

TENTATIVE TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

TA1252ANG

NTSC VIDEO, CHROMA, DEFLECTION, AND DISTORTION COMPENSATION IC

TA1252ANG is Video Chroma and deflection signal Processing IC for NTSC. On a 56-pin shrink DIP package. TA1252ANG has deflection distortion compensation. TA1252ANG has a function to detect EDTV2 signals. The result is output on the Read Bus. TA1252ANG uses an I²C Bus controls for controllings and settings.

FEATURES

Video Signal Processing

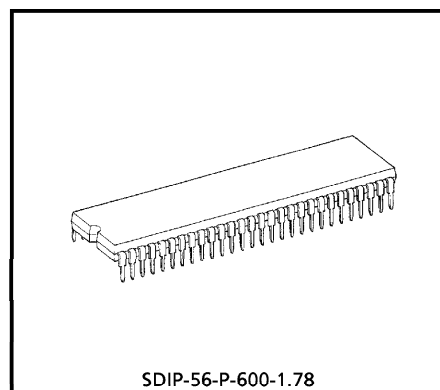
- Built-in Y delay line
- Black stretch
- DC restoration ratio compensation
- Aperture controlled sharpness
- Output for velocity scan modulation (VSM)
- White peak suppression (WPS)
- EDTV2-NRZ signal detection (Output on Read Bus.)

Chroma Signal Processing

- Built-in chroma BPF/TOF
- R-Y and B-Y outputs
- Color/BW situation output by read bus
- 3.58 MHz continuous wave (CW) output

Sync Signal Processing

- Counts down 32 f_H
- Dual AFC
- Vertical AGC
- HD and VD outputs
- Vertical frequency fixed mode
- Horizontal and Vertical position alignment
- DC outputs for vertical centering



Weight : 5.55 g (Typ.)

