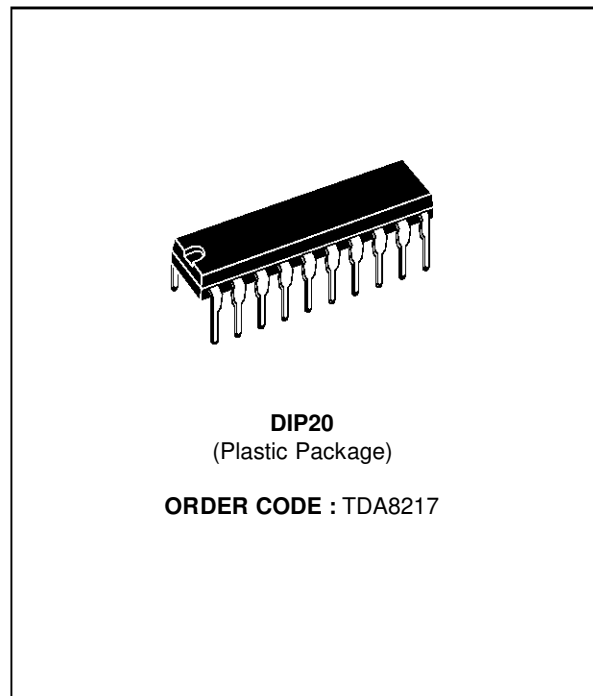


PAL DECODER AND VIDEO PROCESSOR

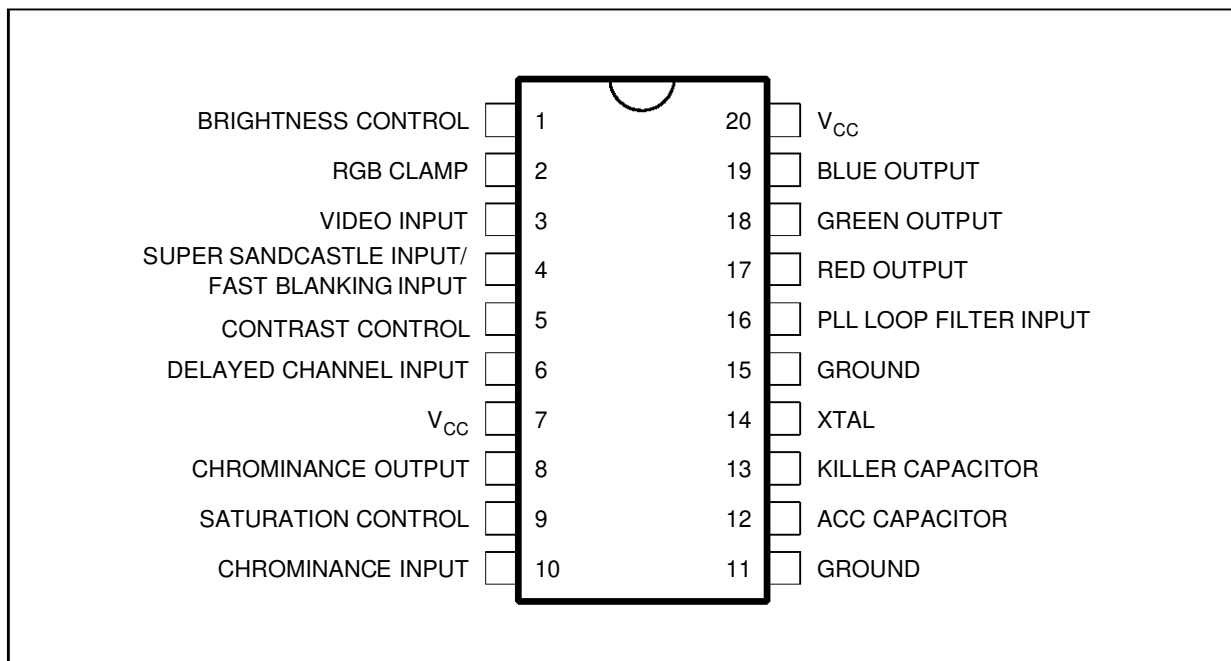
- RGB OUTPUTS
- SINGLE CHIP CHROMA AND LUMINANCE PROCESSOR
- DC CONTROL BRIGHTNESS, CONTRAST, AND SATURATION
- FEW EXTERNAL COMPONENTS
- FAST BLANKING INPUT FOR OSD INSERTION
- SUPER SANDCASTLE INPUT

DESCRIPTION

The TDA8217 is a monolithic integrated color decoder for the PAL standard. It includes in a 20 pins IC all the functions required for the identification and demodulation of PAL signals, and all the video-processor functions up to the drive of the video stages. Used with TDA8213 (video & sound IF system) and TDA8214A (H/V deflection circuit), this IC permits a complete low-cost solution for PAL applications.



