



# TDA8217

## PAL DECODER AND VIDEO PROCESSOR

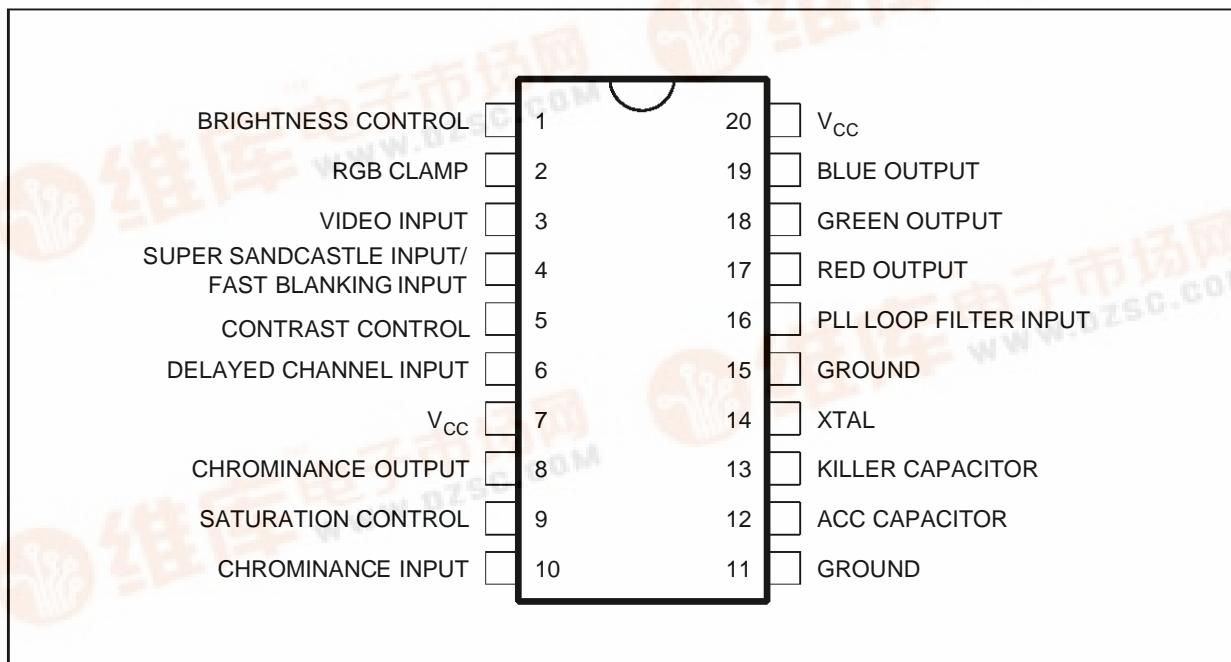
- RGB OUTPUTS
- SINGLE CHIP CHROMA AND LUMINANCE PROCESSOR
- DC CONTROL BRIGHTNESS, CONTRAST, AND SATURATION
- FEW EXTERNAL COMPONENTS
- FAST BLANKING INPUT FOR OSD INSERTION
- SUPER SANDCASTLE INPUT

