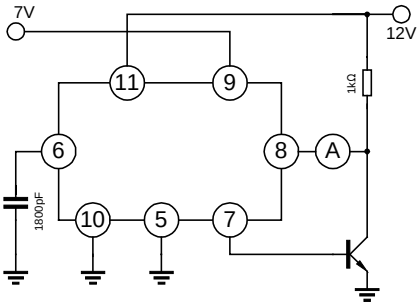


Fig. 22

APPLICATION CIRCUIT