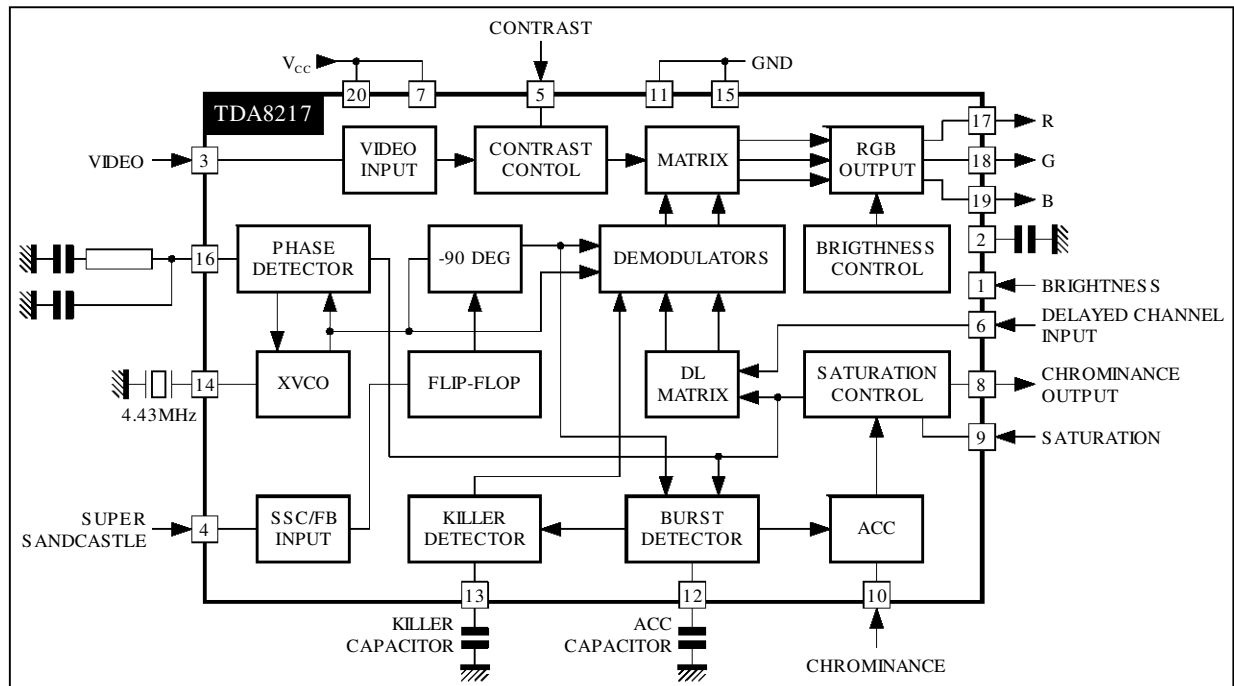
PIN CONNECTIONS



8217-01.EPS

TDA8217

BLOCK DIAGRAM



8217-02.EPS

ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|-------------------|-----------------------|-------------|------|
| V _{CC} | Supply Voltage | 12 | V |
| T _{oper} | Operating Temperature | 0 , + 70 | °C |
| T _{stg} | Storage Temperature | -55 , + 150 | °C |

8217-01.TBL

THERMAL DATA

| Symbol | Parameter | Value | Unit |
|----------------------|-------------------------------------|-------|------|
| R _{th(j-a)} | Thermal Resistance Junction-Ambient | 80 | °C/W |

8217-02.TBL

DC AND AC ELECTRICAL CHARACTERISTICS

V_{CC} = 9V , T_{AMB} = 25°C (unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|-----------------|-------------------------|-----------------|------|------|------|------|
| V _{CC} | Supply Voltage | | 8 | 9 | 10 | V |
| I _{CC} | Supply Current | No Load | | 30 | 50 | mA |
| P _D | Total Power Dissipation | No Load | | 270 | 450 | mW |

LUMINANCE INPUT (Pin 3)

| | | | | | | |
|--|--|--|------|-------|------------|------------------|
| | Input Level before Clipping (Black to White) | | | | 500 | mV _{PP} |
| | DC Operating Voltage | No Input Signal | 2.5 | 2.8 | 3.1 | V |
| | Input Current | During Burst Period Out of Burst Period | ± 50 | ± 100 | ± 150 5 | µA µA |