### 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.



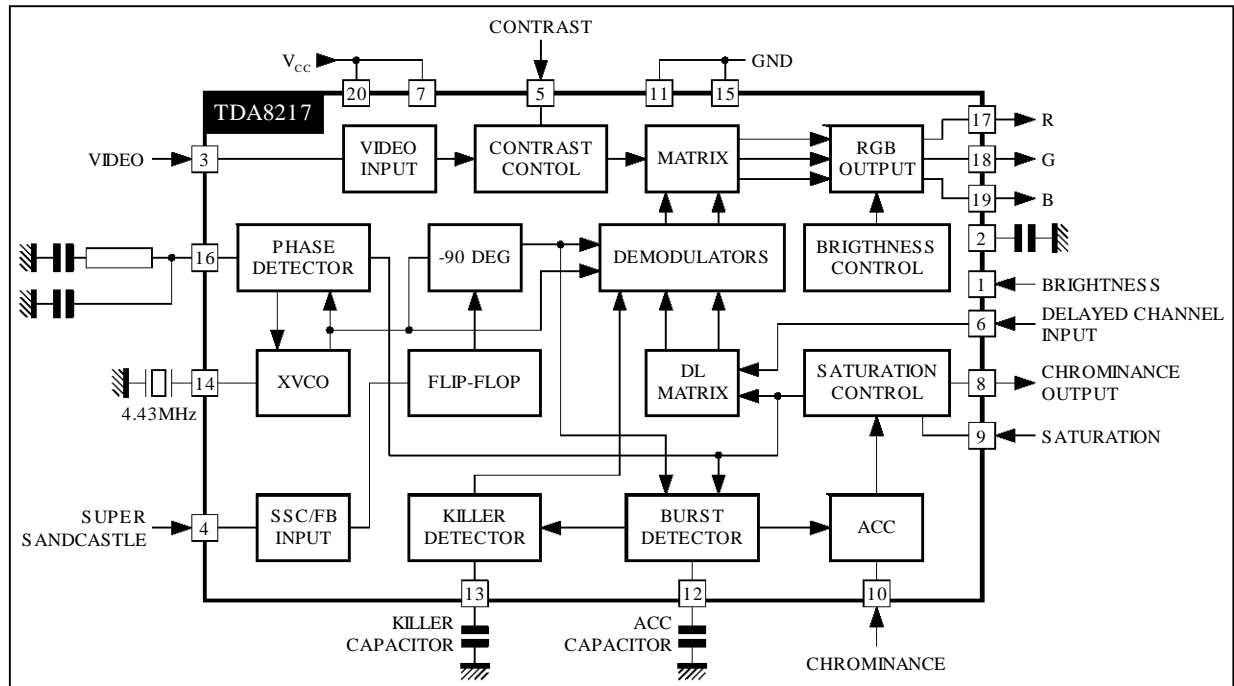
### PIN CONNECTIONS



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	Max. 80	°C/W

8217-02.TBL

## DC AND AC ELECTRICAL CHARACTERISTICS

$V_{CC} = 9V$  ,  $T_{AMB} = 25^{\circ}C$  (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 <sub>PP</sub>
	DC Operating Voltage	No Input Signal	2.5	2.8	3.1	V
	Input Current	During Burst Period	± 50	± 100	± 150	µA
		Out of Burst Period			5	µA

### CHROMINANCE INPUT (Pin 10)

	Input Level before Clipping				900	mV <sub>PP</sub>
	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 <sub>PP</sub>

8217-03.TBL

**DC AND AC ELECTRICAL CHARACTERISTICS** (continued)V<sub>CC</sub> = 9V , T<sub>AMB</sub> = 25°C (unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
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## 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
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## 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 <sub>PP</sub>
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## 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 <sub>PP</sub> (B-Y), Signal with 200mV <sub>PP</sub> Burst Amplitude at pin 10, Contrast @ 4.2V, Sat. @ 4.2V, Brig. @ 3.5V	3.5	3.9	4.3	V <sub>PP</sub>
	Individual Output Sinking Current				2	mA

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## DC AND AC ELECTRICAL CHARACTERISTICS (continued)

V<sub>CC</sub> = 9V , T<sub>AMB</sub> = 25°C (unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
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### 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)

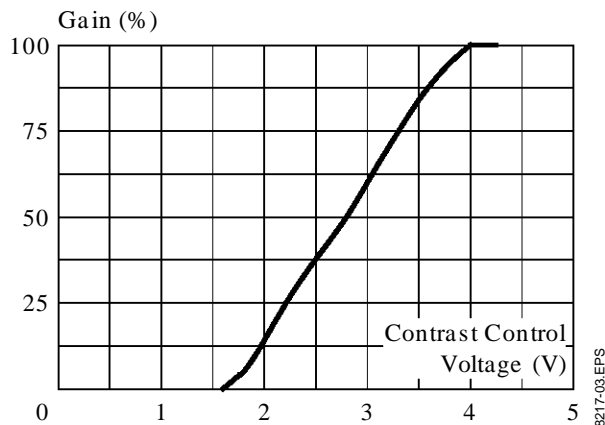
	Catching Range		± 500	± 700		Hz
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### RGB CLAMP CAPACITOR (Pin 2)