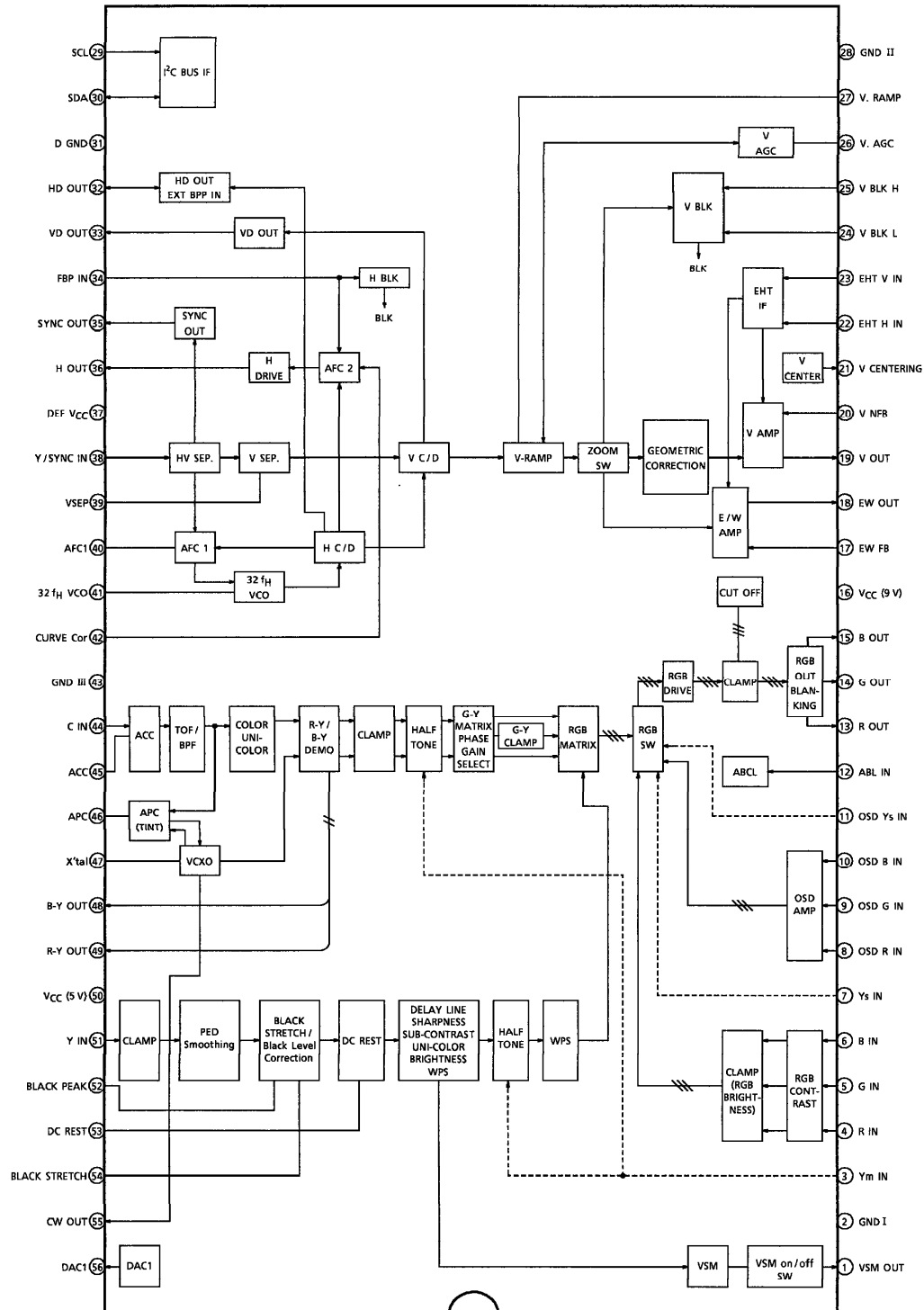
Text Signal Processing

- Analog RGB inputs
- Digital RGB inputs
- Halftone switch (Y_M)
- Cutoff and drive alignment

Deflection Correction Function

- Horizontal and Vertical amplitude adjustment
- Vertical linearity correction
- Vertical S correction
- Vertical EHT correction
- E/W parabola correction
- E/W corner correction
- E/W trapezium correction
- E/W EHT correction

BLOCK DIAGRAM



BUS CONTROL MAP

Slave address : 88H (WRITE) / 89H (READ)

	D7	D6	D5	D4	D3	D2	D1	D0
00	ABL POINT		UNI-COLOR					
01	TEST	BRIGHTNESS						
02	Y-MUTE	COLOR						
03	TINT							TOF-SW
04	SHARPNESS					ABL GAIN		
05	VERTICAL CENTERING							MODE
	RGB BRIGHTNESS			VERTICAL POSITION				
06	G DRIVE GAIN							BST-SW
07	B DRIVE GAIN							VSM-G
08	R CUT OFF							
09	G CUT OFF							
0A	B CUT OFF							
0B	HORIZONTAL POSITION				C-CORE	V CL	(1)	
0C	VERTICAL SIZE					ZOOM	SERVICE	
0D	HORIZONTAL SIZE					HV-FIX	V-AGC	
0E	E / W PARABOLA				V-S CORRECTION			
0F	V-LIN CORRECTION				SUB CONTRAST			
10	E / W TRAPEZIUM				E / W CORNER			

READ MODE

	PORES	Y-IN	RGB-OUT	H-OUT	V-OUT	EW-OUT	COLOR	ED2
--	-------	------	---------	-------	-------	--------	-------	-----

The preset value for D7 is 1. The preset values for D0 to D6 are 0.

The content of the sub address [05H] varies according to the [MODE] setting.

While the Read bus for acknowledging EDTV2 signals is being used, VCL is fixed to 4 fH.

EDTV2 signals acknowledging function is only guaranteed for high-field signal inputs. As for low-field and ghost signal inputs, the acknowledging function must be carefully evaluated by the user before actual usage.

