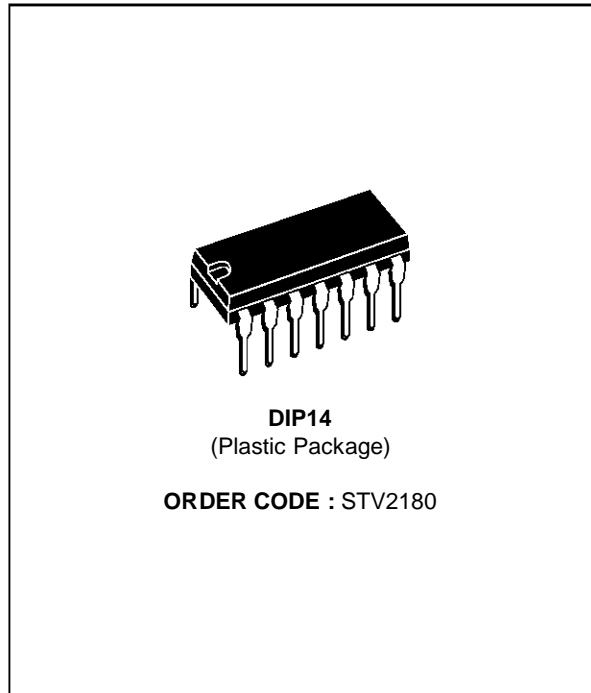


BASE BAND CHROMA DELAY LINE

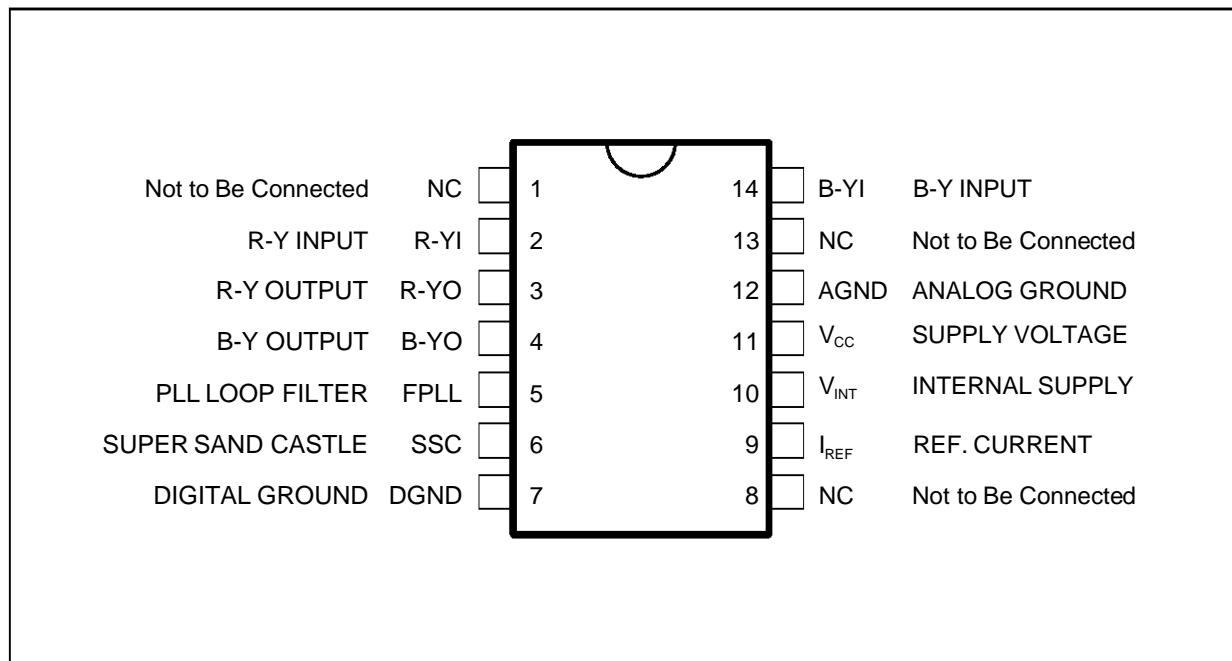
- DUAL SWITCHED CAPACITOR DELAY LINE
- 3MHz CLOCK DERIVED FROM 6MHz VCO LOCKED BY THE BURST GATE PULSE
- SAMPLE AND HOLD CIRCUITS AND LOW-PASS FILTERS TO SUPPRESS THE 3MHz CLOCK RESIDUAL
- CLAMPED B-Y AND R-Y INPUTS
- OUTPUT BUFFERS
- **ADJUSTMENT-FREE APPLICATION**
- DIP14 PACKAGE