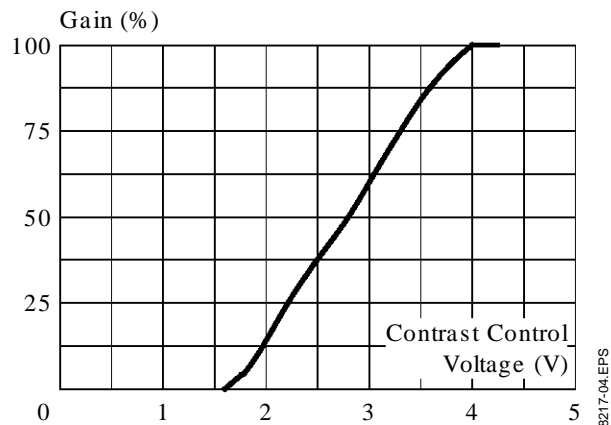
	Control Current		50	100	150	μA
	Leakage Current				5	μA

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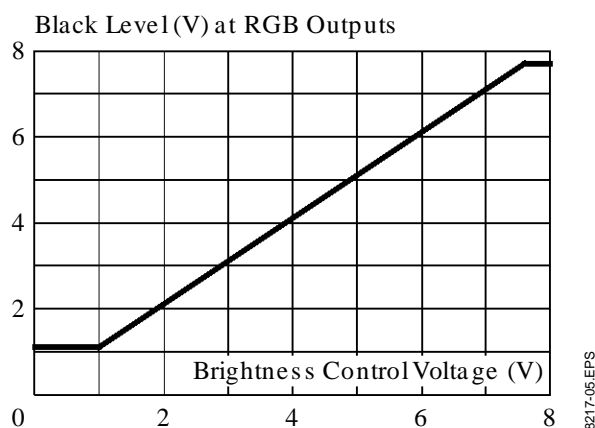
**Figure 1 : Contrast Control Voltage Range**