BUS CONTROL CHARACTERISTICS BY FUNCTION

Write mode

Slave address : 88H

ITEM	DATA	No. OF BITS	PRESET VALUE
Unicolor (UNI-COLOR)/ RGB Contrast	000000 ; - 18 dB 111111 ; 0 dB	6	- 18 dB (000000)
Brightness (sub-brightness included) (BRIGHTNESS)	0000000 ; - 40 IRE 1111111 ; + 40 IRE	7	- 40 IRE (0000000)
Color (sub-color included) (COLOR)	0000000 ; - ∞ 1111111 ; + 6 dB	7	- ∞ (0000000)
Tint (sub-tint included) (TINT)	0000000 ; - 32° 1111111 ; + 32°	7	± 0° (1000000)
Picture Sharpness (PICTURE-SHARPNESS)	000000 ; - 6 dB 111111 ; + 12 dB (at 2.4 MHz)	6	+ 6 dB (100000)
Sub Contrast (SUB-CONTRAST)	0000 ; - 3 dB 1111 ; + 3 dB	4	- 3 dB (1000)
DC Output for Vertical Centering (VERTICAL CENTERING)	0000000 ; 1.0 V 1111111 ; 4.0 V (When in MODE [WIDE])	7	Center (1000000)
Mode SW (MODE)	The content of the sub address [05H] varies according to the [MODE] setting. 0 ; WIDE (16 : 9) 1 ; normal (4 : 3)	1	WIDE (0)
RGB Brightness (RGB-BRIGHTNESS)	0000 ; - 20 IRE 1111 ; + 20 IRE (When in MODE [normal])	4	Center (1000)
RGB Cut Off (RGB-CUTOFF)	00000000 ; - 0.5 V 11111111 ; + 0.5 V	8 × 3	- 0.5 V (00000000)
G / B Drive Gain (GB-DRIVE GAIN)	0000000 ; - 5 dB 1111111 ; + 3 dB	7 × 2	Center (1000000)
VSM Gain (VSM-G)	0 ; ON 1 ; OFF	1	ON (0)
Zoom Mode Switching (ZOOM)	0 ; normal 1 ; ZOOM Analog BLK ON by PIN DC control.	1	normal (0)
Black Stretch / Black Correction Mode Switching	0 ; Black Stretch Mode 1 ; Black Correction Mode	1	Black stretch (0)
ABL Detection Voltage (ABL POINT)	00 ; MIN 11 ; MAX	2	Center (10)
ABL Sensitivity (ABL GAIN)	00 ; MIN 11 ; MAX	2	MIN (00)
Horizontal Position (HORIZONTAL POSITION)	00000 ; - 3 μs (left shift) 11111 ; + 3 μs	5	Center (10000)
Horizontal and Vertical Frequency Fixed Mode (HV-FIX)	0 ; normal 1 ; AFC OFF (Free run) & V = 262H	1	normal (0)
Vertical Pulse Phase (VERTICAL-PULSE PHASE)	000 ; 0H 111 ; 7H DELAY (When in MODE [normal])	3	0H (000)