CHROMINANCE INPUT (Pin 10)

| | | | | | | |
|--|--|--|----|--|-----|------------------|
| | Input Level before Clipping | | | | 900 | mV _{PP} |
| | ACC Control Range | Change of Burst Signal over whole ACC Control Range < 1dB | 30 | | | dB |
| | Minimum Burst Signal Amplitude within the ACC Control Range | | 30 | | | mV _{PP} |

8217-03.TBL

DC AND AC ELECTRICAL CHARACTERISTICS (continued)V_{CC} = 9V , T_{AMB} = 25°C (unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|---|--|---|------|------|------|-----------------|
| CHROMINANCE INPUT (Pin 10) (continued) | | | | | | |
| | Input Impedance | | 6 | 8 | 12 | kΩ |
| | DC Operating Voltage | No Input Signal | 2.3 | 2.8 | 3.3 | V |
| SSC INPUT (Pin 4) | | | | | | |
| | Burst Gate Threshold | | 7.0 | 7.5 | 8.0 | V |
| | Line Blanking Threshold | | 3.1 | 3.6 | 3.9 | V |
| | Frame Blanking Threshold / Fast Blanking | | 0.5 | 1 | 1.5 | V |
| | Input Current | | | | 60 | μA |
| CONTRAST CONTROL INPUT (Pin 5) (See Figure 1) | | | | | | |
| | Input Current | | | | 10 | μA |
| | Contrast Control Range | | 20 | | | dB |
| SATURATION CONTROL INPUT (Pin 9) (See Figure 2) | | | | | | |
| | Input Current | | | | 10 | μA |
| | Tracking between Luminance and Chrominance Signals over 10 dB Contrast Control | | | | 2 | dB |
| BRIGHTNESS CONTROL INPUT (Pin 1) (See Figure 3) | | | | | | |
| | Input Current | | | | 10 | μA |
| ACC CAPACITOR (Pin 12) | | | | | | |
| | Charging Current | During Burst Gate Period | | 100 | | μA |
| | Discharging Current | During Burst Gate Period | | | 10 | μA |
| | Leakage Current | Out of Burst Gate Period | | | 5 | μA |
| KILLER CAPACITOR (Pin 13) | | | | | | |
| | Color off Voltage | No Chroma Signal | | 5.6 | | V |
| | Color on Voltage | | | 6 | | V |
| | PAL flip-flop inhibition level | | | 3.2 | | V |
| | Control Current | | | 150 | | μA |
| | Leakage Current | | | | 5 | μA |
| | Voltage with Nominal Input Signal | | 6.4 | 6.5 | 7.0 | V |
| PLL LOOP FILTER (Pin 16) | | | | | | |
| | Control Current | | | 800 | | μA |
| | Leakage Current | | | | 5 | μA |
| SUBCARRIER OUTPUT (Pin 8) | | | | | | |
| | Output Burst Amplitude | Within ACC Control Range | 1.6 | 2.4 | 3.0 | V _{PP} |
| DELAYED CHANNEL INPUT (Pin 6) | | | | | | |
| | DC Operating Voltage | No Input Signal | 2.0 | 2.2 | 2.4 | V |
| | Input impedance | | 6 | 8 | 12 | kΩ |
| RGB OUTPUTS (Pins 17-18-19) | | | | | | |
| | Output Signal Amplitude (Black to White) | 0.35V B to W, Signal @ Pin 3, Contrast @ 4.2V, Sat. @ 1.6V, Brig. @ 3.5V | 2.80 | 3.15 | 3.50 | V |
| | Blue Channel Output Amplitude (no Y) | 300 mV _{PP} (B-Y), Signal with 200mV _{PP} Burst Amplitude at pin 10, Contrast @ 4.2V, Sat. @ 4.2V, Brig. @ 3.5V | 3.5 | 3.9 | 4.3 | V _{PP} |
| | Individual Output Sinking Current | | | | 2 | mA |

8217-04.TBL

DC AND AC ELECTRICAL CHARACTERISTICS (continued)

V_{CC} = 9V , T_{AMB} = 25°C (unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|-----------------------------|--|-----------------|------|------|------|-------|
| RGB OUTPUTS (Pins 17-18-19) | | | | | | |
| | Maximum Peak White Level | | 7.4 | 7.8 | 8.2 | V |
| | Blanking Level | | 1.0 | 1.2 | 1.4 | V |
| | Black Level Differential Error | | | | 300 | mV |
| | Relative Variation in Black Level with Various Saturation, Contrast and Brightness Control Level | | | | 10 | mV |
| | Black Level Thermal Drift | | | 0.5 | | mV/°C |
| | Differential Black Level Drift over 40°C Temperature Range | | | 5 | | mV |
| | Frequency Response(-3dB) | | | 5 | | MHz |

XTAL (Pin 14)

| | | | | | | |
|--|----------------|--|-------|-------|--|----|
| | Catching Range | | ± 500 | ± 700 | | Hz |
|--|----------------|--|-------|-------|--|----|

