

Monolithic Linear IC

# 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.

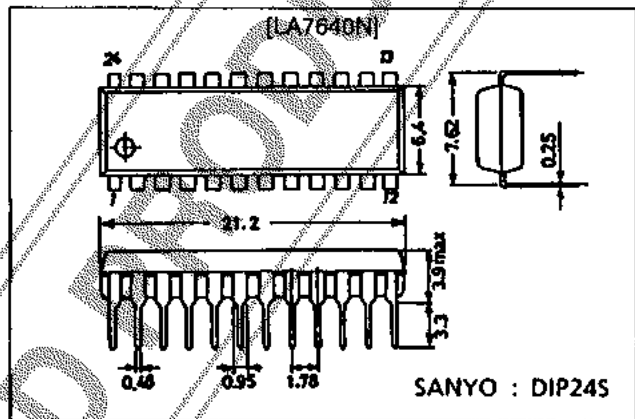
## Features

- 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 $T_a = 25\text{ }^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	$V_{CCmax}$		10	V
Allowable power dissipation	$P_d\ max$	$T_a \leq 65\text{ }^\circ\text{C}$	650	mW
Operating temperature	$T_{opr}$		-10 to +65	$^\circ\text{C}$
Storage temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

### Operating Conditions at $T_a = 25\text{ }^\circ\text{C}$

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

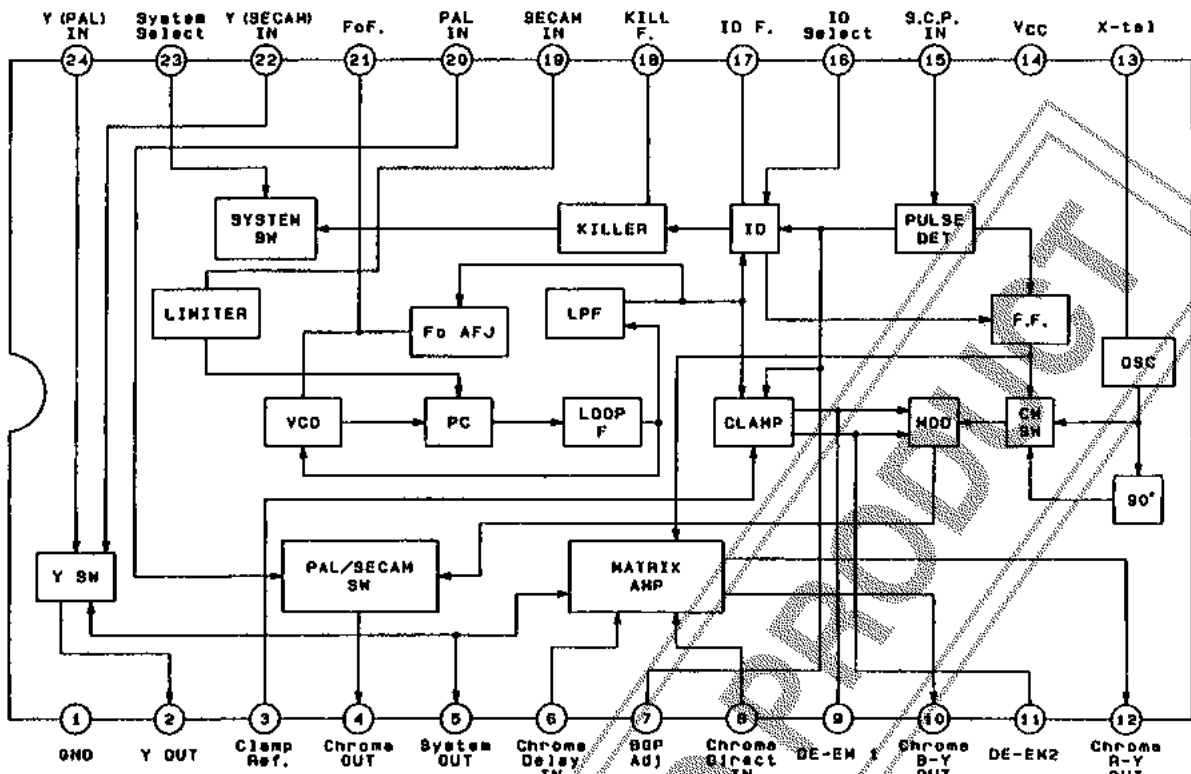
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Electrical Characteristics at  $T_a = 25\text{ }^\circ\text{C}$ ,  $V_{CC} = 9\text{ V}$ 

