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| 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.

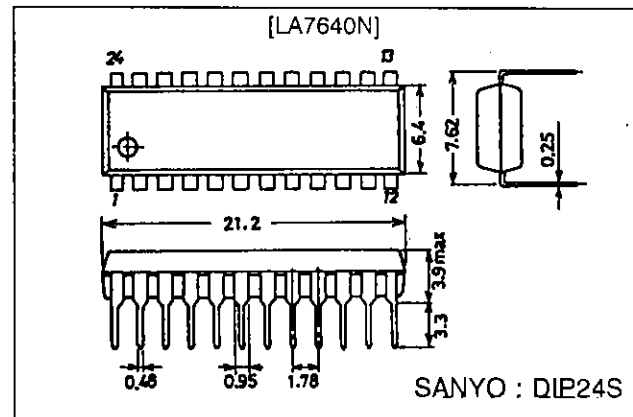
Features

- 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_{CCmax} | | 10 | V |
| Allowable power dissipation | $Pd\ max$ | $T_a \leq 65\ ^\circ C$ | 650 | mW |
| Operating temperature | T_{opr} | | -10 to +65 | $^\circ C$ |
| Storage temperature | T_{stg} | | -55 to +150 | $^\circ C$ |

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 |

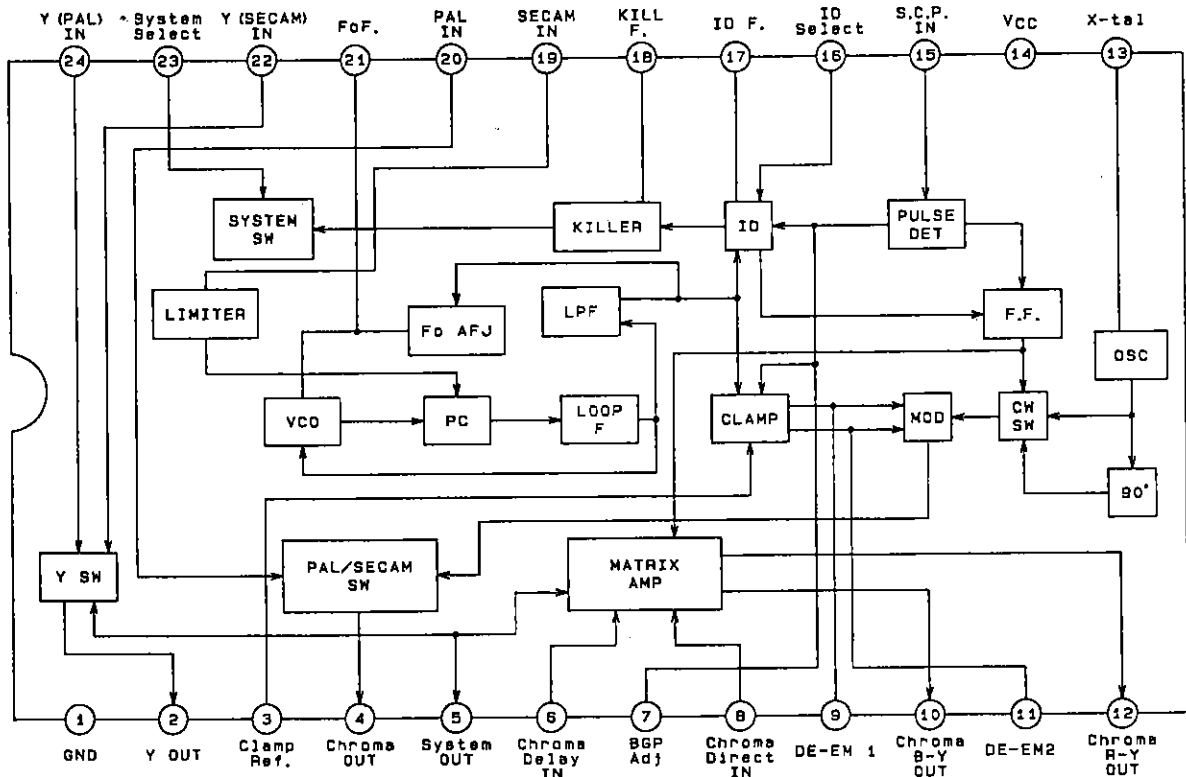
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Electrical Characteristics at Ta = 25 °C, V_{CC} = 9 V

| 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 | 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 _{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 |