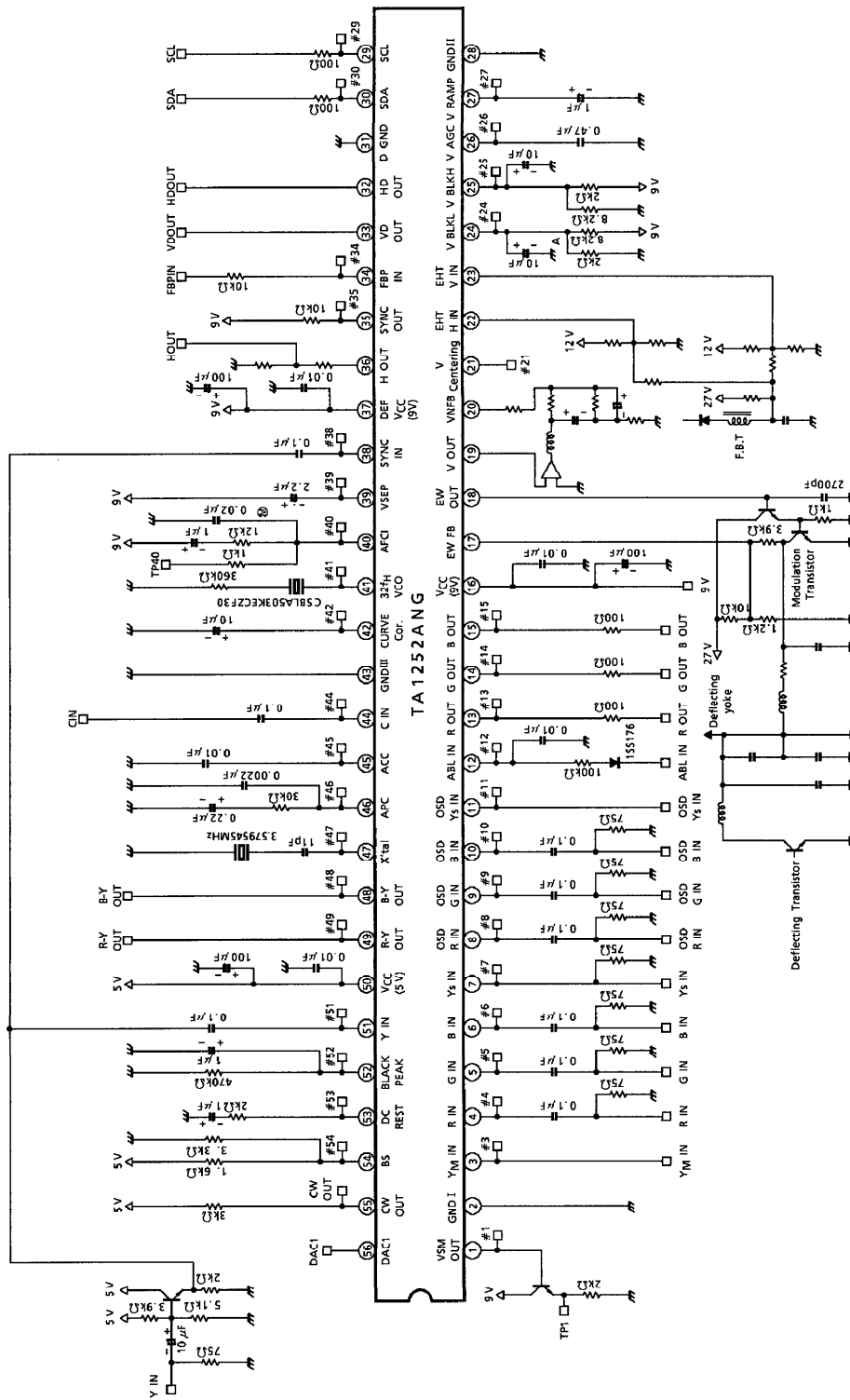
ITEM	DATA	No. OF BITS	PRESET VALUE
Service Mode (SERVICE)	0 ; normal 1 ; Service mode (V-Stop)	1	normal (0)
Test Mode (TEST MODE)	0 ; RGB BLK OFF 1 ; normal	1	normal (0)
TOF Switching (TOF-SW)	0 ; BPF mode 1 ; TOF mode	1	BPF (0)
V-AGC Time Constant (V-AGC)	0 ; fast 1 ; slow	1	fast (0)
Vertical Amplitude (VERTICAL SIZE)	000000 ; MIN 111111 ; MAX	6	Center (100000)
Vertical Linearity Correction (V-LIN CORRECTION)	0000 ; Lower stretch 1111 ; Upper stretch	4	Center (1000)
Vertical S Correction (V-S CORRECTION)	000 ; S MAX 111 ; Reverse S MAX	3	(000)
Horizontal Amplitude (HORIZONTAL SIZE)	000000 ; MIN 111111 ; MAX	6	Center (100000)
E/W Parabola Correction (E/W PARABOLA)	00000 ; MIN 11111 ; MAX	5	Center (10000)
E/W Corner Correction (E/W CORNER)	0000 ; Vertical expansion 1111 ; Vertical compression	4	(0000)
E/W Trapezium Correction (E/W TRAPEZIUM)	00000 ; Expansion downward 11111 ; Expansion upward	5	Center (10000)
Vertical Clock Switching (V CL)	0 ; 2 f _H 1 ; 4 f _H	1	2 f _H (0)
Internal Curve Correction (C-CORE)	0 ; OFF 1 ; ON (RGB information is convoluted on the CURVE Cor Pir.)	1	OFF (0)
Y Mute (Y MUTE)	0 ; OFF 1 ; ON	1	ON (1)

READ MODE
Slave address : 89H

D7	D6	D5	D4	D3	D2	D1	D0
PONRES	Y-IN	RGB-OUT	H-OUT	V-OUT	EW-OUT	COLOR	ED2

ITEM	DATA
POWER ON RESET (PORES)	0 ; normal 1 ; RESISTER PRESET
Color Mode (COLOR)	0 ; B/W 1 ; NTSC
ED2 Indentification	0 ; non-ED2 1 ; ED2
Self Diagnosis Result Output (RGB-OUT / Y-IN / H-OUT / V-OUT / E-W OUT)	0 ; NG 1 ; OK