**Figure 2 : Saturation Control Voltage Range**

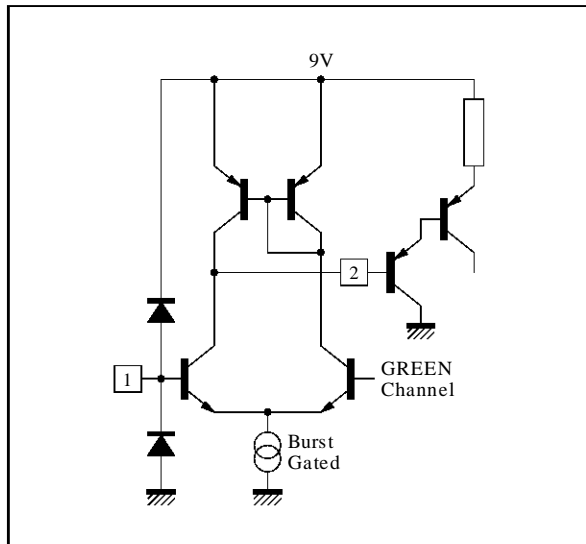


**Figure 3 : Brightness Control Voltage Range**

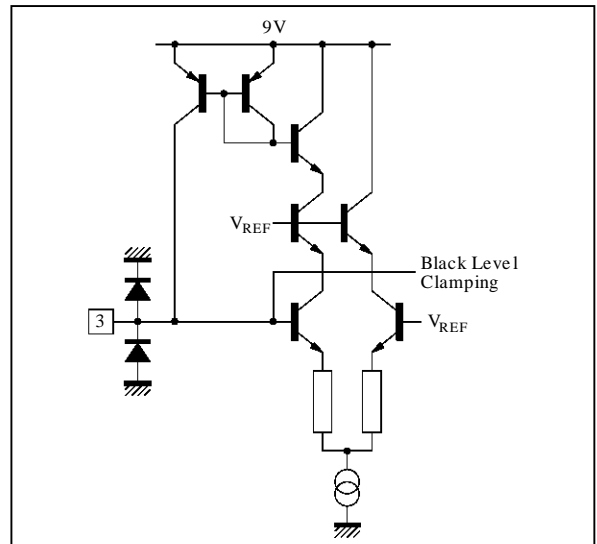


**INPUT / OUTPUT PIN CONFIGURATION**

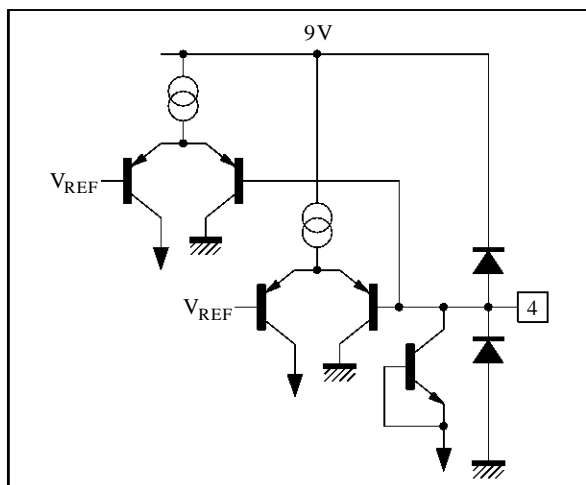
**Figure 4 : Pins 1 - 2 Configuration**



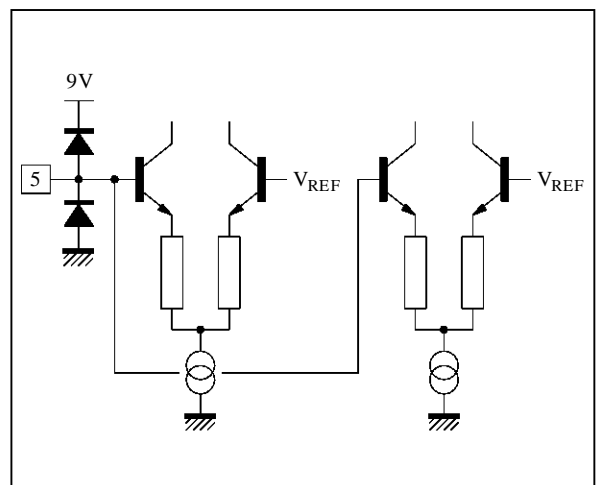
**Figure 5 : Pin 3 Configuration**



**Figure 6 : Pin 4 Configuration**

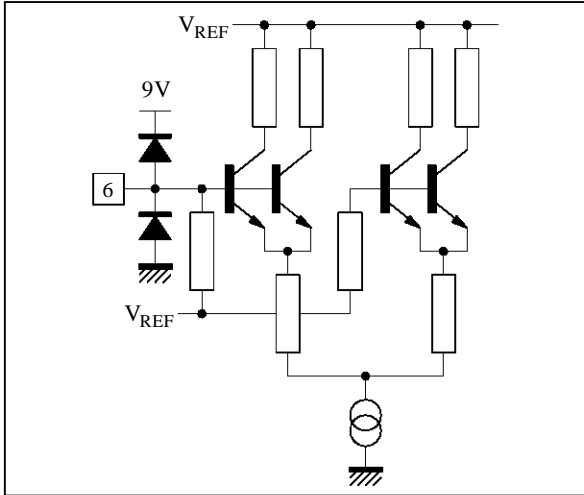


**Figure 7 : Pin 5 Configuration**



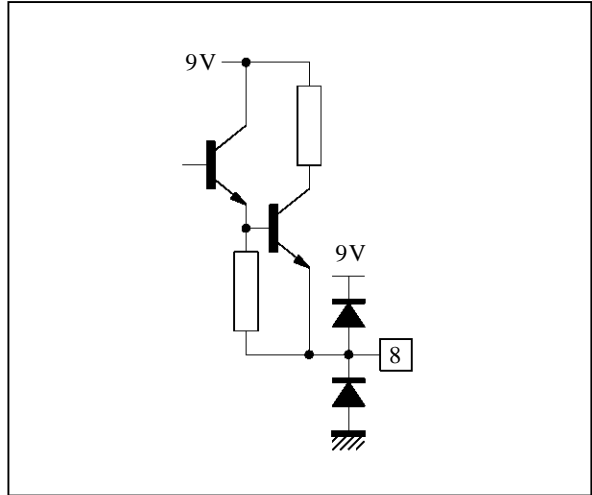
INPUT / OUTPUT PIN CONFIGURATION (continued)

