

LA7625, 7626

Video, Chroma and Deflection Circuit for Color Television Sets

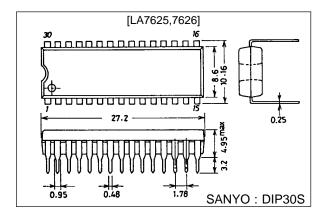
Overview

The LA7625 and LA7626 are based on the LA7620 and LA7621 with the video circuit DC restoration factor changed to 100%. The LA7625 and LA7626 are small, multifunction ICs in which video, chroma and deflection circuits for NTSC color TV system are packaged in a shrink-type DIP30S (the same type as the earlier DIP22). In addition to being small, these ICs greatly reduce the number of components required and reduce the number of adjustments that must be made. By combining the LA7625 or LA7626 with the LA7555 or LA7577 VIF/SIF IC, or LA7832, LA7833, LA7837, or LA7838 vertical output IC, it is possible to process all functions of the color television signal system. Note that the LA7625 has a peak clipping circuit built into the video circuit, and is suited primarily for compact sets, while the LA7626 does not have a peak clipping circuit and is suited for larger sets.

Package Dimensions

unit: mm

3061-DIP30S



Features

- · Small package
- Few peripheral components needed.
- Few adjustments needed.

(The functions listed below require no adjustments.)

- Chroma VCO (APC)
- · Horizontal oscillation H-Hold
- · Vertical oscillation V-Hold
- · Multifunctional.

Specifications

Maximum Ratings at Ta = 25 °C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V ₁₆ max		14.0	V
Maximum supply current	I ₂₂ max		15.0	mA
Allowable power dissipation	Pd max	Ta ≦ 65 °C	1100	mW
Operating temperature	Topr		-20 to +85	۰C
Storage temperature	Tstg		-55 to +125	°C

Operating Conditions at Ta = 25 $^{\circ}$ C

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	V ₁₆		12.0	V
Recommended supply current	l ₂₂		10.0	mA
Operating supply voltage range	V ₁₆ op		9.0 to 14.0	V
Operating supply current range	I ₂₂ op		8.5 to 15.0	mA

Electrical Characteristics at Ta = 25 $^{\circ}$ C, $V_{\rm CC}$ = V_{16} = 12 V, $I_{\rm CC}$ = I_{22} = 10 mA

Parameter	Symbol	Conditions	min	typ	max	Unit	
Circuit current		No signal	40	53	75	mA	
Circuit current I ₁₆ No signal 40 53 75 mA [Deflection block]							
Horizontal supply voltage	V _{Z22}		8.2	8.7	9.2	V	
Sync separation input DC level	V _{S.S}		9.0	9.3	9.6	V	
Vertical free-running	f _V 1			f _H /296.5		Hz	
frequency 1	f _V 2		-	f _H /224.5		Hz	
Vertical blanking pulse width	PW V.blk			19.25/f _H		S	
Vertical output pulse width	PW V.out			10.25/f _H		s	
Vertical drive stage voltage gain	G _V		13	16.2	19	dB	
Vertical output pulse start				10.2			
voltage	Vcds				4.0	V	
Vertical pull-in operation start							
voltage	Vvps				4.0	V	
Vertical blanking pulse wave	\0.7 l- II-			40		.,	
peak value	VV.blk			10		V	
Horizontal free-running	f	Frequency deviation versus 15.734 kHz	-70	0	130	Hz	
frequency	fH	Friequency deviation versus 15.754 kHz	-70	U	130	ПZ	
Dependence of horizontal							
oscillation frequency on	∆ f _H (V)	$f_H(8V)-f_H(7V)$	-10	0	10	Hz	
supply voltage							
Dependence of horizontal	T	T 40 - 0 4- 00 - 0	4.5		4.5	11-/-1	
oscillation frequency on	Δ f _H /Δ T	$T_a = -10 \circ C \text{ to } 60 \circ C$	-1.5		1.5	Hz/deg	
operating temperature Horizontal output pulse width	PW Hout		23.5	24.5	25.5	110	
· · ·	F VV HOUL		400	24.5	20.0	μs Hz	
Horizontal sync pull-in frequency range	f _H pull	Differential versus 15.734 kHz	-500			Hz	
Horizontal output pulse start			-300			П	
voltage	V _H pos				5.5	V	
Horizontal free-running							
frequency drift with time	Δ f _{HT}	for 5 seconds to 30 minutes after power is applied	-50	-10	30	Hz	
Hotizontal blanking	., .,		44			.,	
threshold level	V _H .blk		11			V	
Horizontal output drive current	I _{H.O}		2.0		4.5	mA	
Horizontal oscillation control		Reference value only (i.e. not specified)		236		Hz/µA	
sensitivity	B _{fH}	Reference value offly (i.e. flot specified)		230		ПΖ/μΑ	
Hold-down operation start	V _{HD}		0.55	0.65	0.75	V	
voltage	VHD		0.00	0.00	0.70	•	
[Video block]	•		1			1	
Video tone	RE1	f = 2 MHz,	-5	-3	-1	dB	
control characteristics 1		Video tone VR: 0 V		_			
Video tone	RE2	f = 2 MHz,	12	15	18	dB	
control characteristics 1		Video tone VR: 12 V					
Video voltage gain	AV	f = 100 kHz, Video tone VR: 5.5 V	12	15	18	dB	
Contrast control center	60	f = 100 kHz, input: 100 mVp-p	0.2	0.3	0.4	Vp-p	
Contrast control center Contrast variable range	eo 4 eo	f = 100 kHz	16	18	20	dB	
Bright control characteristics 1	∆ eo BR1	No signal, bright VR: 3 V	8	10	20	V	
	BR2	No signal, bright VR: 6 V	5.8	6.2	6.0	V	
Bright control characteristics 2 Bright control characteristics 3	BR3	No signal, bright VR: 9 V	5.0	6.3	6.8	V	
		f = 5 MHz/f = 100 kHz	_ 5		4.5		
Frequency response DC restoration factor	f P		-5	100		dB o/	
DC Testoration ractor	R _{DC}	STAIR STEP signal reference value		100		%	

