



LA7640N

Chroma Circuit for SECAM-system Color Television Sets

Overview

The LA7640N houses the chroma circuit for a SECAM-system color television set in a shrink-type DIP24S package. The LA7640N eliminates the need for adjustment of the discriminator. When used in conjunction with the LA7685J single-chip PAL/NTSC system LSI, it becomes possible to process color television signals for multiple systems. Note that the LA7640N has a built-in SECAM signal demodulation circuit block and a demodulated signal amplitude modulation circuit block.

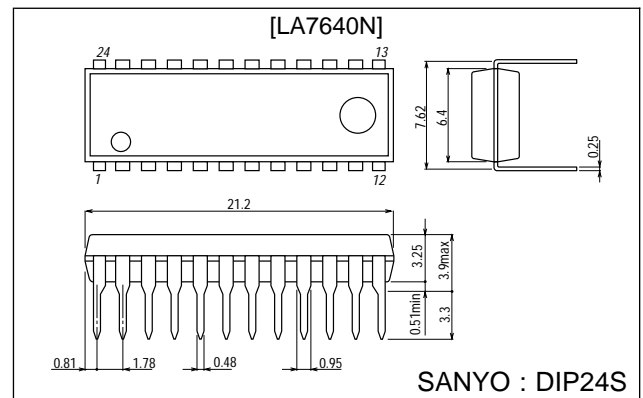
Features

- Discriminator requires no adjustment.
- Conversion of SECAM signals into pseudo-NTSC signals (SECAM → pseudo-NTSC transcoder).

Package Dimensions

unit : mm

3067-DIP24S



Specifications

Maximum Ratings at Ta = 25 °C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V _{CCmax}		10	V
Allowable power dissipation	P _{d max}	T _a ≤ 65 °C	650	mW
Operating temperature	T _{opr}		-10 to +65	°C
Storage temperature	T _{stg}		-55 to +150	°C

Operating Conditions at Ta = 25 °C

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	V _{CC}		9	V
Operating supply voltage range	V _{CCop}		8 to 10	V

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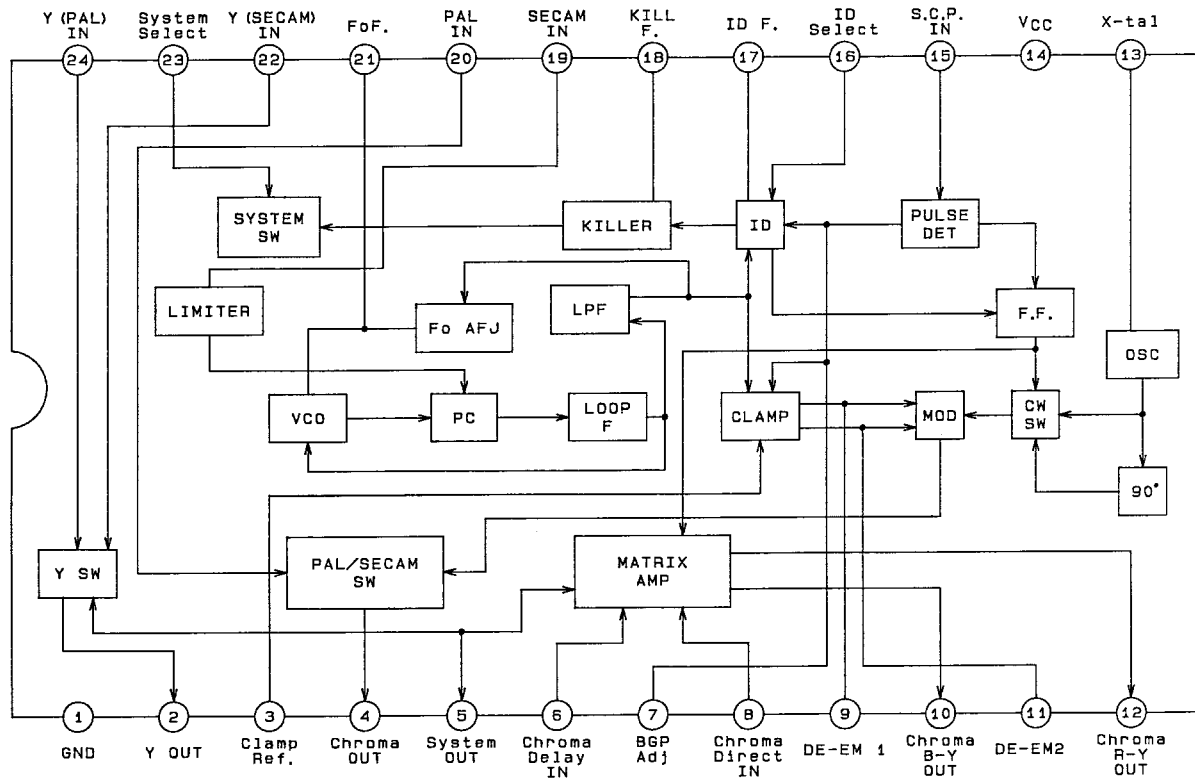
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Electrical Characteristics at Ta = 25 °C, V_{CC} = 9 V