Figure 8 : Pin 6 Configuration



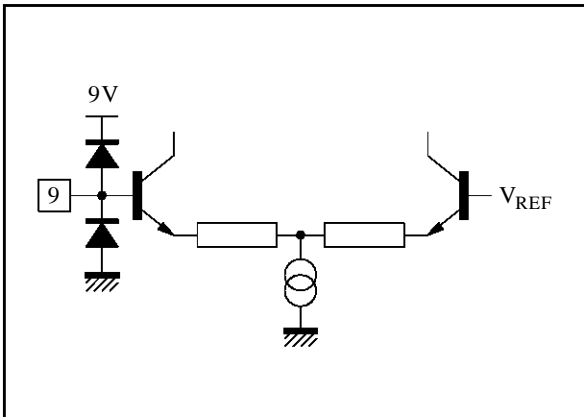
8217-10.EPS

Figure 9 : Pin 8 Configuration



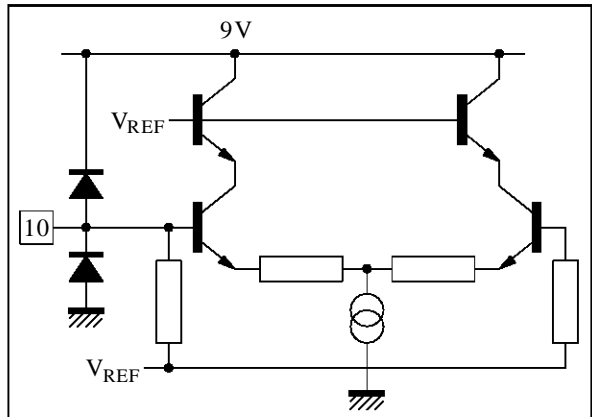
8217-11.EPS

Figure 10 : Pin 9 Configuration



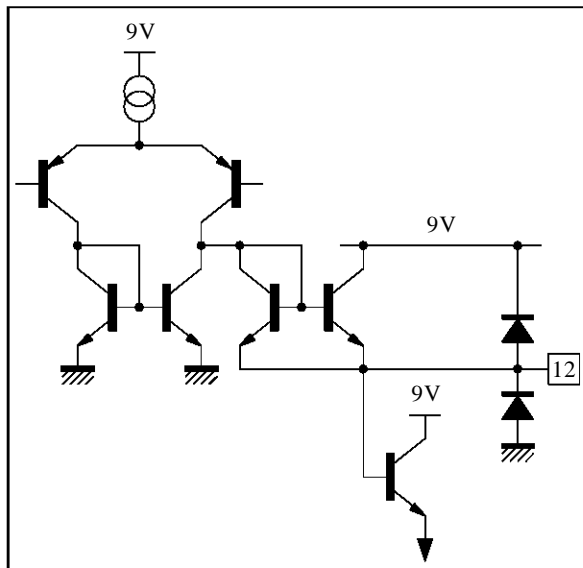
8217-12.EPS

Figure 11 : Pin 10 Configuration



8217-13.EPS

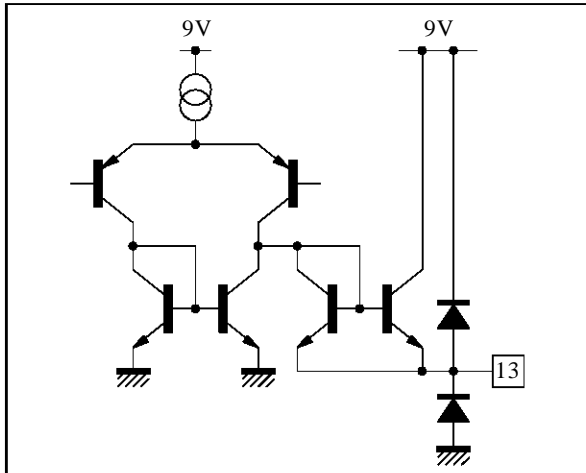
Figure 12 : Pin 12 Configuration



8217-14.EPS

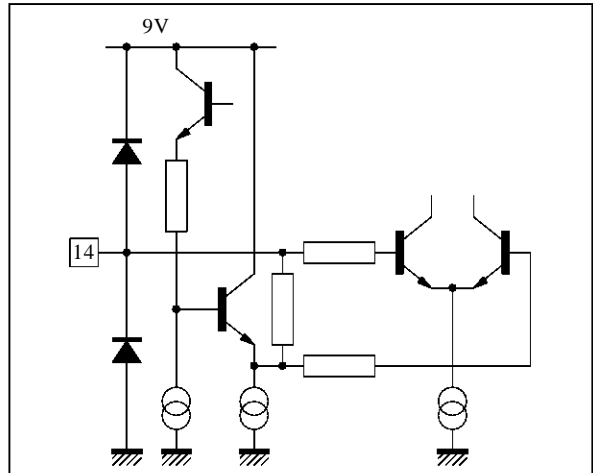
INPUT / OUTPUT PIN CONFIGURATION (continued)