DESCRIPTION

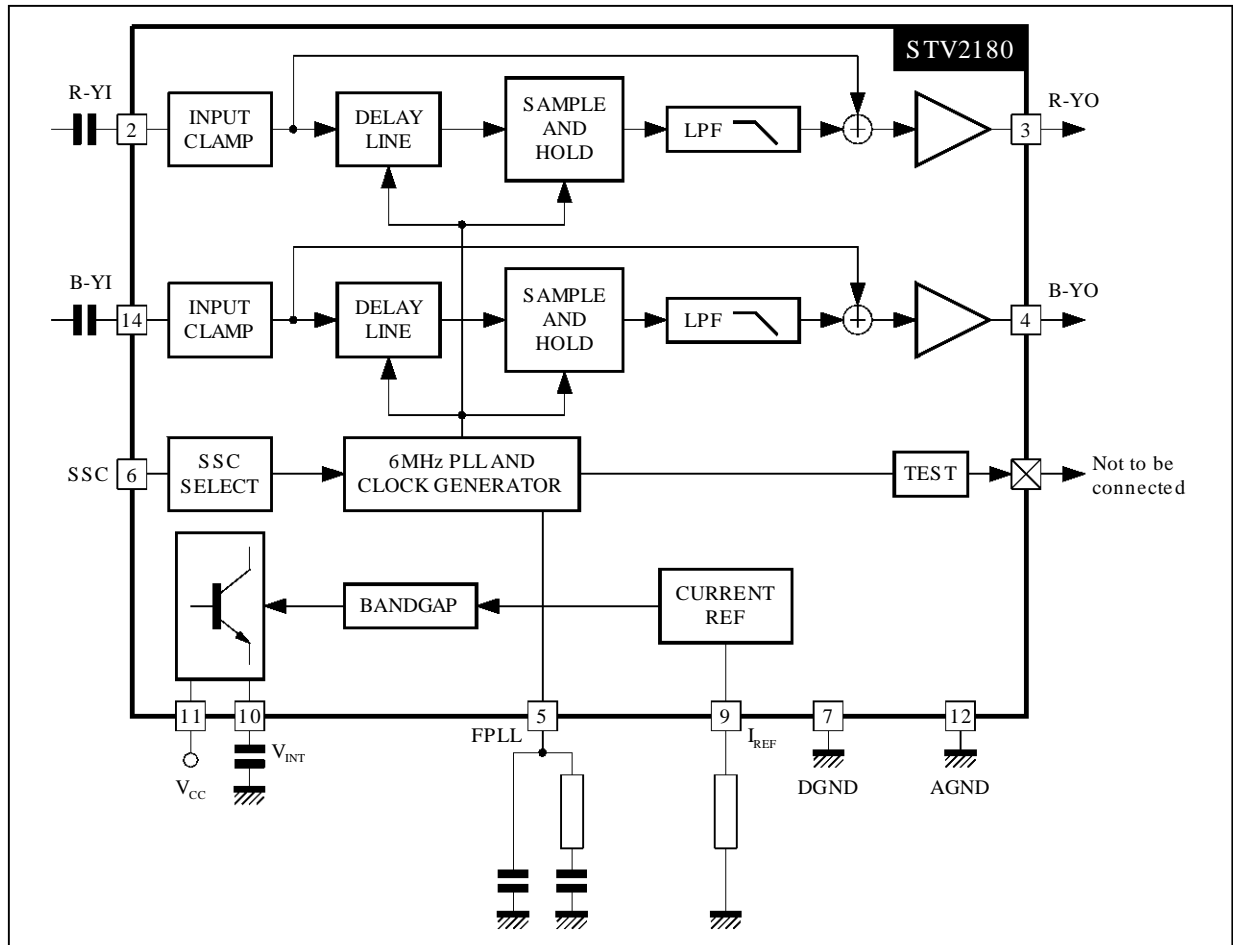
The STV2180 is an integrated base band chroma delay line with one line delay, which has been designed to match chroma decoders with colour difference signal outputs (R-Y) and (B-Y).

