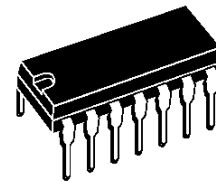


**BASE BAND CHROMA DELAY LINE**

- 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



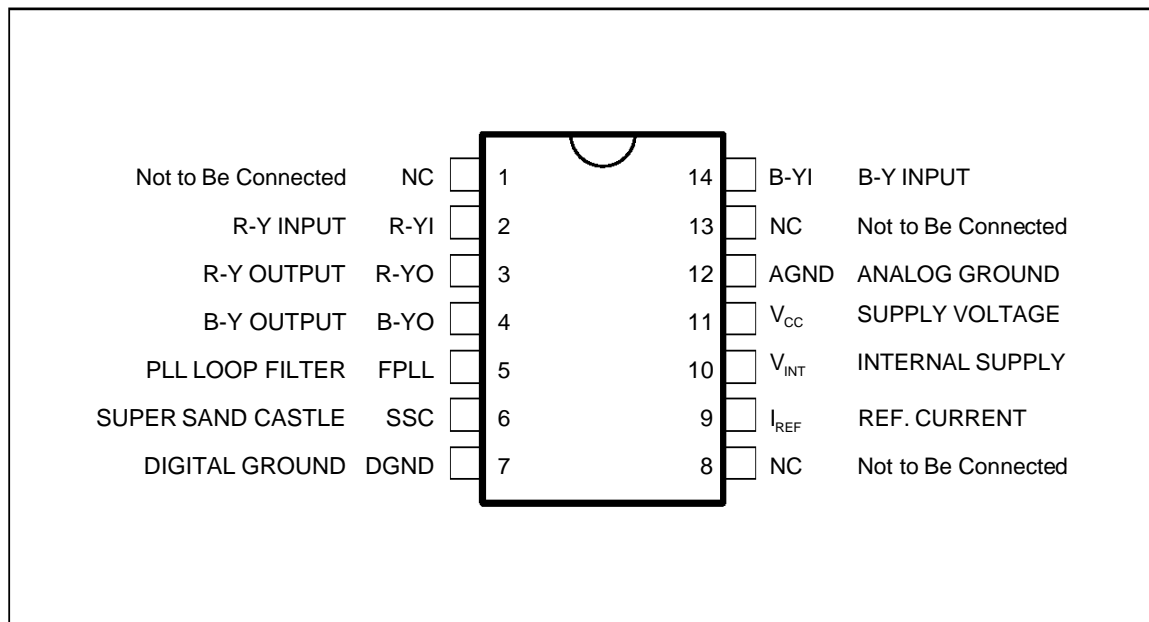
**DIP14**  
(Plastic Package)