Parameter	Symbol	Conditions	min	typ	max	Unit
Supply current	I _{CC}		23	33	43	mA
[Chroma Block]						
Killer operating point	Killer		-42	-36	-30	dB
SECAM demodulation output						
B-Y	D _{OUTB}		0.37	0.47	0.56	Vp-p
R-Y	D _{OUTR}		0.53	0.67	0.80	Vp-p
SECAM demodulation output ratio R-Y/B-Y	D _{OUTR/B}		1.0	1.4	1.8	
Modulation output ratio						
R-Y/Burst	M _{OUTB/B}		1.90	2.55	3.10	
R-Y/B-Y	M _{OUTR/B}		0.92	1.30	1.69	
Modulation output burst	M _{OUTB}		65	100	125	mVp-p
Modulation angle B-Y	ANGBY	Burst = 180 °	-10	0	+10	deg
Modulation angle R-Y	ANGRY	Burst = 180 °	80	90	100	deg
Demodulation linirarity	DLIN		80	100	120	%
Modulation linirarity	MLIN		80	100	120	%
[Video Block]						
Voltage gain pin 22	V _{G22}	f = 100 kHz 1 Vp-p, pin 23 GND	-3	0	+3	dB
Voltage gain pin 24	V _{G24}	f = 100 kHz 1 Vp-p, pin 23 V _{CC}	-3	0	+3	dB
Frequency characteristics pin 22	V _{F22}	f = 10 MHz 0.5 Vp-p, pin 23 GND	-4	-1	+2	dB
Frequency characteristics pin 24	V _{F24}	f = 10 MHz 0.5 Vp-p, pin 23 V _{CC}	-4	-1	+2	dB
Dymamic range pin 22	V _{D22}	Pin 23 GND	2.0	2.9		Vp-p
Dymamic range pin 24	V _{D24}	Pin 23 V _{CC}	2.0	2.9		Vp-p
PAL matrix						
PAL Gain +	P _{G+}	f = 4.43 MHz 300mVp-p, pin 23 V _{CC}	3.0	6.0	9.0	dB
PAL Gain -	P _{G-}	f = 4.43 MHz 300mVp-p, pin 23 V _{CC}		-35	-30	dB
SECAM switch						
SECAM Gain 1	SE _{G1}	f = 4.43 MHz 300mVp-p, pin 23 GND	3.0	6.0	9.0	dB
SECAM Gain 2	SE _{G2}	f = 4.43 MHz 300mVp-p, pin 23 GND	3.0	6.0	9.0	dB
SECAM cross-talk 1	S _{C1}	f = 4.43 MHz 300mVp-p, pin 23 GND		-35	-30	dB
SECAM cross-talk 2	S _{C2}	f = 4.43 MHz 300mVp-p, pin 23 GND		-35	-30	dB
[PAL/SECAM Switch Block]						
PAL-side voltage gain	C _{OUTG}	Pin 23 V _{CC}	-3	0	+3	dB
Cross-talk SECAM → PAL	C _{OUTC}				-35	dB
Xtal oscillator oscillation frequency	f _{REQ}		0	97	180	Hz
B.G.P threshold voltage	V _{BGP}	Pin 23 GND	5.7	6.2	6.7	V
V.BLK pulse threshold voltage	V _V	Pin 23 GND	2.6	3.1	3.6	V
Forced PAL threshold voltage	V _{23P}		6.3	6.7	7.1	V
SECAM threshold voltage	V _{23S}		1.8	2.2	2.6	V
SECAM discrimination output voltage	V _{OUTS}			0.15	0.3	V