PIN CONNECTIONS



2180-01.EPS

BLOCK DIAGRAM



2180-02.EPS

ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|----------------------|---|-------------|------|
| V _{CC} | Supply Voltage (Pin 11) | 11 | V |
| T _A | Operating Ambient Temperature | 0 to 70 | °C |
| T _{stg} | Storage Temperature | -25 to +150 | °C |
| R _{th(j-a)} | Junction-Ambiant Thermal Resistance P _d = 1W | 90 | °C/W |

2180-01.TBL

ELECTRICAL CHARACTERISTICS

$T_{amb} = 25^{\circ}\text{C}$, $V_{CC} = 9\text{V}$, $R_9 = 4.02\text{k}\Omega$, unless otherwise specified

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|--------|-----------|-----------------|------|------|------|------|
|--------|-----------|-----------------|------|------|------|------|

SUPPLY/ V_{REF} (Pins 11 and 10)

| | | | | | | |
|-----------|-------------------|----------------------|-----|-----|-----|----|
| V_{CC} | Supply Voltage | | 8.5 | 9 | 9.5 | V |
| I_{CC} | Supply Current | | | 15 | 25 | mA |
| P_d | Power Consumption | $V_{CC} = 9\text{V}$ | | 135 | 240 | mW |
| V_{int} | Internal Voltage | | | 7 | | V |

SAND CASTLE INPUT (Pin 6)

| | | | | | | |
|----------|--------------------------------|-----------------|------|--------|------|-----|
| FSSC | Burst Gate Frequency | No input signal | 14.5 | 15.625 | 16.5 | kHz |
| V_{TH} | Threshold Voltage (Burst Gate) | | 3.2 | 3.5 | 3.8 | V |
| C_{in} | Input Capacitance | | | | 12 | pF |

COLOR DIFFERENCE INPUT SIGNALS (Pins 2 and 14)

| | | | | | | |
|-------------|-------------------------------------|--------------------------------------|----|----------|----|------------------|
| R-Y IPN | R-Y Typical Input Signal PAL & NTSC | Peak-to-peak value | | 525 | | mV _{PP} |
| R-Y IS | R-Y Typical Input Signal SECAM | Peak-to-peak value | | 1.05 | | V _{PP} |
| B-Y IPN | B-Y Typical Input Signal PAL & NTSC | Peak-to-peak value | | 665 | | mV _{PP} |
| B-Y IS | B-Y Typical Input Signal SECAM | Peak-to-peak value | | 1.33 | | V _{PP} |
| R_{in} | Input Resistance | | 10 | | | k Ω |
| C_{in} | Input Capacitance | | | | 12 | pF |
| V_{Clamp} | Clamping Voltage | | | 2.7 | | V |
| I_{Clamp} | Clamping Current | $V_{in} = V_{Clamp} \pm 0.2\text{V}$ | | ± 50 | | μA |

COLOR DIFFERENCE OUTPUT SIGNALS (Pins 3 and 4)

| | | | | | | |
|-------------|------------------------------|--|-------|-----|-------|-------------------|
| B-Y O | B-Y Output Signal | Peak-to-peak value | | | 1.8 | V _{PP} |
| R-Y O | R-Y Output Signal | Peak-to-peak value | | | 1.8 | V _{PP} |
| DG | Differential Gain | SECAM $V_n/V_{n-1} : V_{in} = 1V_{PP}$ | -0.4 | 0 | +0.4 | dB |
| GPN | PAL-NTSC Gain | $V_{in} = 0.5V_{PP}$ | 5.8 | 6.3 | 6.8 | dB |
| GS | SECAM Gain | $V_{in} = 1V_{PP}$ | -0.2 | 0.3 | +0.8 | dB |
| V_{Noise} | RMS Noise Voltage | $R_i = 300\Omega$ $BW = 10\text{kHz to } 1\text{MHz}$ | | 2 | | mV _{Rms} |
| R_{out} | Output Resistance | | | 200 | | Ω |
| Delay | Delayed Signal Delay | Referred to non delayed output | 63.93 | 64 | 64.07 | μs |
| Non Delay | Non Delayed Signal Delay | Referred to input | | 100 | | ns |
| TR | Output Signal Transient Time | 500ns transient input signal | | 650 | 1000 | ns |