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 linearity	DLIN		80	100	120	%
Modulation linearity	MLIN		80	100	120	%
[Video Block]						
Voltage gain pin 22	$V_{G22}$	$f = 100\text{ kHz}$ 1 Vp-p, pin 23 GND	-3	0	+3	dB
Voltage gain pin 24	$V_{G24}$	$f = 100\text{ kHz}$ 1 Vp-p, pin 23 $V_{CC}$	-3	0	+3	dB
Frequency characteristics pin 22	$V_{F22}$	$f = 10\text{ MHz}$ 0.5 Vp-p, pin 23 GND	-4	-1	+2	dB
Frequency characteristics pin 24	$V_{F24}$	$f = 10\text{ MHz}$ 0.5 Vp-p, pin 23 $V_{CC}$	-4	-1	+2	dB
Dynamic range pin 22	$V_{D22}$	Pin 23 GND	2.0	2.9		Vp-p
Dynamic range pin 24	$V_{D24}$	Pin 23 $V_{CC}$	2.0	2.9		Vp-p
PAL matrix						
PAL Gain +	$P_{G+}$	$f = 4.43\text{ MHz}$ 300mVp-p, pin 23 $V_{CC}$	3.0	6.0	9.0	dB
PAL Gain -	$P_{G-}$	$f = 4.43\text{ MHz}$ 300mVp-p, pin 23 $V_{CC}$		-35	-30	dB
SECAM switch						
SECAM Gain 1	$SE_{G1}$	$f = 4.43\text{ MHz}$ 300mVp-p, pin 23 GND	3.0	6.0	9.0	dB
SECAM Gain 2	$SE_{G2}$	$f = 4.43\text{ MHz}$ 300mVp-p, pin 23 GND	3.0	6.0	9.0	dB
SECAM cross-talk 1	$SE_{C1}$	$f = 4.43\text{ MHz}$ 300mVp-p, pin 23 GND		-35	-30	dB
SECAM cross-talk 2	$SE_{C2}$	$f = 4.43\text{ MHz}$ 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	$C_{OUTG}$				-35	dB
Xtal oscillator oscillation frequency	$f_{R60}$		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

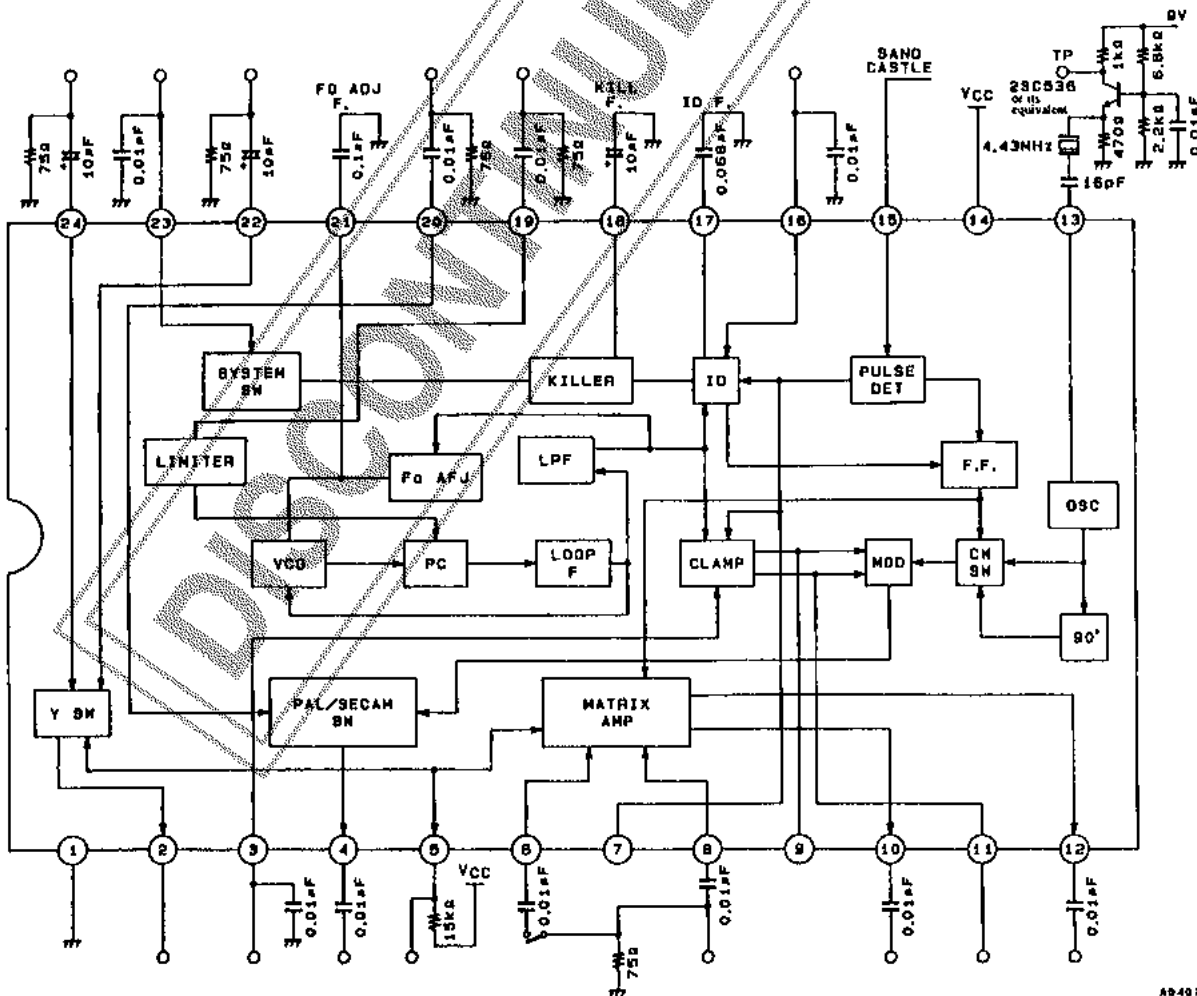
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## Block Diagram



A94071

## Test Circuit



A94072

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## LA7685J LA7640N Connection Diagram (Reference)

Unit (resistance:  $\Omega$ , capacitance: F)