RGB CLAMP CAPACITOR (Pin 2)

| | | | | | | |
|--|-----------------|--|----|-----|-----|----|
| | Control Current | | 50 | 100 | 150 | µA |
| | Leakage Current | | | | 5 | µA |

Figure 1 : Contrast Control Voltage Range

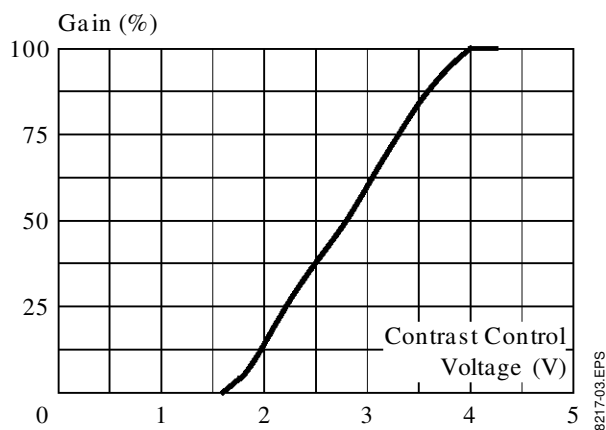


Figure 2 : Saturation Control Voltage Range

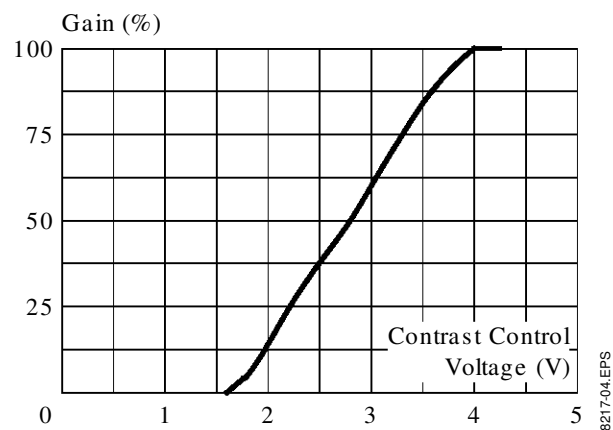
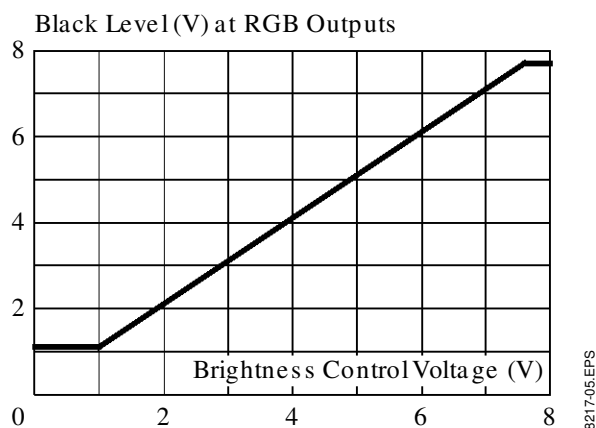
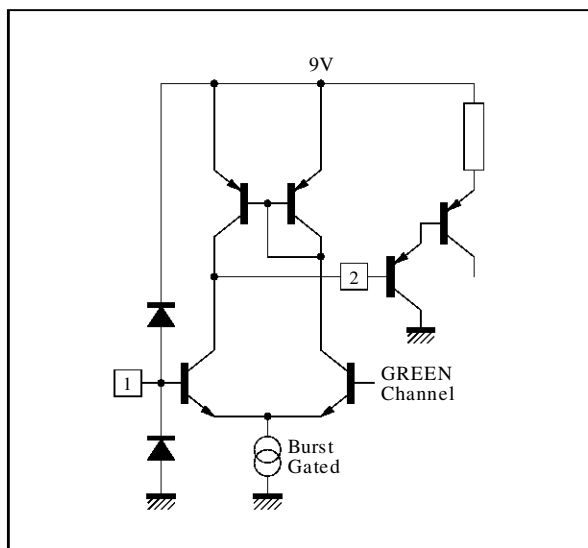