Figure 13 : Pin 13 Configuration



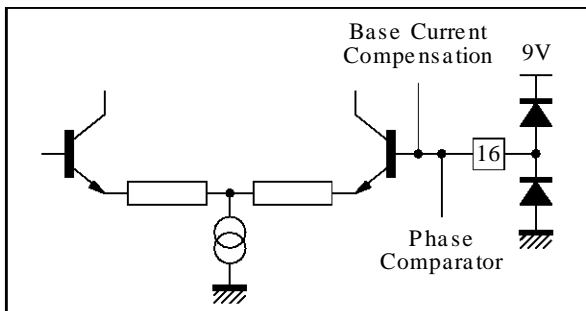
8217-16.EPS

Figure 14 : Pin 14 Configuration



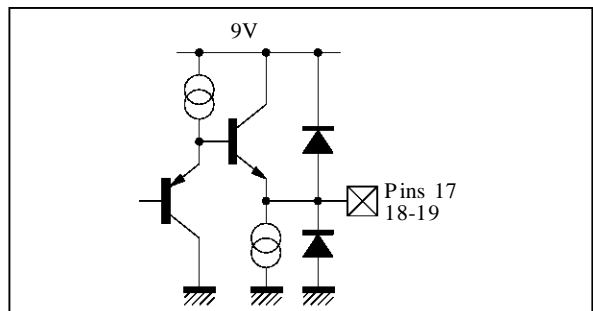
8217-16.EPS

Figure 15 : Pin 16 Configuration



8217-17.EPS

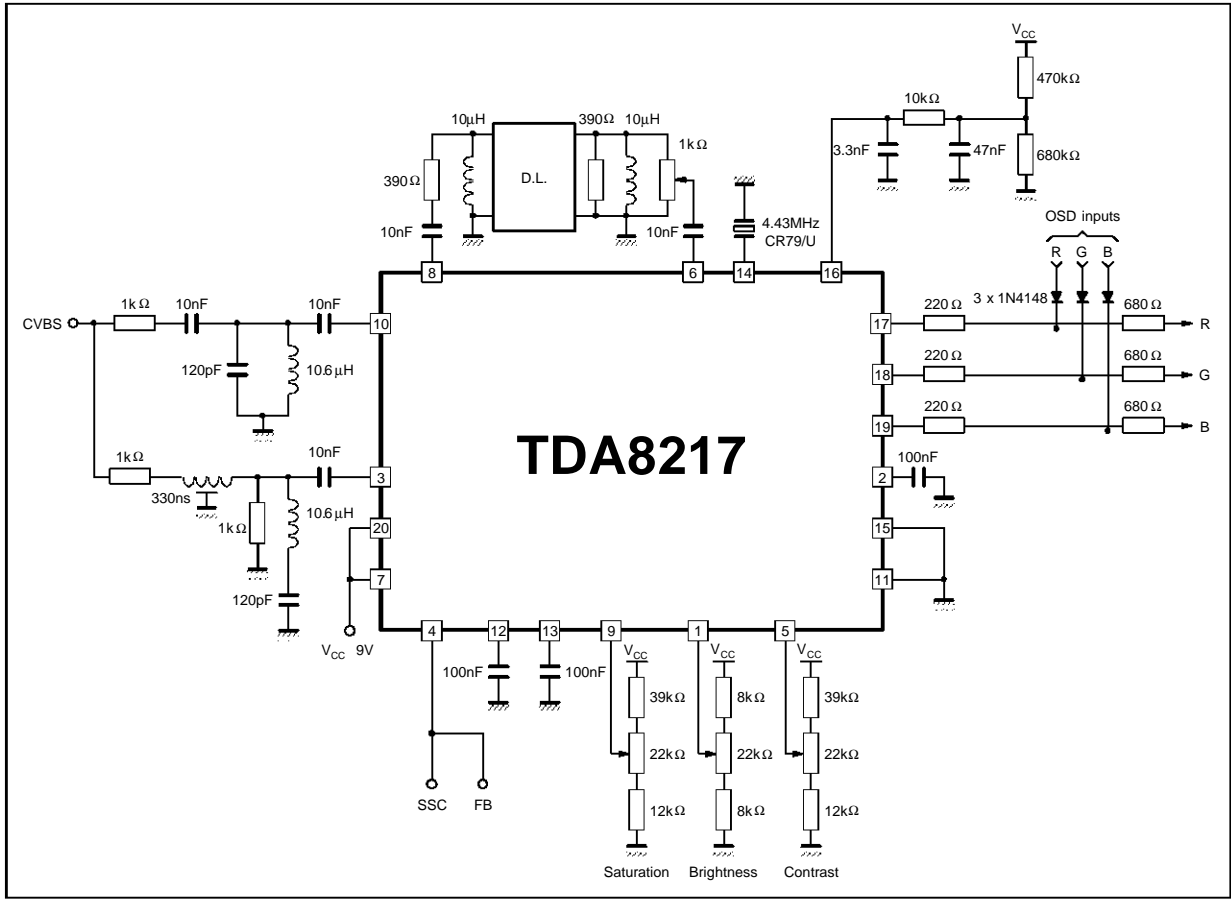
Figure 16 : Pins 17 - 18 - 19 Configuration



