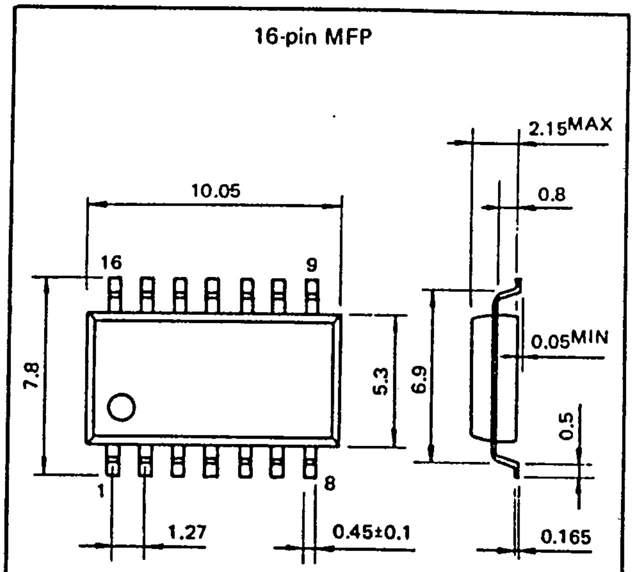
SONY CX10046

AGC and AUTO IRIS for B/W CAMERA

Description: CX10046 is a bipolar IC designed for B/W camera signal processing. It consists of an AGC circuit to control the video signal output from CX10045 at a constant level, DC restoration circuit, and an automatic iris control circuit to prevent excessive incident light intensity.

Features:
- Integrated B/W camera signal processing is possible when combined with CX10045 and CX10047.

Package outline Unit: mm



ABSOLUTE MAXIMUM RATING (Ta = 25°C)

• Power supply voltage	Vcc	15	V	
• Terminal voltage	VIN	–0.3 ~ Vcc + 0.3	V	
• Operating temperature	Topr	–10 ~ +60	°C	
• Storage temperature	Tstg	–50 ~ +125	°C	
• Allowable power dissipation	PD	390*	mW	Ta ≦ 60°C

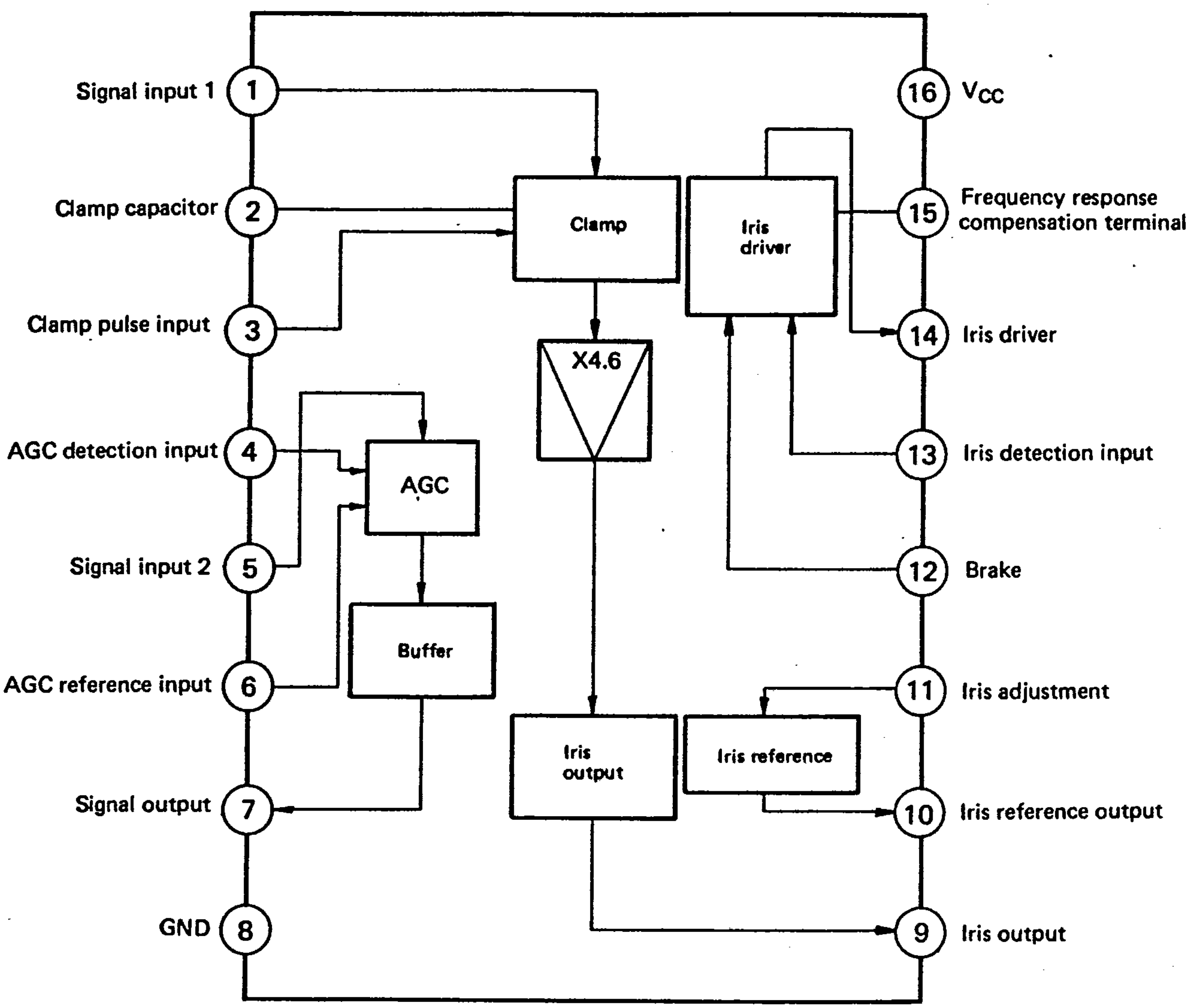
* When mounted on a double glass epoxy substrate (30mm square, 0.8mm thick)