Figure 3 : Brightness Control Voltage Range



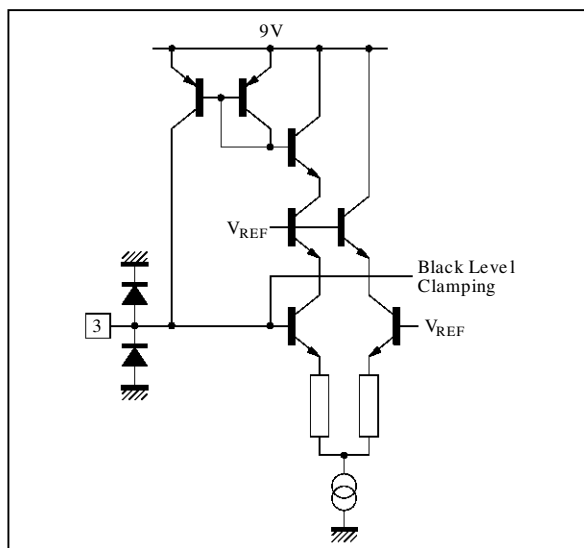
INPUT / OUTPUT PIN CONFIGURATION

Figure 4 : Pins 1 - 2 Configuration



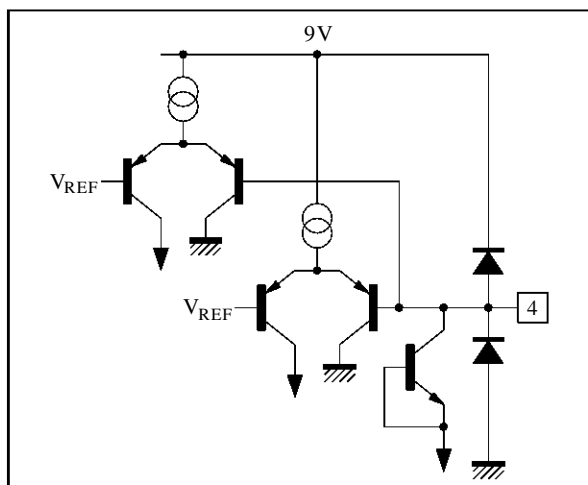
8217-06.EPS

Figure 5 : Pin 3 Configuration



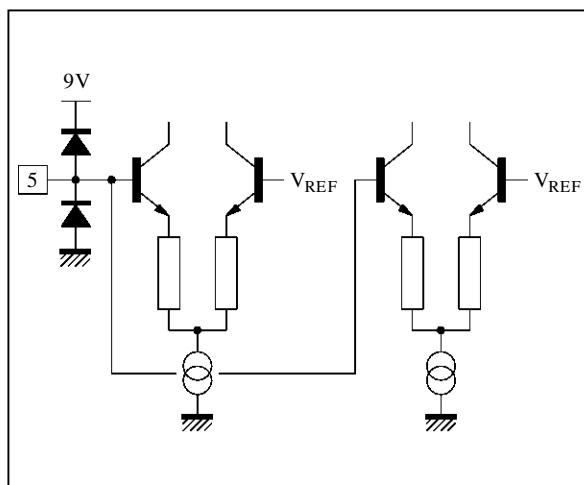
8217-07.EPS

Figure 6 : Pin 4 Configuration



8217-08.EPS

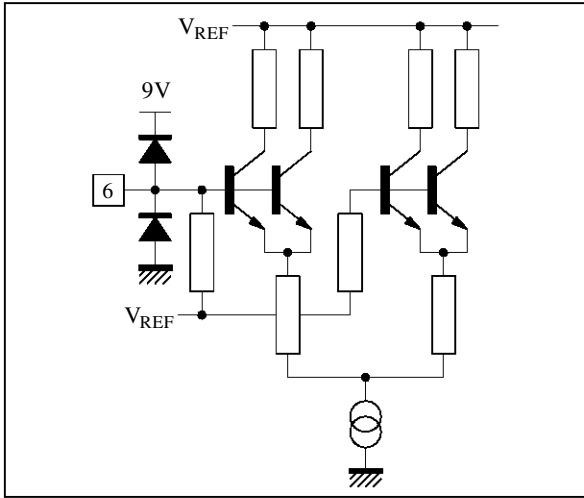
Figure 7 : Pin 5 Configuration



8217-09.EPS

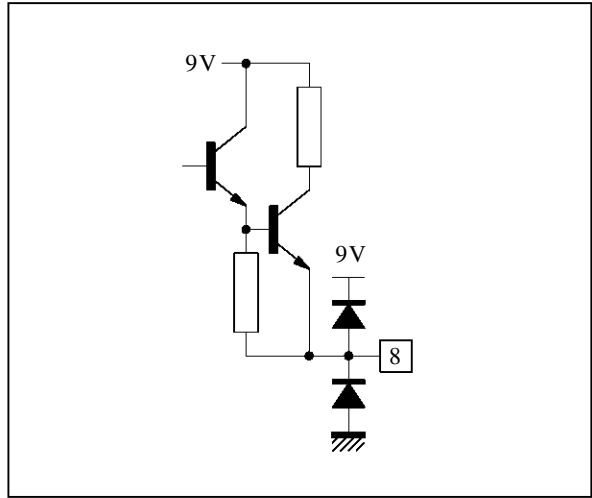
INPUT / OUTPUT PIN CONFIGURATION (continued)