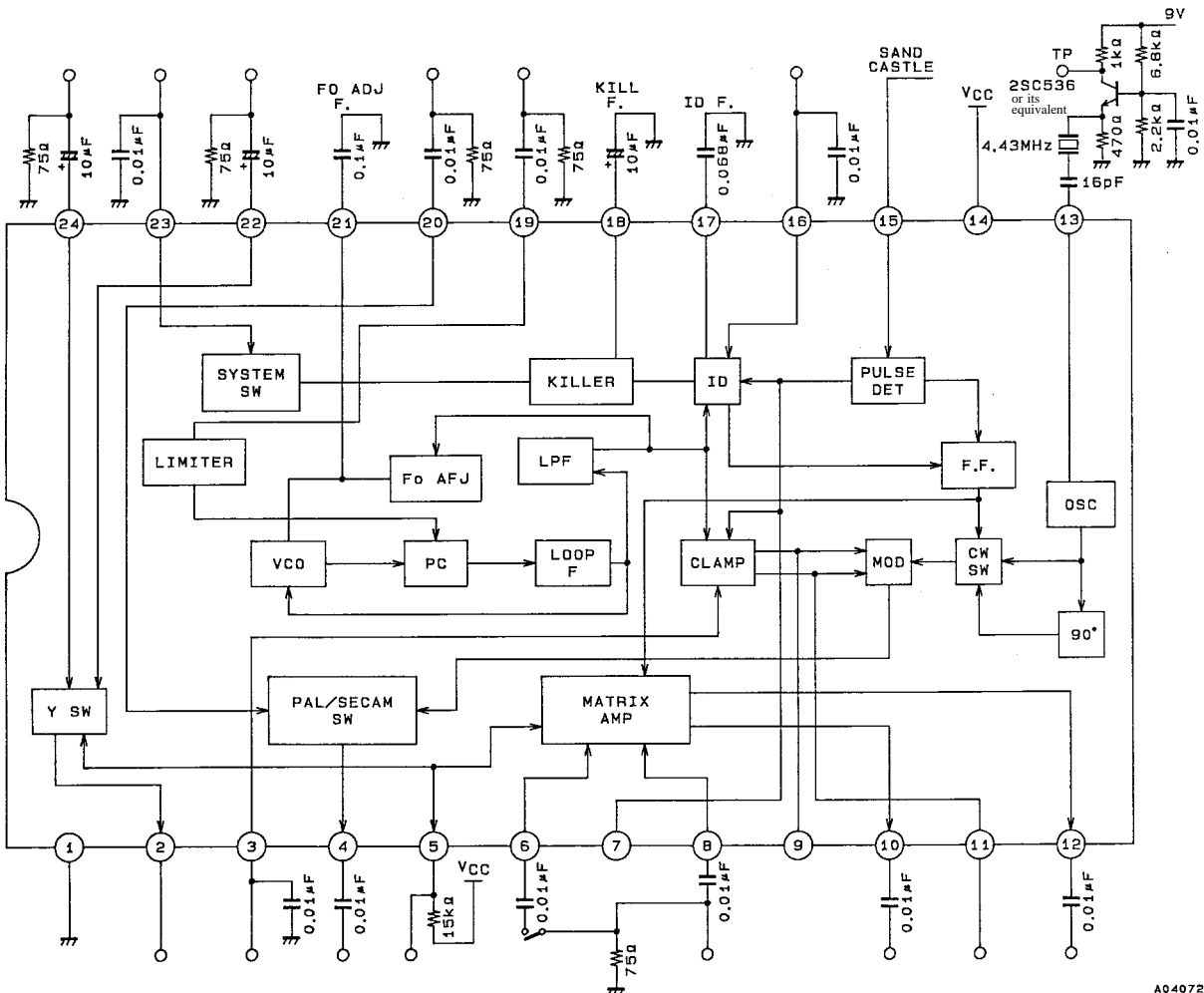
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Block Diagram