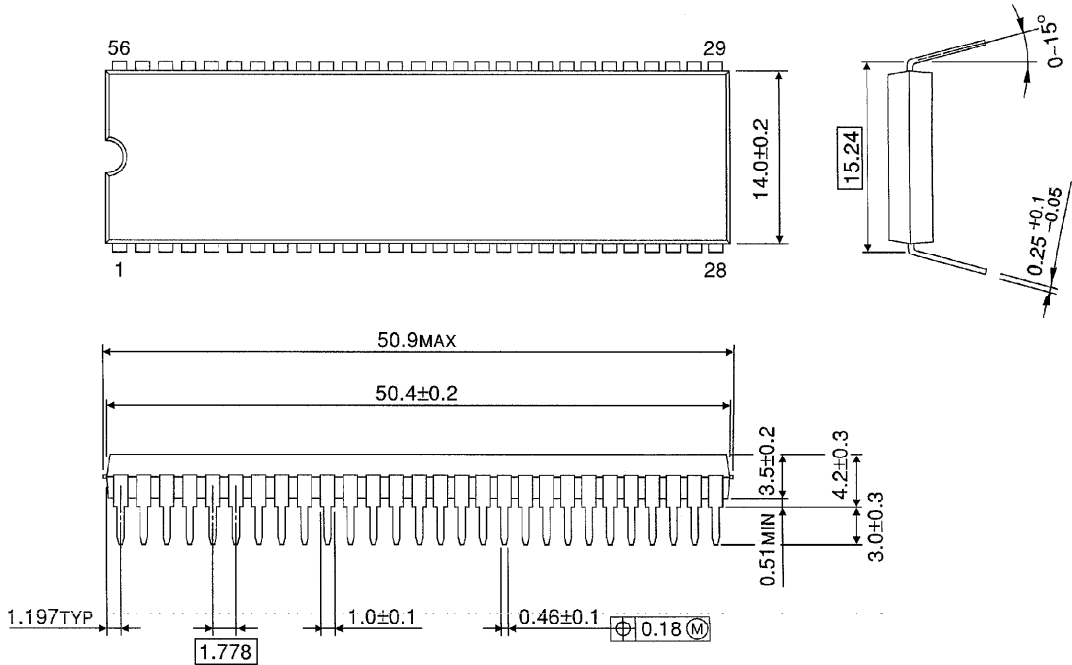
APPLICATION CIRCUIT



TA1252ANG

PACKAGE DIMENSIONS
SDIP56-P-600-1.78

Unit : mm



Weight : 5.55 g (Typ.)

About solderability, following conditions were confirmed

● Solderability

- (1) Use of Sn-63Pb solder Bath
 - solder bath temperature = 230°C
 - dipping time = 5 seconds
 - the number of times = once
 - use of R-type flux
- (2) Use of Sn-3.0Ag-0.5Cu solder Bath
 - solder bath temperature = 245°C
 - dipping time = 5 seconds
 - the number of times = once
 - use of R-type flux

RESTRICTIONS ON PRODUCT USE

030619EBA

- The information contained herein is subject to change without notice.
- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA for any infringements of patents or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of TOSHIBA or others.
- TOSHIBA is continually working to improve the quality and reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to comply with the standards of safety in making a safe design for the entire system, and to avoid situations in which a malfunction or failure of such TOSHIBA products could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent TOSHIBA products specifications. Also, please keep in mind the precautions and conditions set forth in the "Handling Guide for Semiconductor Devices," or "TOSHIBA Semiconductor Reliability Handbook" etc..
- The TOSHIBA products listed in this document are intended for usage in general electronics applications (computer, personal equipment, office equipment, measuring equipment, industrial robotics, domestic appliances, etc.). These TOSHIBA products are neither intended nor warranted for usage in equipment that requires extraordinarily high quality and/or reliability or a malfunction or failure of which may cause loss of human life or bodily injury ("Unintended Usage"). Unintended Usage include atomic energy control instruments, airplane or spaceship instruments, transportation instruments, traffic signal instruments, combustion control instruments, medical instruments, all types of safety devices, etc.. Unintended Usage of TOSHIBA products listed in this document shall be made at the customer's own risk.
- The products described in this document are subject to the foreign exchange and foreign trade laws.
- TOSHIBA products should not be embedded to the downstream products which are prohibited to be produced and sold, under any law and regulations.