**ORDER CODE : STV2180**

**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).

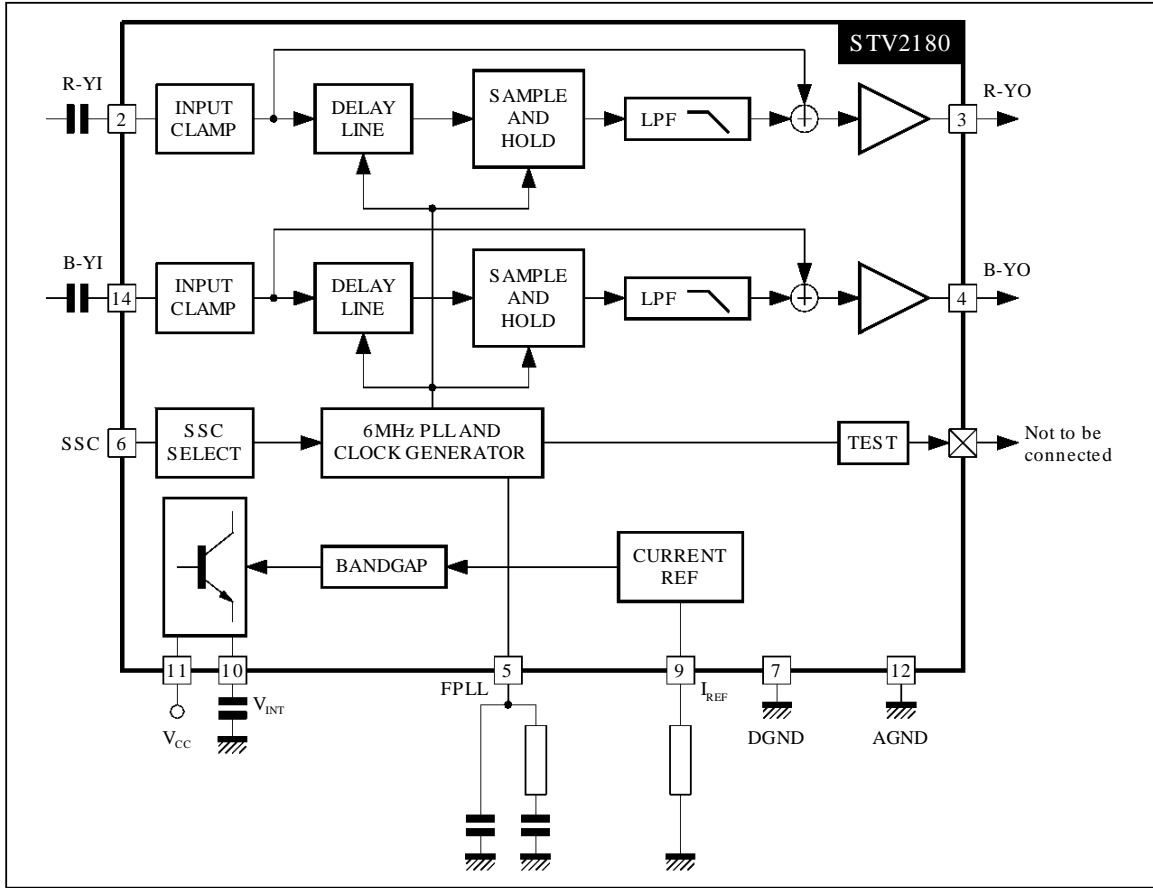
**PIN CONNECTIONS**



2180-01.EPS

# STV2180

## BLOCK DIAGRAM



## 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 |

**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 <sub>PP</sub> |
| R-Y IS      | R-Y Typical Input Signal SECAM      | Peak-to-peak value                   |    | 1.05     |    | V <sub>PP</sub>  |
| B-Y IPN     | B-Y Typical Input Signal PAL & NTSC | Peak-to-peak value                   |    | 665      |    | mV <sub>PP</sub> |
| B-Y IS      | B-Y Typical Input Signal SECAM      | Peak-to-peak value                   |    | 1.33     |    | V <sub>PP</sub>  |
| $R_{in}$    | Input Resistance                    |                                      | 10 |          |    | k $\Omega$       |
| $C_{in}$    | Input Capacitance                   |                                      |    |          | 12 | pF               |
| $V_{Clamp}$ | Clamping Voltage                    |                                      |    | 2.7      |    | V                |
| $I_{Clamp}$ | Clamping Current                    | $V_{in} = V_{Clamp} \pm 0.2\text{V}$ |    | $\pm 50$ |    | $\mu\text{A}$    |

## COLOR DIFFERENCE OUTPUT SIGNALS (Pins 3 and 4)

|             |                              |  |       |     |       |                   |
|-------------|------------------------------|--|-------|-----|-------|-------------------|
| B-Y O       | B-Y Output Signal            | Peak-to-peak value                                       |       |     | 1.8   | V <sub>PP</sub>   |
| R-Y O       | R-Y Output Signal            | Peak-to-peak value                                       |       |     | 1.8   | V <sub>PP</sub>   |
| 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            | $R_i = 300\Omega$<br>$BW = 10\text{kHz to } 1\text{MHz}$ |       | 2   |       | mV <sub>Rms</sub> |
| $R_{out}$   | Output Resistance            |  |       | 200 |       | $\Omega$          |
| Delay       | Delayed Signal Delay         | Referred to non delayed output                           | 63.93 | 64  | 64.07 | $\mu\text{s}$     |
| 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 |  | $\mu\text{A}$ |
| $V_{PLL}$   | DC Voltage       |  |  | 3.5 |  | V             |

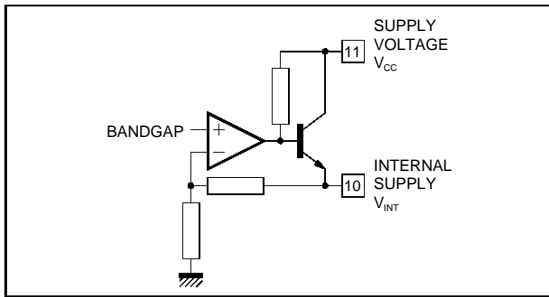
## CURRENT REFERENCE (Pin 9)