Figure 8 : Pin 6 Configuration



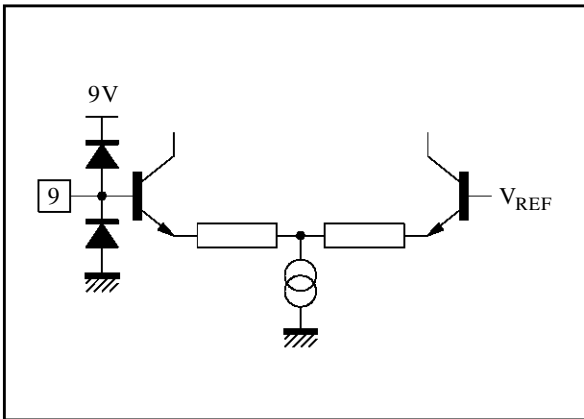
8217-10.EPS

Figure 9 : Pin 8 Configuration



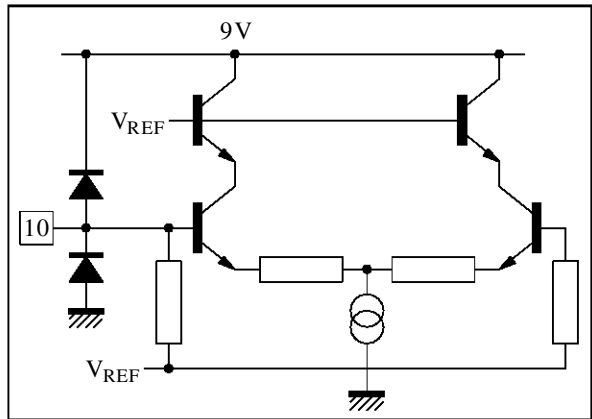
8217-11.EPS

Figure 10 : Pin 9 Configuration



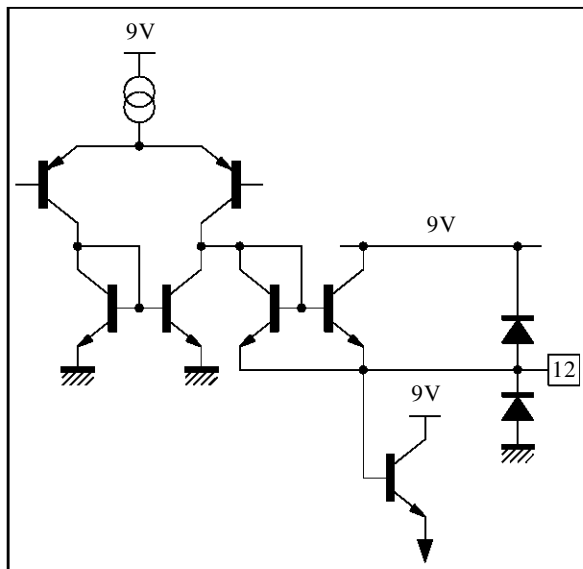
8217-12.EPS

Figure 11 : Pin 10 Configuration



8217-13.EPS

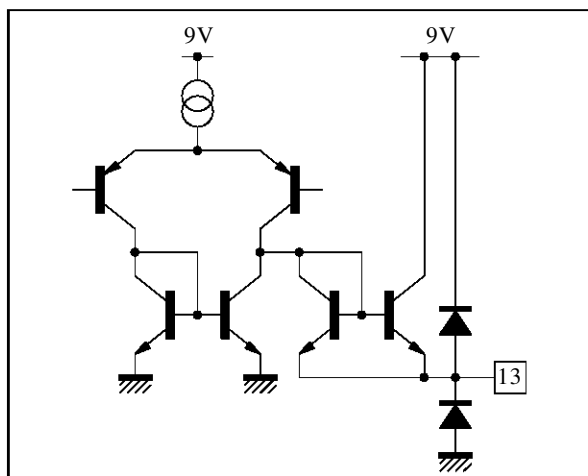
Figure 12 : Pin 12 Configuration



8217-14.EPS

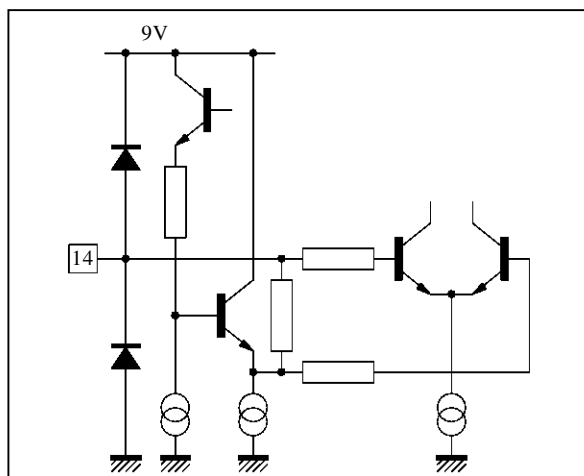
INPUT / OUTPUT PIN CONFIGURATION (continued)