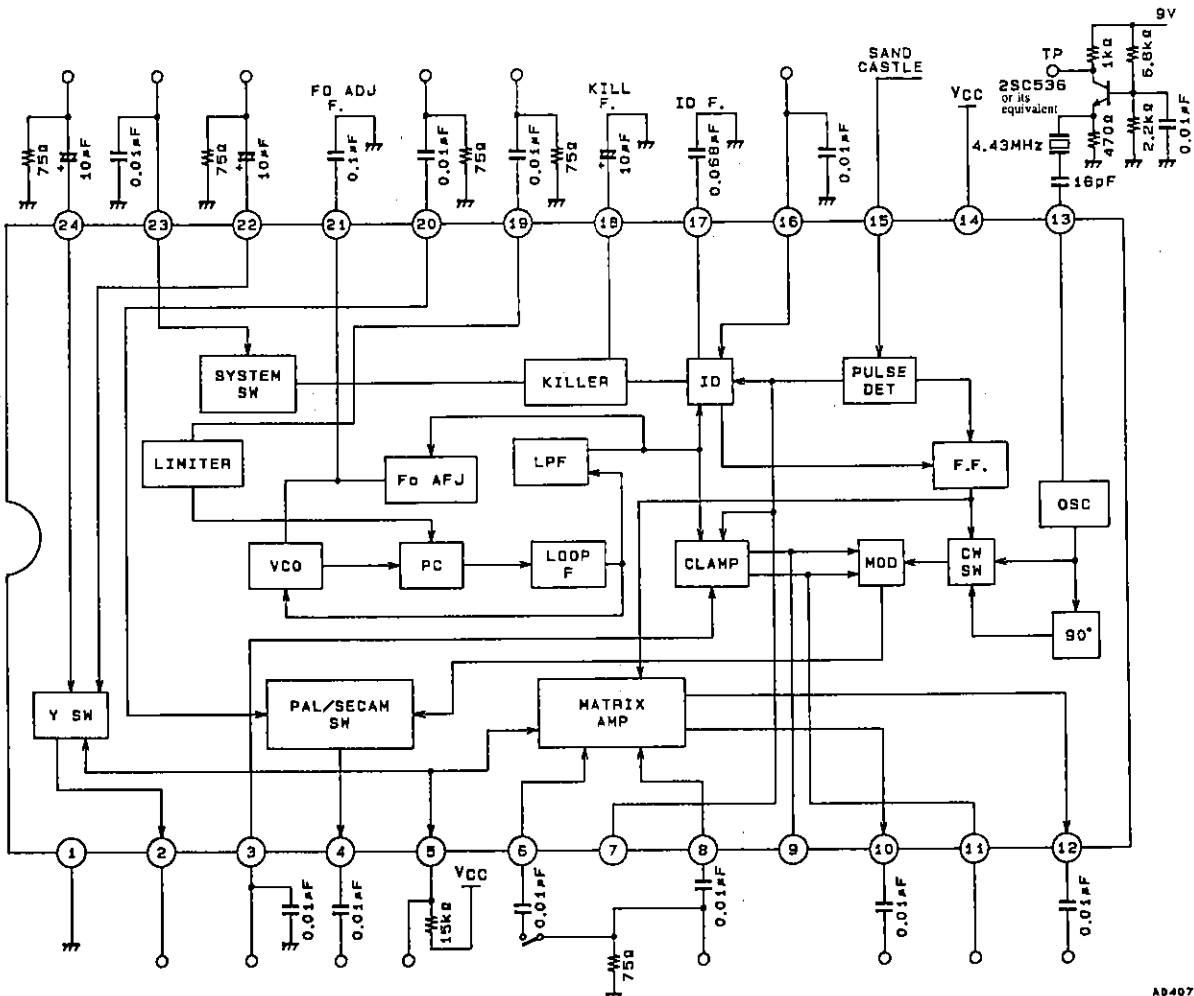
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Block Diagram