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

2180-02.TBL

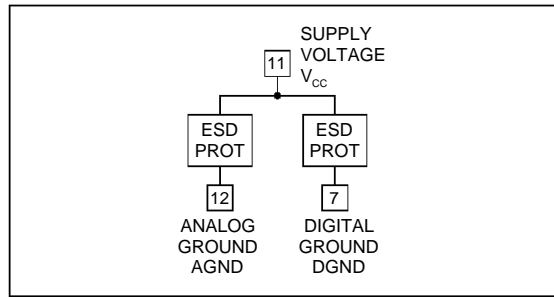
**INPUT/OUTPUT PIN CONFIGURATION**

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



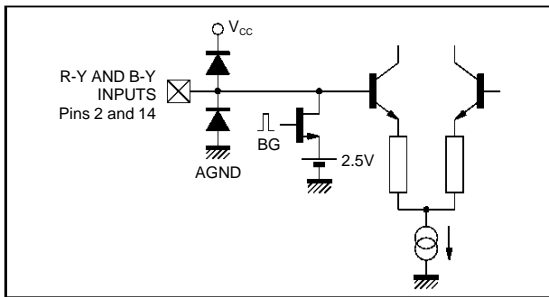
2180-03.EPS

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



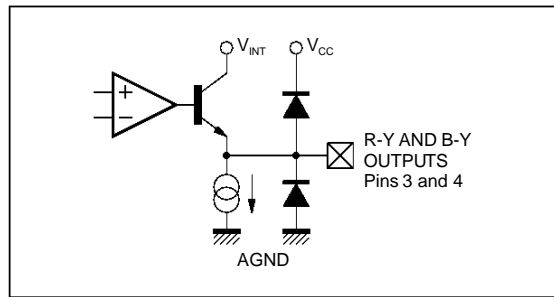
2180-04.EPS

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



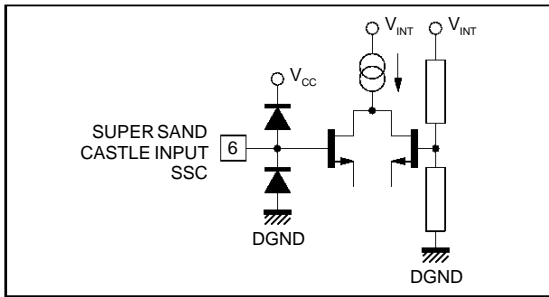
2180-05.EPS