Figure 13 : Pin 13 Configuration



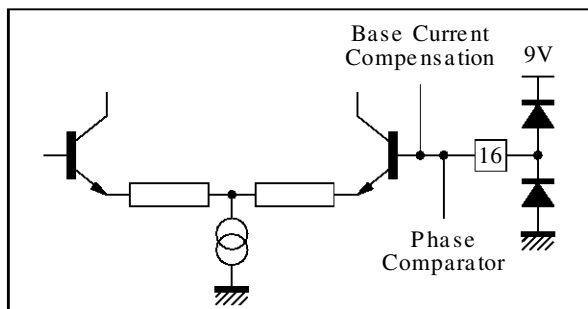
8217-16.EPS

Figure 14 : Pin 14 Configuration



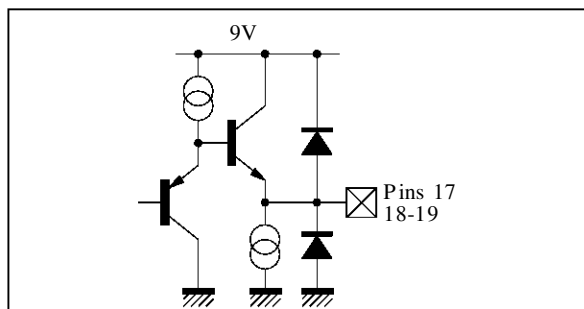
8217-16.EPS

Figure 15 : Pin 16 Configuration



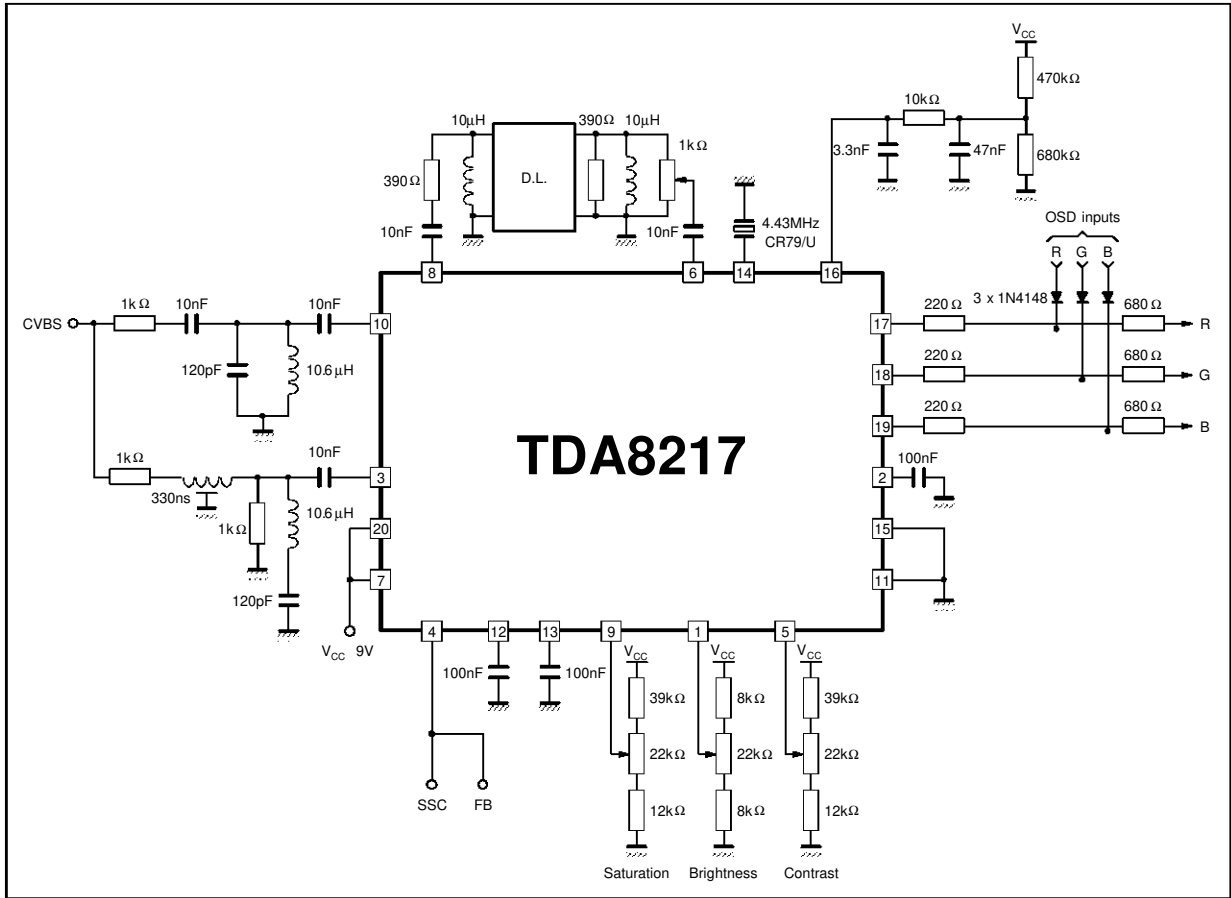
8217-17.EPS

Figure 16 : Pins 17 - 18 - 19 Configuration



8217-18.EPS

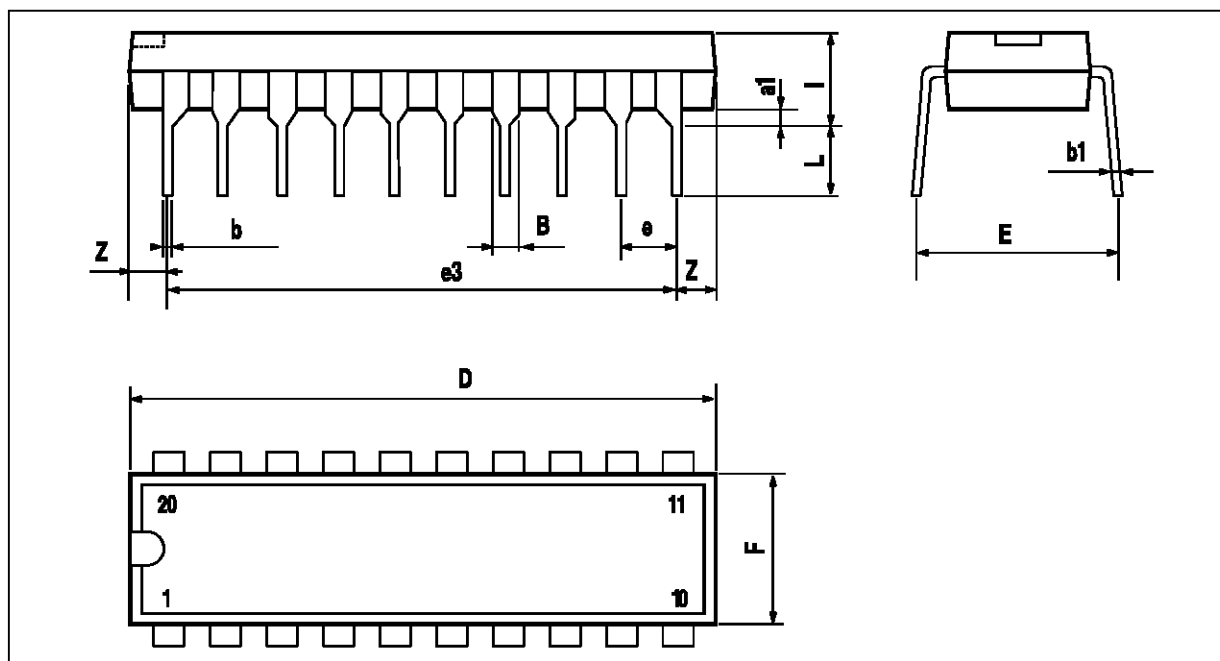
APPLICATION DIAGRAM (with OSD capability)



8217-19.EPS

PACKAGE MECHANICAL DATA

20 PINS - PLASTIC DIP



PM-DIP20.EPS

| Dimensions | Millimeters | | | Inches | | |
|------------|-------------|-------|------|--------|-------|-------|
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| a1 | 0.254 | | | 0.010 | | |
| B | 1.39 | | 1.65 | 0.055 | | 0.065 |
| b | | 0.45 | | | 0.018 | |
| b1 | | 0.25 | | | 0.010 | |
| D | | | 25.4 | | | 1.000 |
| E | | 8.5 | | | 0.335 | |
| e | | 2.54 | | | 0.100 | |
| e3 | | 22.86 | | | 0.900 | |
| F | | | 7.1 | | | 0.280 |
| I | | | 3.93 | | | 0.155 |
| L | | 3.3 | | | 0.130 | |
| Z | | | 1.34 | | | 0.053 |

DIP20.TBL

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