

Preliminary

# KA7307D

# CDS/AGC

## GENERAL DESCRIPTION

The KA7307 is a bipolar monolithic integrated circuit for CCD Color Video Camera, and then it provides functions of Correlated Double Sampling, Automatic Gain Control, Window Function, and Iris Amplifier Gain Control.



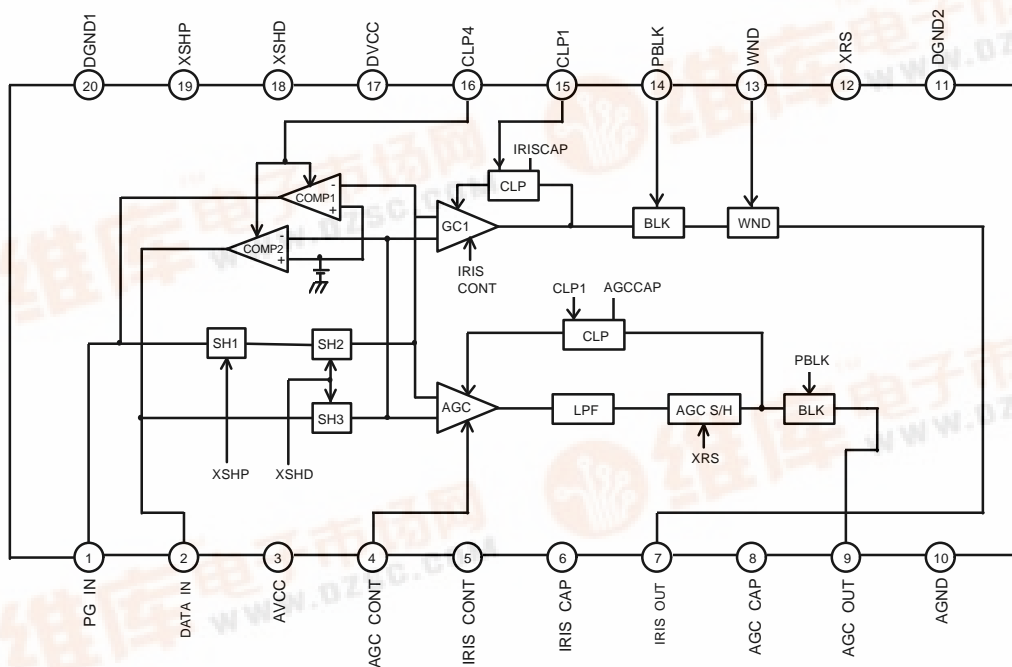
## FEATURES

- . Correlated Double Sampling (CDS)
- . Automatic Gain Control (AGC)
- . Low-pass-filter and Sample-and-Hold circuit after AGC for external A/D converters
- . Window Function
- . Iris Amplifier Gain Control
- . + 5V Single power supply
- . Low power < 330mW







## ORDERING INFORMATION

Device	Package	Operating Temperature
KA7307D	20-SOP-300	- 20°C ~ + 75 °C

## BLOCK DIAGRAM



## PIN DESCRIPTIONS

No.	Symbol	I/O	Pin Voltage	Description
1	PG IN	I	Black Level 2.3V ~ 2.9V	CCD Signal Input
2	DATA IN	I	( Typ. : 2.6V )	
3	AVCC	I	Typ. : 5.0V	Supply Voltage
4	AGC CONT	I	0V ~ 5V	AGC Gain Control
5	IRIS CONT	I	GAIN CONTROL	IRIS Gain Control
6	IRIS CAP	O	Black Level 2.05V ~ 2.55V ( Typ. : 2.27V )	A Pin is used to attach IRIS Clamp Capacitor
7	IRIS OUT	O	Black Level 1.2V ~ 1.7V ( Typ. : 1.45V )	IRIS Signal Output Signal Max. : > 2.0Vp-p
8	AGC CAP	O	Black Level 2.15V ~ 2.65V ( Typ. : 2.37V )	A Pin is used to attach IRIS Clamp Capacitor
9	AGC OUT	O	Black Level 1.2V ~ 1.7V ( Typ. : 1.45V )	AGC Signal Output Signal Max. : > 2.0Vp-p
10	AGND	O	-	Analog Ground
11	DGND2	O	-	Digital Ground 2
12	XRS	I	 H : > 4V L : < 1V	Sample - and - Hold Sig. Input ( Active Low )
13	WND	I	 H : > 4V L : < 1V	High Speed Pulse Input Pin for WINDOW ( Active Low )
14	PBLK	I	 H : > 4V L : < 1V	Pre - Blanking Pulse Input Pin ( Active Low )
15	CLP1	I	 H : > 4V L : < 1V	Clamping Pulse 1 Input Pin ( Active High )
16	CLP4	I	 H : > 4V L : < 1V	Clamping Pulse 4 Input Pin ( Active High )
17	DVCC	I	Typ. : 5.0V	Supply Voltage
18	XSHD	I	 H : > 4V L : < 1V	High Speed Pulse Input Pin for Sampling / Hold ( Active Low )
19	XSHP	I	 H : > 4V L : < 1V	
20	DGND1	O	-	Digital Ground 1