8217-18.EPS

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## APPLICATION DIAGRAM (with OSD capability)

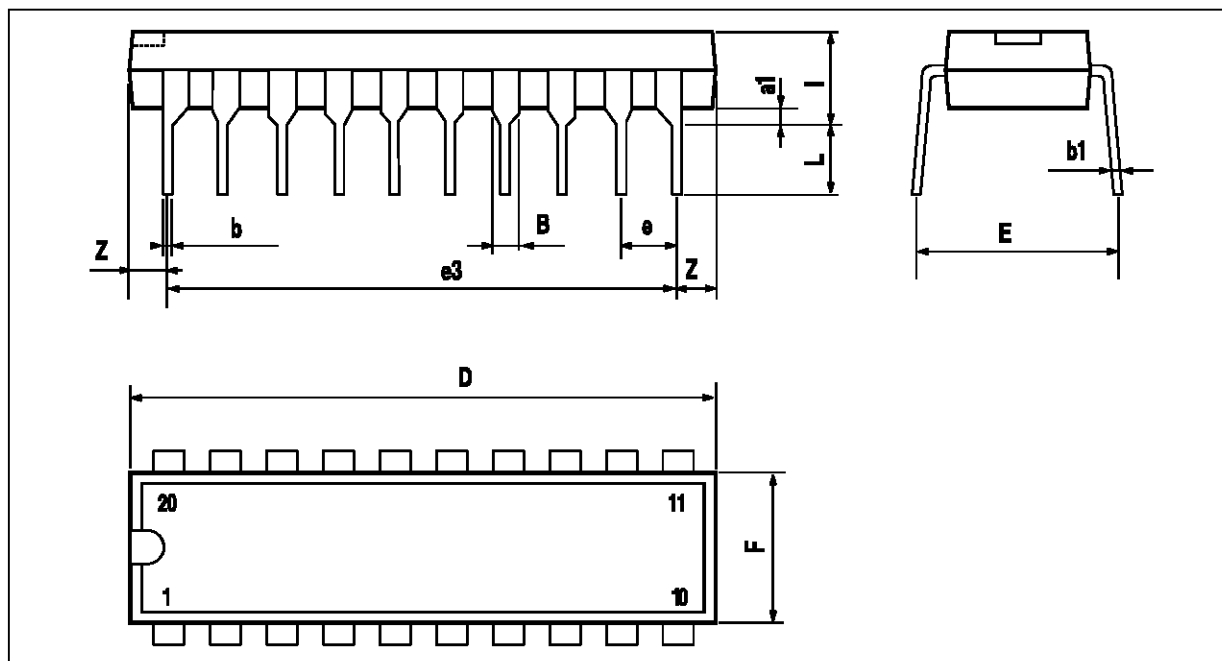


8217-19.EPS



## PACKAGE MECHANICAL DATA

20 PINS - PLASTIC DIP



PWA-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
l			3.93			0.155
L		3.3			0.130	
Z			1.34			0.053

DIP20.TBL

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