RECOMMENDED OPERATING CONDITION

• Power supply voltage	V_{CC}	8.0 ~ 9.5	V
• Logic input voltage	V_3	0 ~ 5.5	V

41266-TO

BLOCK DIAGRAM



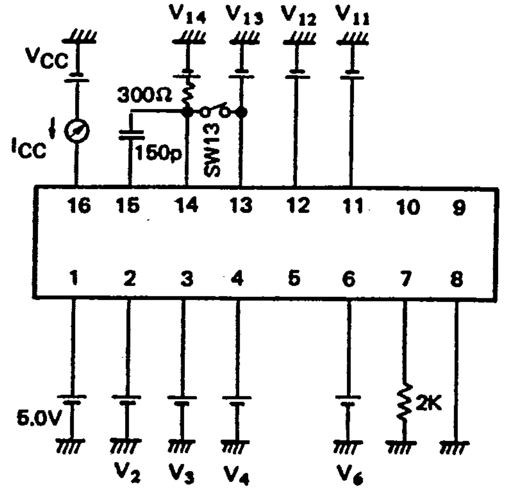
ELECTRICAL CHARACTERISTICS

($Ta=25°C$, $V_{CC}=8.5V$)

Measuring item	Symbol	V_{IN} (mVpp)	Measuring point	Conditions	Measuring circuit	Min	Typ	Max	Unit
Power supply current	I_{CC}	–	16		1	16.2	23.2	33.1	mA
Discharge current	I_{ZD}	–	2	$V_2=4.0V$	1	0.5	0.8	–	mA
Output voltage difference	ΔV_2	–	2	Potential difference between $V_3=0$ and 4.0V when $I_2=-100\mu A$	2	0.6	0.8	–	V
Leak current	I_{2L}	–	2	$V_2=3.5V$, $V_3=0V$	1	-3.0	2.0	7.0	μA
Output voltage	V_9	–	9		1	3.0	3.5	4.0	V
Voltage gain	G_{1-9}	V_{IN} 1 200	9	f=100KHz	3	11.2	13.2	15.2	dB
Max. output amplitude	$V_{OM\,9}$	V_{IN} 1 2000	9	f=100KHz	3	4.0	6.0	–	Vpp
Output voltage	V_7	–	7	$V_4=3.5V$	1	4.15	4.4	4.65	V
Min. voltage gain	G_{5-7} (MIN.)	V_{IN} 5 100	7	f=100KHz, $V_4=3.5V$	3	-2.0	0	2.0	dB
Max. voltage gain	G_{5-7} (MAX)	V_{IN} 5 30	7	f=100KHz	3	21.4	24.4	27.4	dB
Voltage gain difference	ΔG_{5-7} (MAX)	V_{IN} 5 30/100	7	Gain difference between $V_{IN\,1}$= 30 and 100 mVpp at f=100kHz	3	-0.4	0	0.4	dB
Output voltage	V_{10}	–	10		1	4.1	4.25	4.4	V
Input offset voltage	V_{IO}	–	V_F		4	-6	±2	6	mV
Input bias current	I_{IB}	–	V_F		4	-3	-1	–	μA
Input offset bias current	I_{IO}	–	V_F		4	-300	±50	300	nA
Voltage gain	A_V	–	V_F		4	60	90	–	dB
Frequency band width	BW_{5-7}	10	7	-3dB frequency, $V_4=3.5V$	3	10	15	–	MHz
AGC noise voltage	V_N (AGC)	0	7	$BW<10MHz$	3	–	1.0	–	mVrms
AGC voltage gain difference	ΔG_{5-7} (MIN.)	V_{IN}5 100/400	7	Gain difference between two inputs, at f=100kHz and $V_4=4.0V$	3	-0.4	0	0.4	dB
Max. output amplitude	$V_{OM\,7}$	V_{IN} 5 2000	7	f=100KHz, $V_4=3.5V$	3	1000	1500	–	mVpp
Output drive current	I_{14H}	–	14	SW_{13}=open, $V_{13}=1.9V$, V_{14} $V_{14}=2.0V$	1	–	-2.7	-1.0	mA
Output drive current	I_{14L}	–	14	SW_{13}=open, $V_{13}=2.1V$, $V_{14}=2.0V$	1	1.0	5.0	–	mA
High level output voltage	V_{OH14}	–	14	SW_{13}=open, $V_{13}=1.9V$	1	8.0	8.3	–	V
Low level output voltage	V_{OL14}	–	14	SW_{13}=open, $V_{13}=2.1V$	1	–	0.1	0.3	V