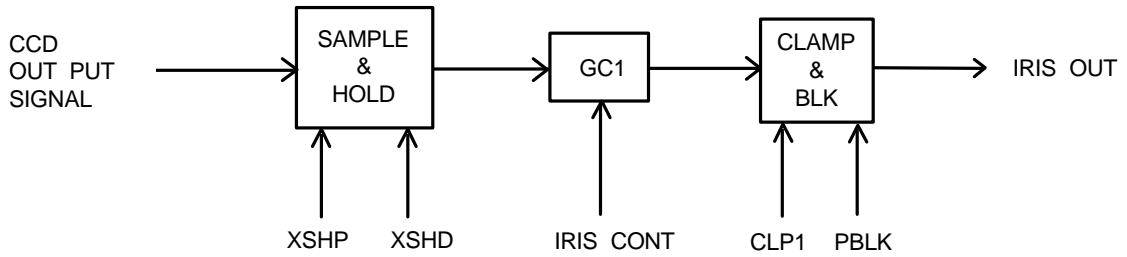
**ABSOLUTE MAXIMUM RATINGS**( $V_{CC} = 5.0\text{ V}$  ,  $T_a = 25^\circ\text{C}$ )

Characteristics	Symbol	Value	Unit
Supply Voltage	$V_{CC}$	7	V
Input Voltage	$V_i$	4.75 ~ 5.25	V
Power Dissipation	$P_d$	530	mW
Operating Temperature	$T_{opr}$	- 20 ~ + 75	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	- 65 ~ + 150	$^\circ\text{C}$

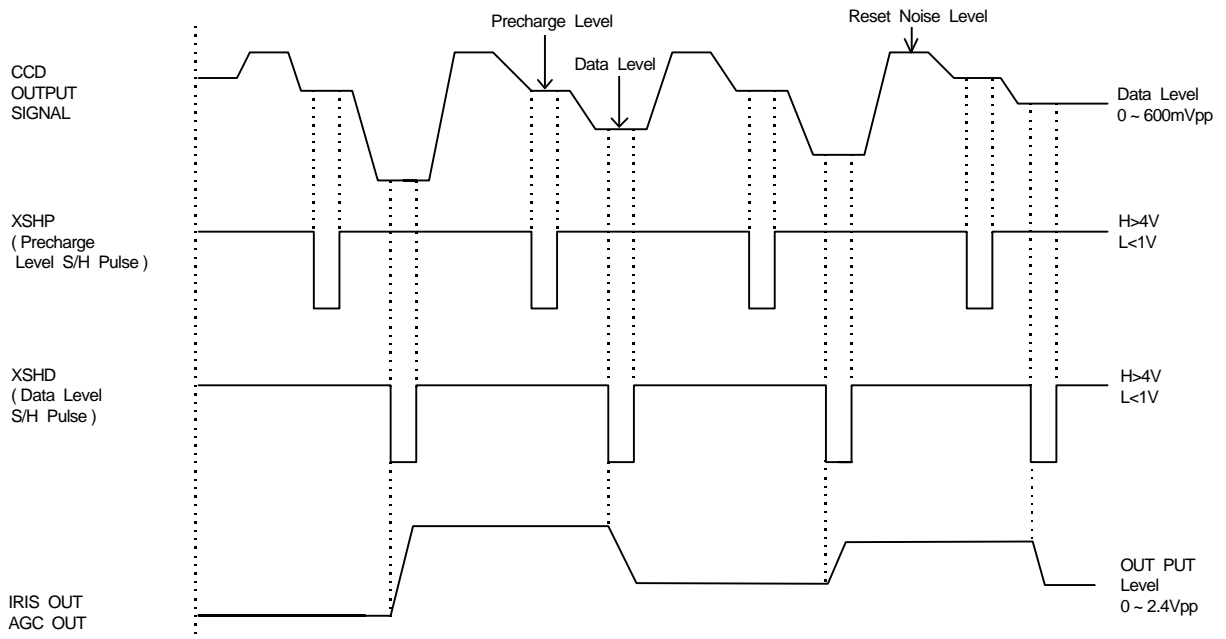
**ELECTRICAL CHARACTERISTICS**( $V_{CC} = 5.0\text{ V}$  ,  $T_a = 25^\circ\text{C}$ )