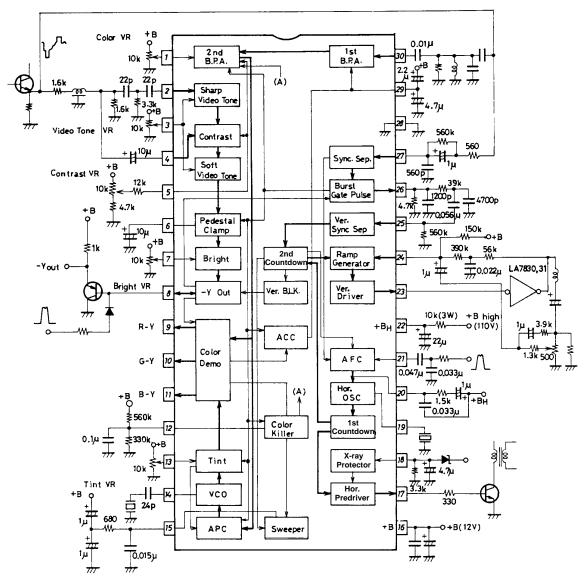
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LA7625, 7626

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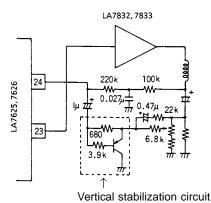
Parameter	Symbol	Conditions	min	typ	max	Unit
[Chroma Block]	•		•			•
ACC amplitude characteristics 1	ACC1	Input: +6 dB	-3	0	+3	dB
ACC amplitude characteristics 2	ACC2	Input :-20 dB	-7		+2	dB
ACC phase characteristics 1	ACC _ø 1	Input: +6 dB	-3		+3	deg
ACC phase characteristics 2	ACC _ø 2	Input: -20 dB	-7		+7	deg
Killer operating point	EK		-55	-46	-40	dB
Color control center	B-Ycen	Output B-Y: color VR 6 V	2.9	4.3	5.5	Vp-p
Maximum demodulation output	B-Ymax	Output B-Y: color VR 12 V	5.5	6.5		Vp-p
Color contrast variable range	∆ Gcont	Output B-Y	15.5	17.0	18.5	dB
Tint center	Tcen	Output B-Y: tint VR 6 V	-17	- 5	+7	deg
Tint variable range	ΔΤ	Output B-Y	+45 -35			deg
APC pull-in range	Δ f APC		±300			Hz
Demodulation output ratio 1	R-Y/B-Y		0.81	0.90	0.98	
Demodulation output ratio 2	G-Y/B-Y		0.24	0.30	0.38	
Demodulation angle 1	∠R-Y/B-Y	Tint VR 6 V	96	104	112	deg
Demodulation angle 2	∠R-Y/B-Y	Tint VR 6 V	-132	-122	-112	deg
Color difference output DC voltage	V9,10,11		6.7	7.2	7.7	V
Color difference output DC deviation voltage	Δ V9,10,11		-200		+200	mV

Block Diagram of Equivalent Circuit Block and Examples of Peripheral Circuits



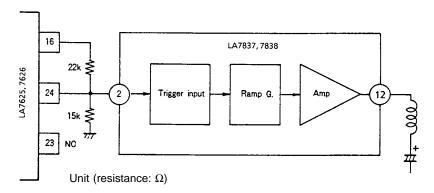
Unit (resistance: Ω , capacitance: F)

Vertical output IC (LA7832, 7833) connection circuit example Includes vertical stabilization circuit



Unit (resistance: Ω , capacitance: F)

Vertical output IC (LA7837, 7838) connection circuit example



The following family of color TV NTSC system Y, chroma, and deflection ICs has been developed, each with different functions and characteristics. Select the IC that best suits the application and purpose for which the color TV set is intended.

Type number	Dook slipping		Secondary differential	Video tone		Remarks	
Type number	Peak clipping	factor	circuit input polarity	Soft	Sharp	Remarks	
LA7620	0	70%	Positive polarity	0	0		
LA7621	X	70%	Positive polarity	0	0		
LA7625	0	100%	Positive polarity	0	0		
LA7626	X	100%	Positive polarity	0	0		
LA7629	X	100%	*Negative polarity	Х	0	Video band 10MHz	

* : Requires inverting amplifier

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