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Test Circuit

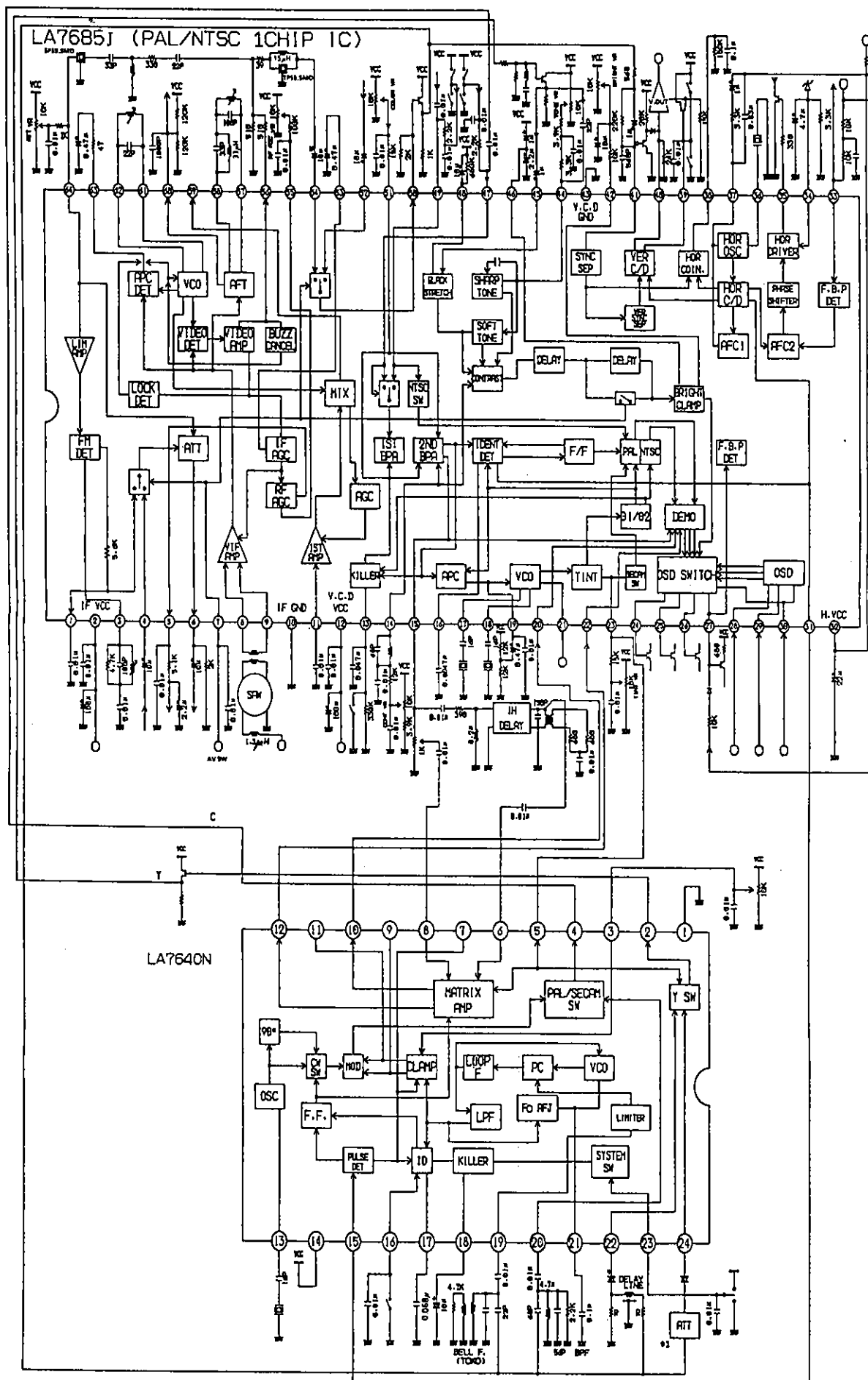


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LA7685J LA7640N Connection Diagram (Reference)

Unit (resistance: Ω , capacitance: F)



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