Characteristics		Symbol	Test Condition	Min	Typ	Max	Unit
Supply Current		ICC	ALL PIN : OPEN	23	41	59	mA
GC1	CONT MIN	GC1C MIN	Iris out / Data in Iris CONT = 0.0V, WND >4.0V	-	- 6	- 4	dB
	CONT MAX	GC1C MAX	Iris out / Data in Iris CONT = $V_{CC}$ , WND > 4.0V	14	18	-	dB
Iris out maximum voltage swing		CDR	$D_{ta\ in} = 400\text{mVp-p}$ GC1 Gain max.	2.0	2.5	-	V
CG1 Amp. CMRR		CMR1	15.75KHz	-	- 50	- 36	dB
AGC	CONT MIN	AGC1 MIN	AGC out / Data in AGC CONT = 0.0V	-	6	8	dB
	CONT MAX	AGC1 MAX	AGC out / Data in AGC CONT = $V_{CC}$	38	41	-	dB
AGC Amp. CMRR		CMRA	15.75KHz	-	- 50	- 36	dB
AGC out maximum voltage swing		ADR	$D_{ta\ in} = 100\text{mVp-p}$ AGC Gain max.	2.0	2.5	-	V

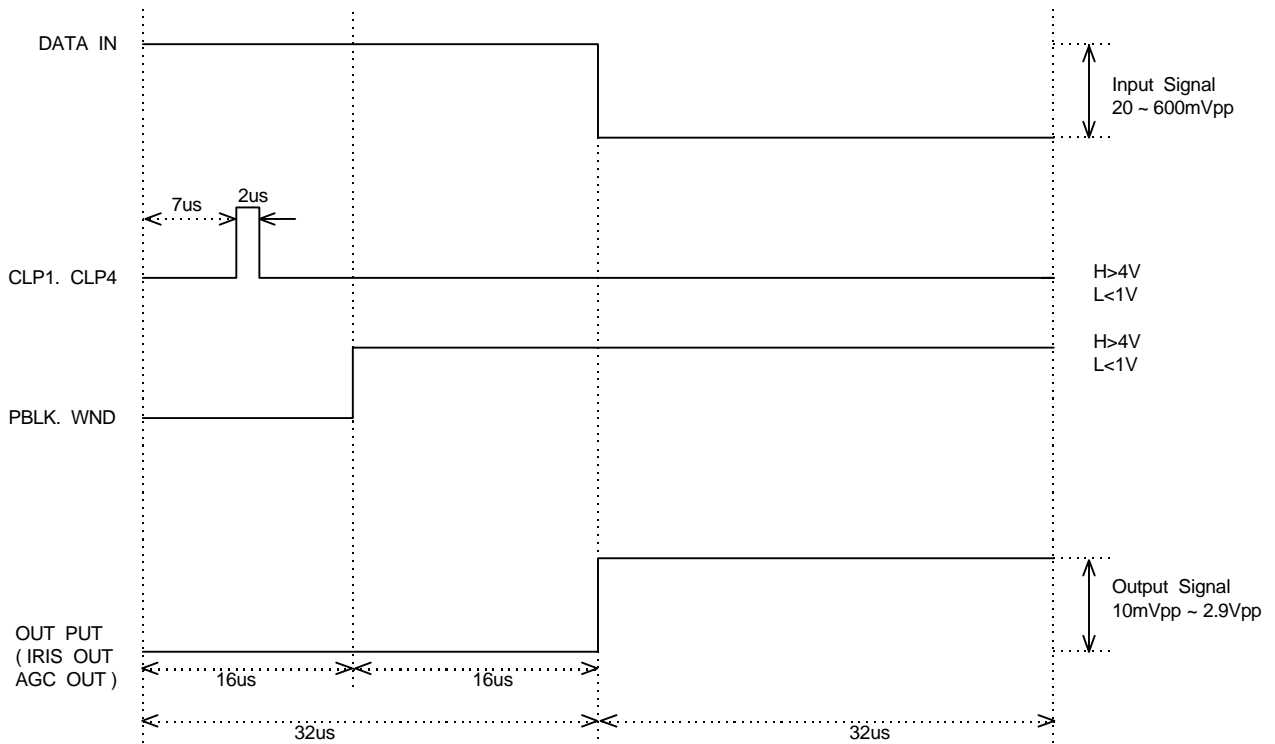
OPERATING PRINCIPLES & METHODE



1. SIGNAL FORMAT



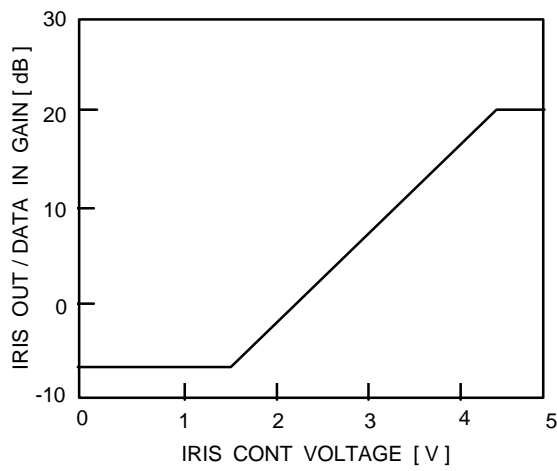
2. TIMING CHART FOR TESTING



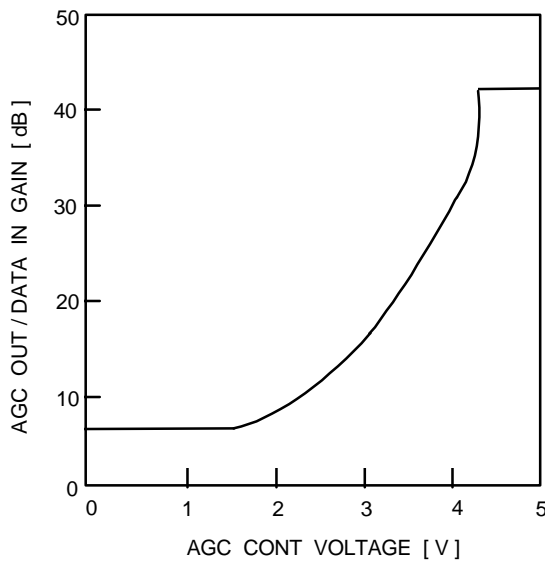
CHARACTERISTICS GRAPH

( Standard Control Characteristics ; ( Vcc = 5.0 V , Ta = 25°C )

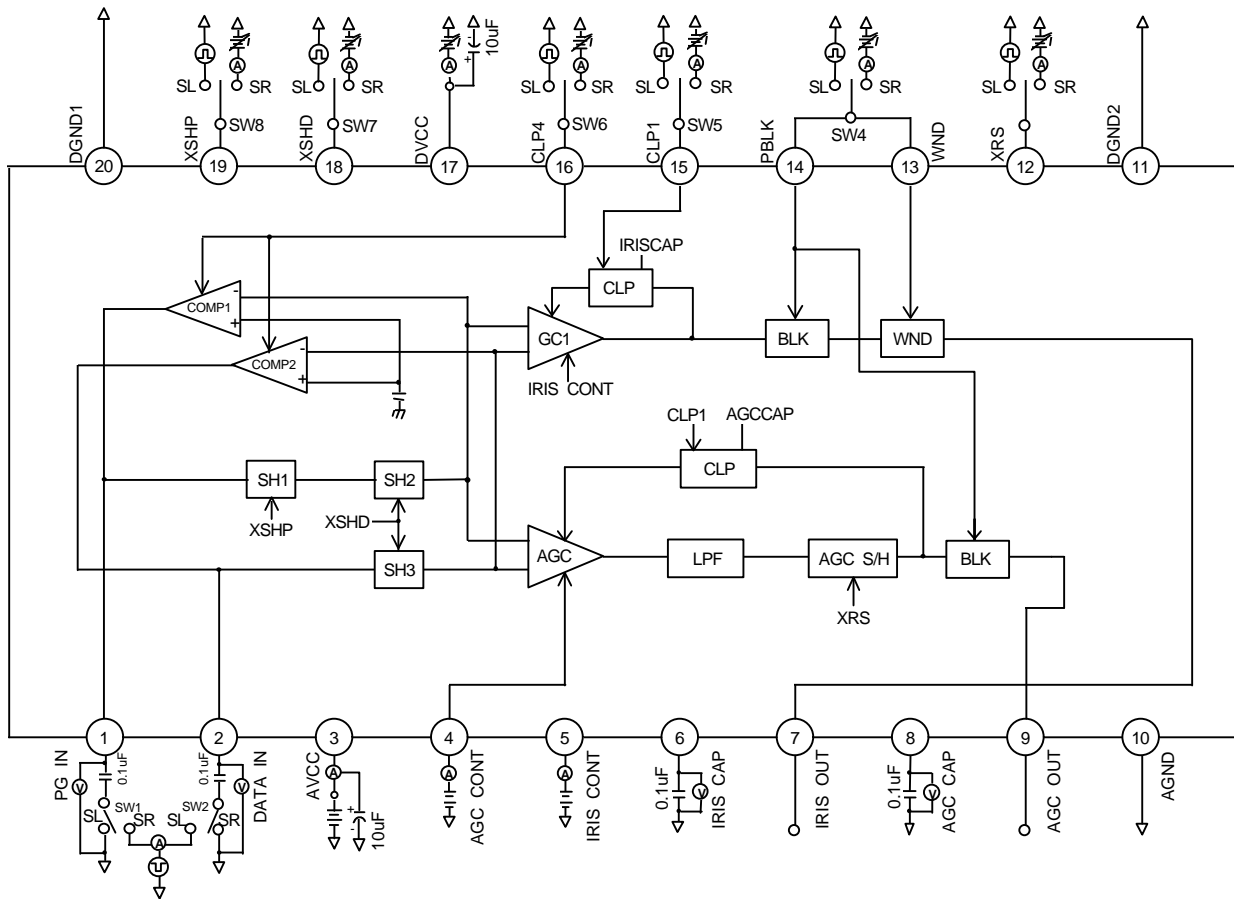
Input Control Voltage : 0 ~ 5V  
Output Gain : - 6dB ~ 18dB