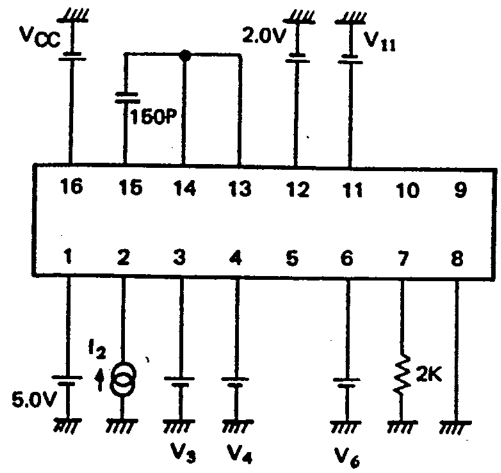
ELECTRICAL CHARACTERISTIC MEASURING CIRCUIT

(1)



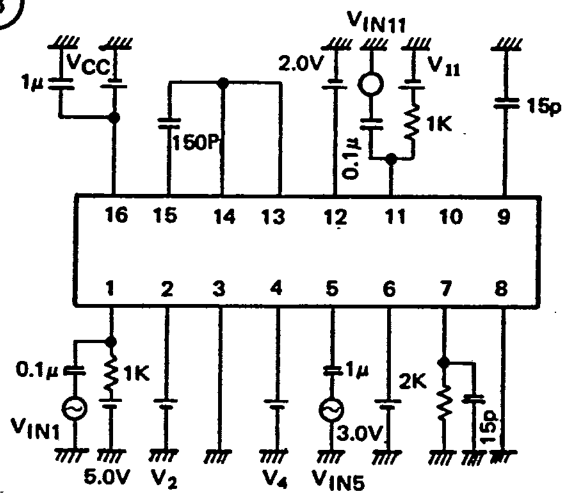
• Unless specified, V_2 = open, V_3 = 4.0V, V_4 = V_6 = 3.0V, V_{11} = 5.0V, V_{12} = 2.0V, V_{14} = open, V_{13} = open and SW_{13}=ON.

(2)



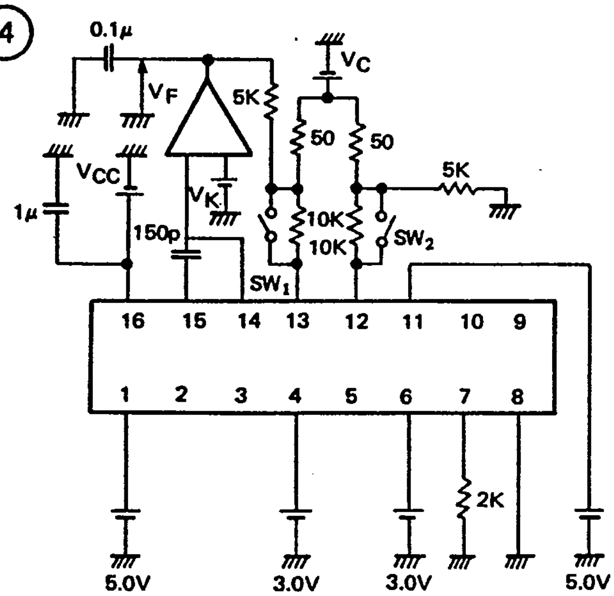
• Unless specified, V_2 = open, V_3 = 4.0V, V_4 = V_6 = 3.0V, V_{11} = 5.0V and I_2 = 0.

(3)



• Unless specified, V_2 = V_{2S}, V = 2.5V and V_{11} = 5.0V.
15pF includes the stray capacitance of the measuring equipment.

(4)



Item	SW_1	SW_2	V_C	V_K	V_F	Calculation
V_{IO}	ON	ON	2V	4.6V	–	$V_{IO} = \frac{V_F\ [V]}{100}$
I_{IB}	OFF	ON	2V	4.6V	V_{F1}	$I_{IB} = \frac{V_{F1} - V_{F2}\ [V]}{2 \times 10^6\ [\Omega]}$
	ON	OFF			V_{F2}	
I_{IO}	ON	ON	2V	4.6V	V_{F1}	$I_{IO} = \frac{V_{F1} - V_{F2}\ [V]}{10^6\ [\Omega]}$
	OFF	OFF			V_{F2}	
A_V	ON	ON	2V	7.0V	V_{F1}	$A_V = 20\log\frac{600}{V_{F2} - V_{F1}}$ [dB]
				1.0V	V_{F2}	