PLL FILTER LOOP (Pin 5)

| | | | | | | |
|-------------|------------------|--|--|-----|--|---------------|
| I_{Charg} | Charging Current | | | 100 | | μA |
| V_{PLL} | DC Voltage | | | 3.5 | | V |

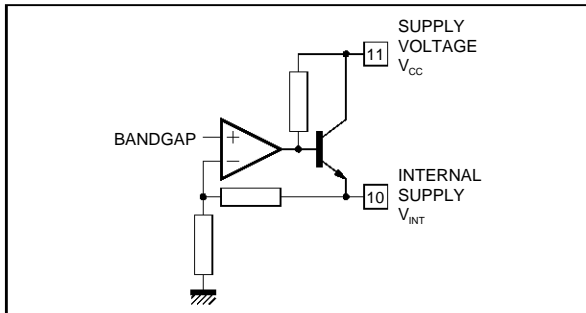
CURRENT REFERENCE (Pin 9)

| | | | | | | |
|----------|------------|--------------------------------------|--|------|--|---|
| V_{DC} | DC Voltage | $R_9 = 4.02\text{k}\Omega$ to ground | | 1.15 | | V |
|----------|------------|--------------------------------------|--|------|--|---|

2180-02.TBL

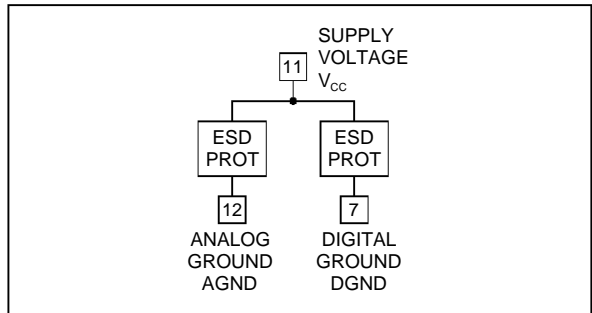
INPUT/OUTPUT PIN CONFIGURATION

