Ordering number: EN 5151

Monolithic Linear IC

SANYO No. 5151

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.

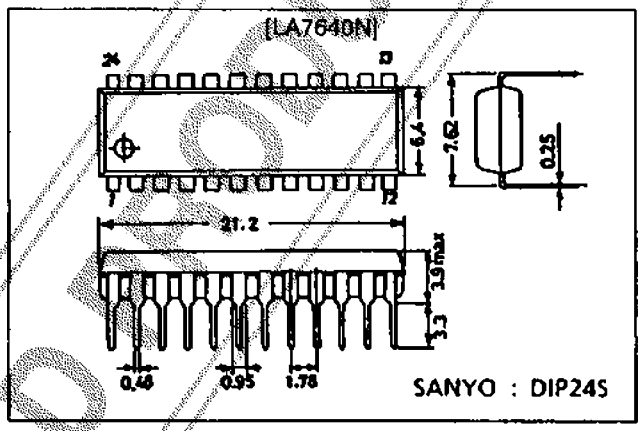
Features

- 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_{CC}max		10	V
Allowable power dissipation	Pd max	Ta ≤65 °C	650	mW
Operating temperature	Topr		−10 to +65	°C
Storage temperature	Tstg		−55 to +150	°C

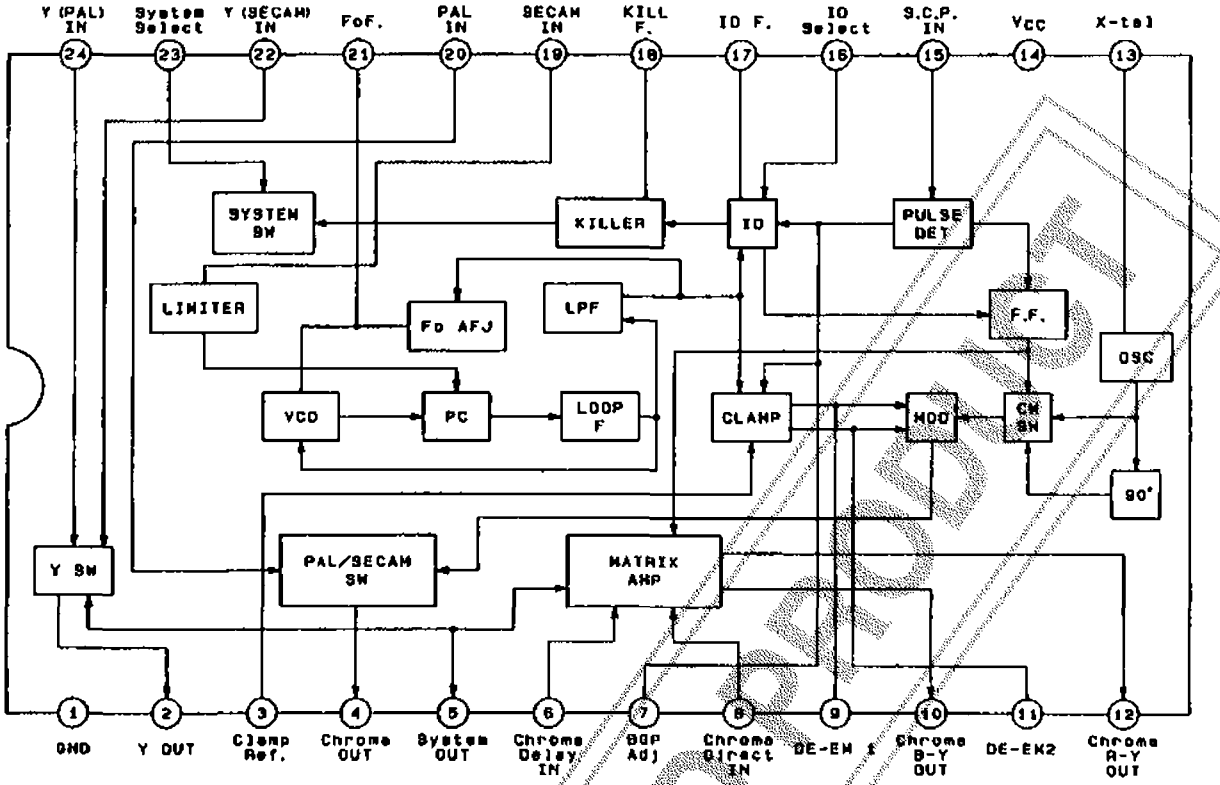
Operating Conditions at Ta = 25 °C

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

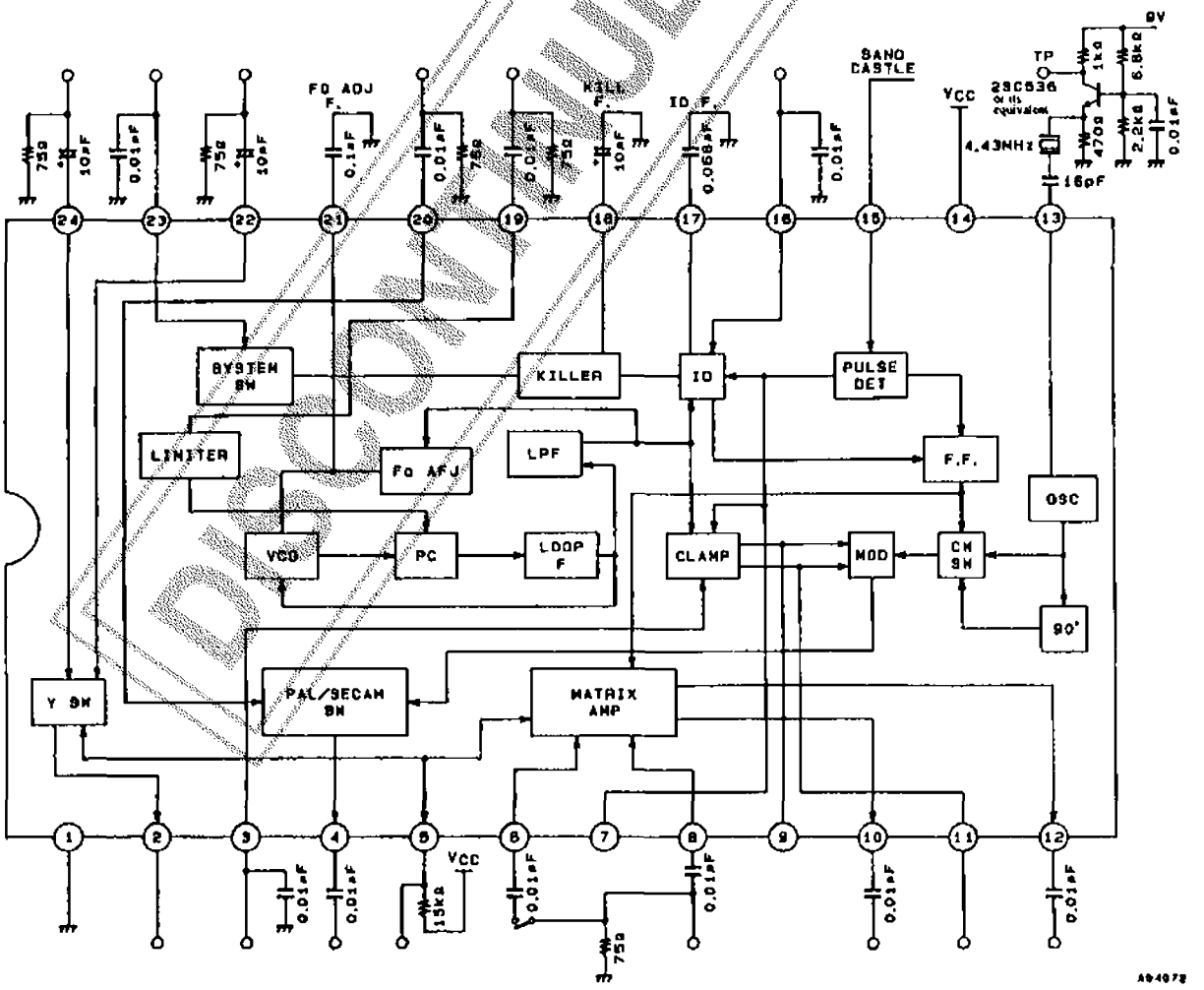
Electrical Characteristics at Ta = 25 °C, V_{CC} = 9 V

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	$D_{OUT}B$		0.37	0.47	0.56	Vp-p
R-Y	$D_{OUT}R$		0.53	0.67	0.80	Vp-p
SECAM demodulation output ratio R-Y/B-Y	$D_{OUT}R/B$		1.0	1.4	1.8	
Modulation output ratio						
R-Y/Burst	$M_{OUT}B/B$		1.90	2.55	3.10	
R-Y/B-Y	$M_{OUT}R/B$		0.92	1.30	1.69	
Modulation output burst	$M_{OUT}B$		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	VG_{22}	f = 100 kHz 1 Vp-p, pin 23 GND	−3	0	+3	dB
Voltage gain pin 24	VG_{24}	f = 100 kHz 1 Vp-p, pin 23 V_{CC}	−3	0	+3	dB
Frequency characteristics pin 22	VF_{22}	f = 10 MHz 0.5 Vp-p, pin 23 GND	−4	−1	+2	dB
Frequency characteristics pin 24	VF_{24}	f = 10 MHz 0.5 Vp-p, pin 23 V_{CC}	−4	−1	+2	dB
Dymamic range pin 22	VD_{22}	Pin 23 GND	2.0	2.9		Vp-p
Dymamic range pin 24	VD_{24}	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	$C_{OUT}G$	Pin 23 V_{CC}	−3	0	+3	dB
Cross-talk SECAM → PAL	$C_{OUT}C$				−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

Block Diagram



Test Circuit



LA7685J LA7640N Connection Diagram (Reference)

Unit (resistance: Ω, capacitance: F)