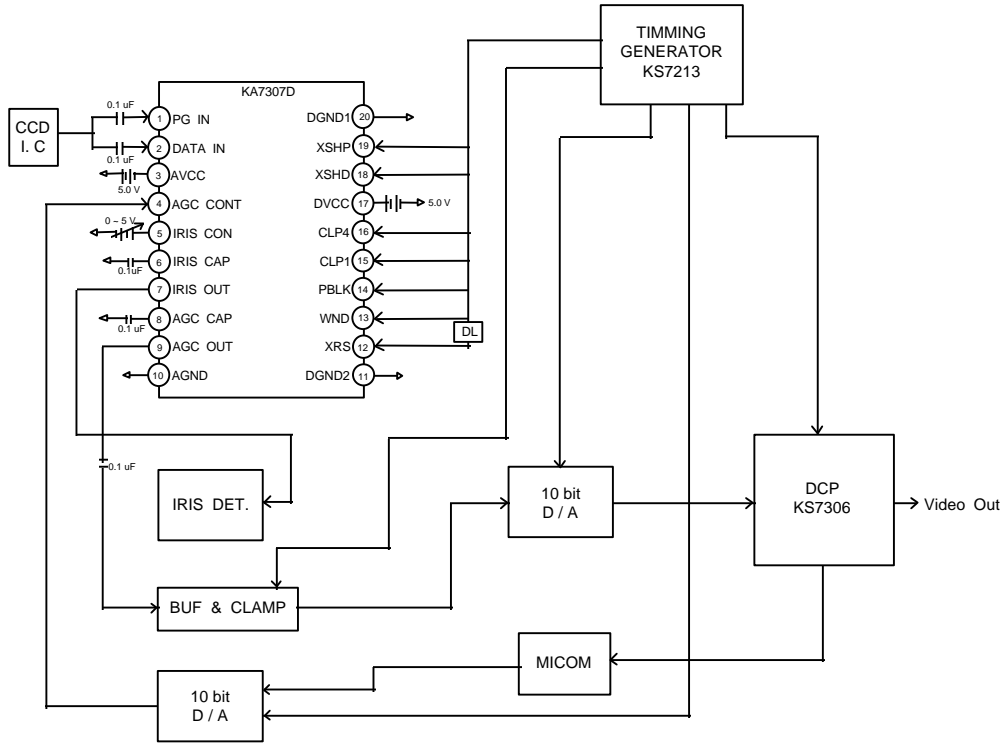
Input Control Voltage : 0 ~ 5V  
Output Gain : 6dB ~ 41dB



TEST CIRCUIT



APPLICATION CIRCUIT



PACKAGE DIMENSION



20-SOP-300

unit: mm