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



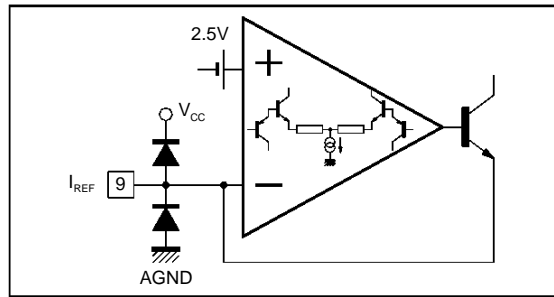
2180-06.EPS

**Pin 6 : SSC**



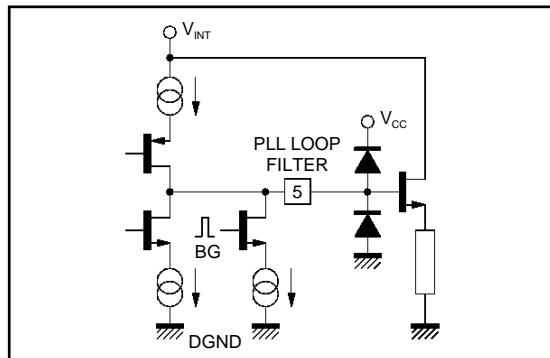
2180-07.EPS

**Pin 9 :  $I_{REF}$**



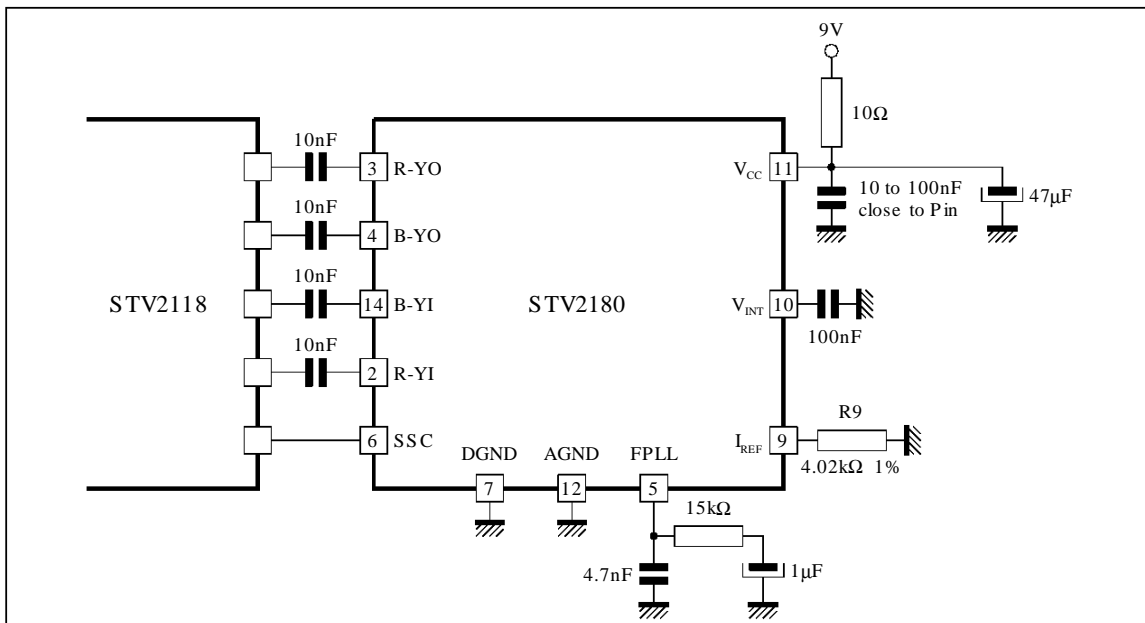
2180-08.EPS

**Pin 5 : FPLL**



2180-09.EPS

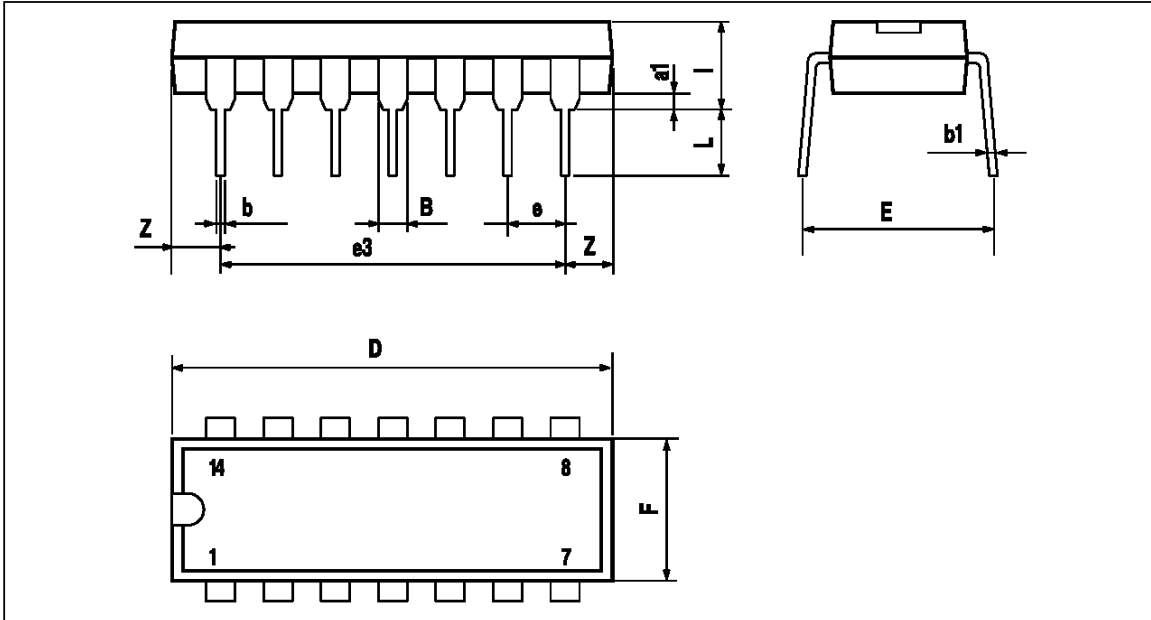
TYPICAL APPLICATION



2180-10.EPS

# STV2180

## 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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