Pins 10, 11 : V_{INT} and V_{CC}



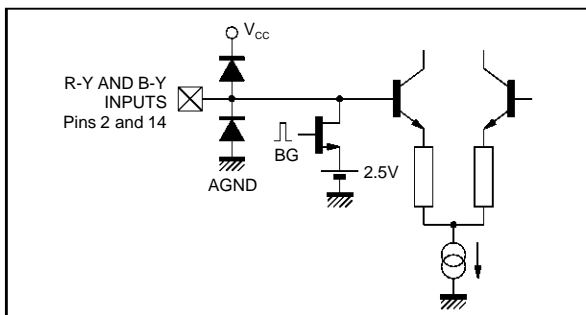
2180-03.EPS

Pins 7, 11, 12 : $DGND$, V_{CC} , $AGND$



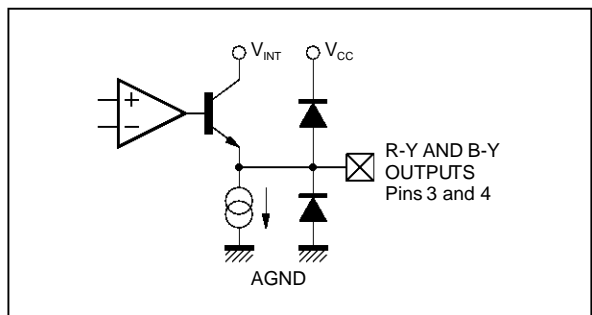
2180-04.EPS

Pins 2, 14 : R-YI, B-YI



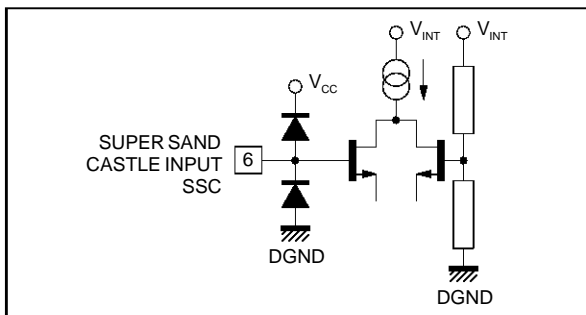
2180-05.EPS

Pins 3, 4 : R-YO, B-YO



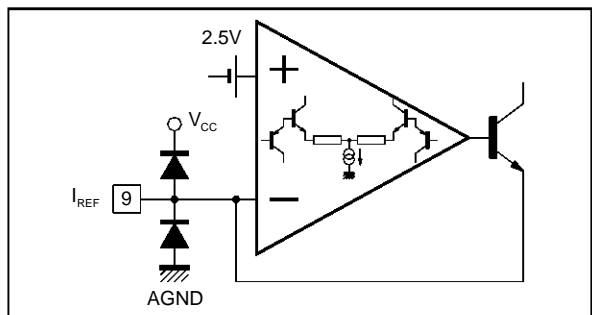
2180-06.EPS

Pin 6 : SSC



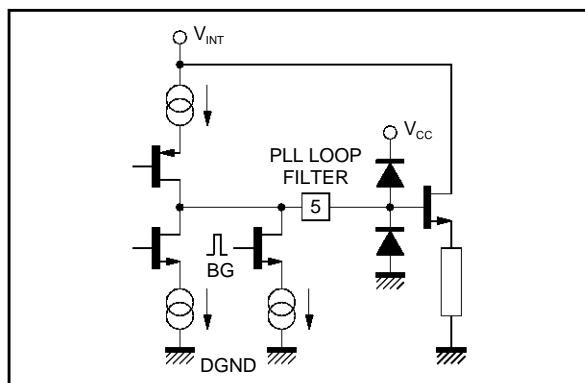
2180-07.EPS

Pin 9 : I_{REF}



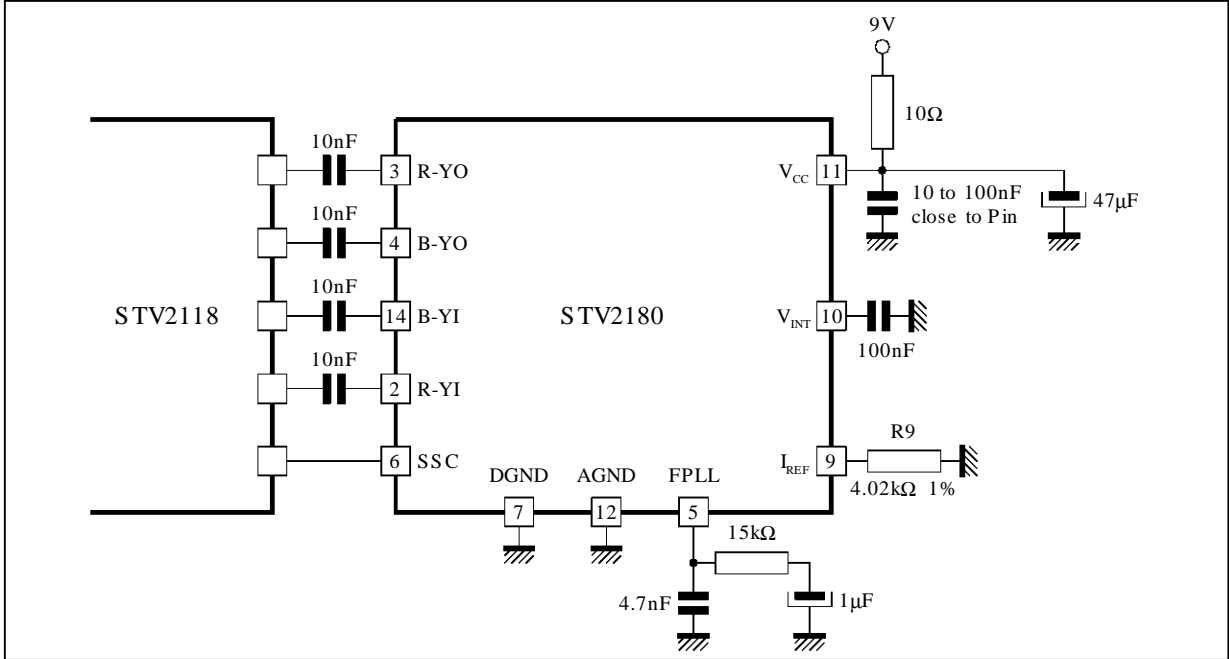
2180-08.EPS

Pin 5 : FPLL



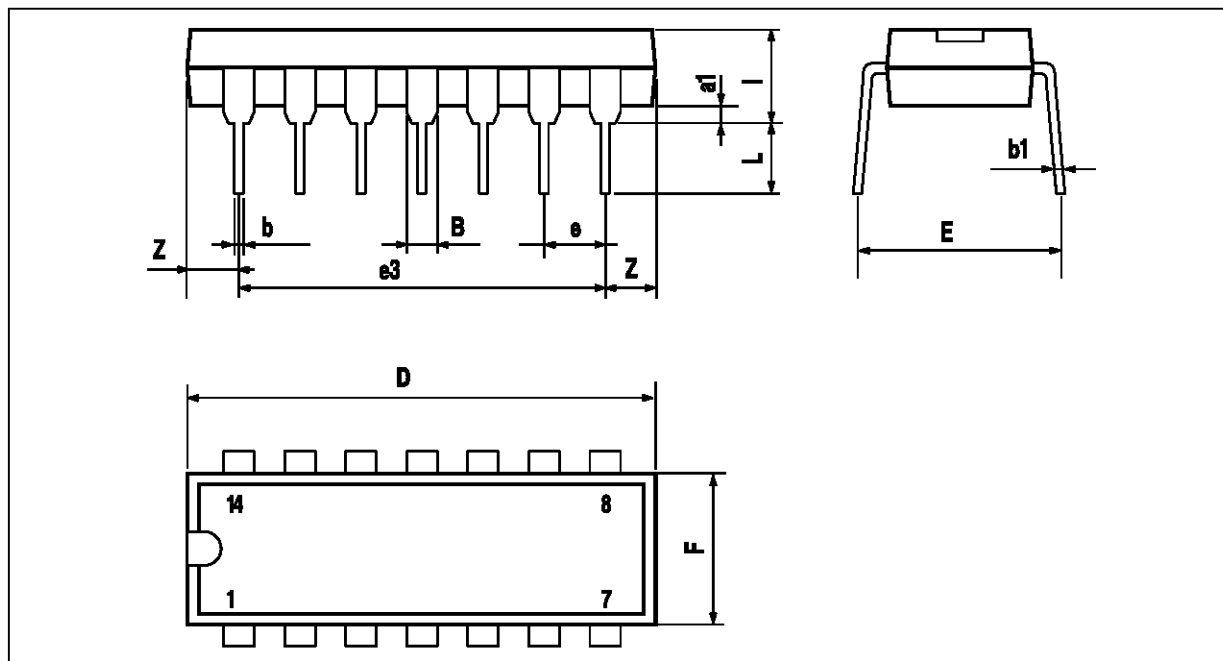
2180-09.EPS

TYPICAL APPLICATION



2180-10.EPS

PACKAGE MECHANICAL DATA
14 PINS - PLASTIC PACKAGE



PM-DIP14.EPS

| Dimensions | Millimeters | | | Inches | | |
|------------|-------------|-------|------|--------|-------|-------|
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| a1 | 0.51 | | | 0.020 | | |
| B | 1.39 | | 1.65 | 0.055 | | 0.065 |
| b | | 0.5 | | | 0.020 | |
| b1 | | 0.25 | | | 0.010 | |
| D | | | 20 | | | 0.787 |
| E | | 8.5 | | | 0.335 | |
| e | | 2.54 | | | 0.100 | |
| e3 | | 15.24 | | | 0.600 | |
| F | | | 7.1 | | | 0.280 |
| l | | | 5.1 | | | 0.201 |
| L | | 3.3 | | | 0.130 | |
| Z | 1.27 | | 2.54 | 0.050 | | 0.100 |

DIP14.TBL

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