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Test Circuit

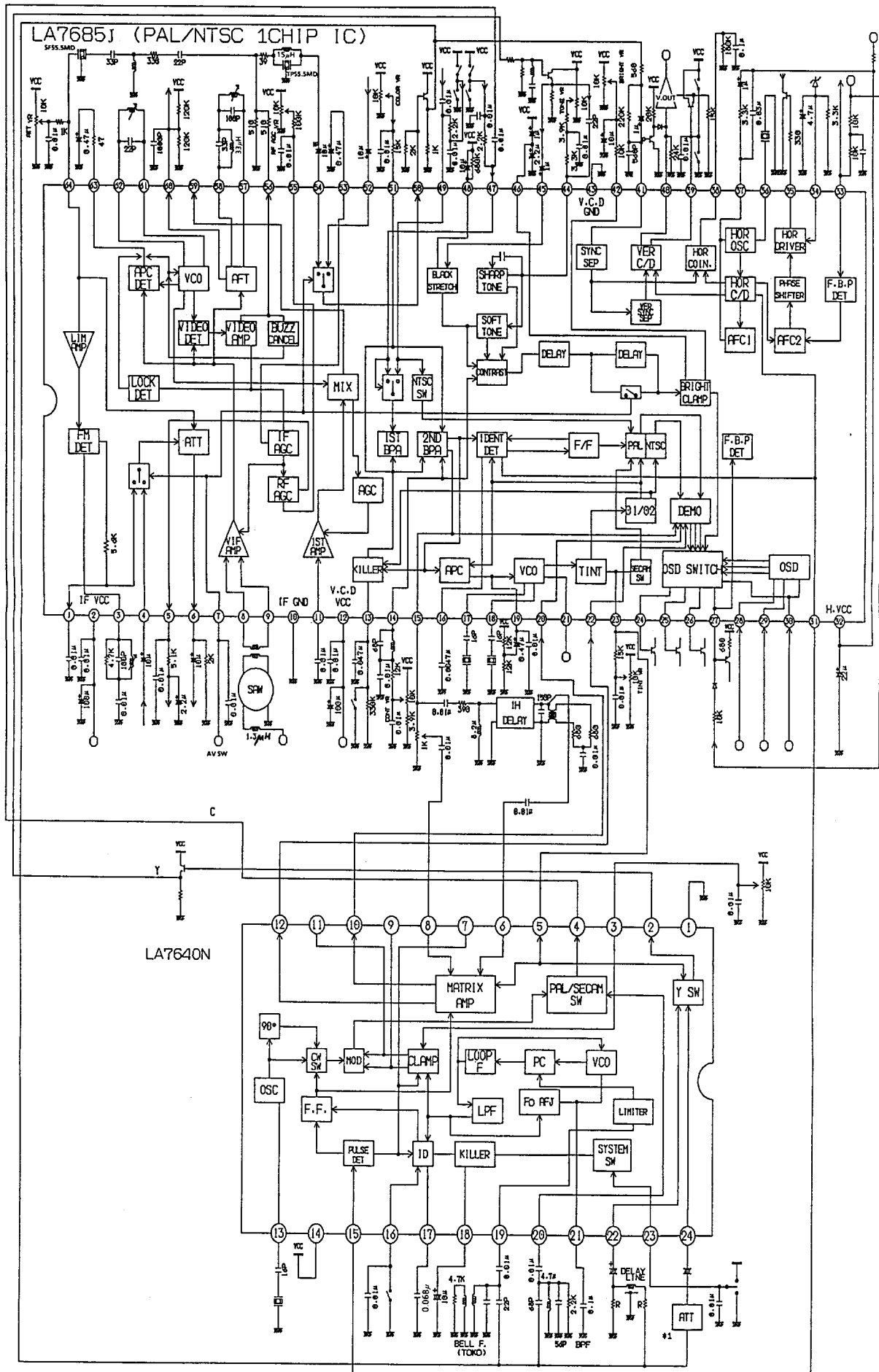


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LA7685J LA7640N Connection Diagram (Reference)

Unit (resistance: Ω , capacitance: F)



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