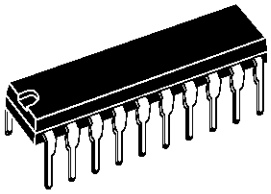
SGS-THOMSON MICROELECTRONICS

TDA8219

PAL/NTSC DECODER AND VIDEO PROCESSOR

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



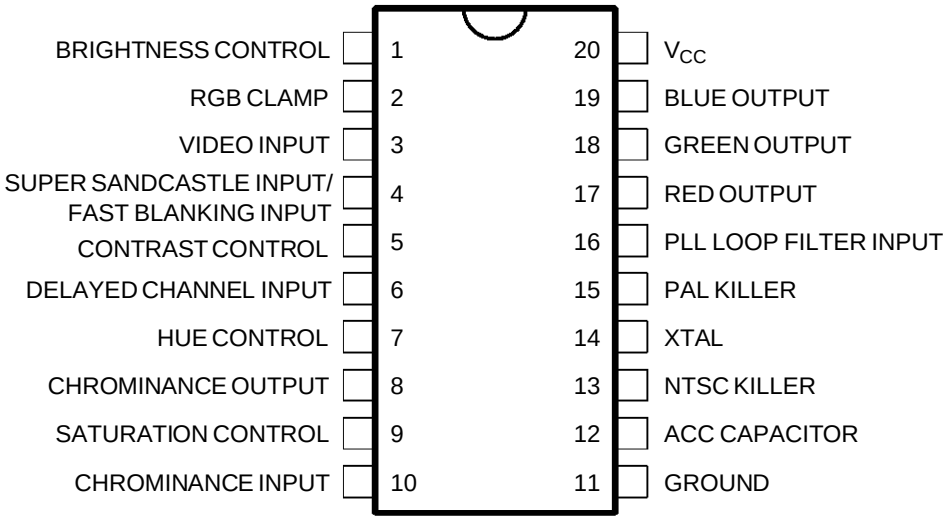
DIP20
(Plastic Package)

ORDER CODE : TDA8219

DESCRIPTION

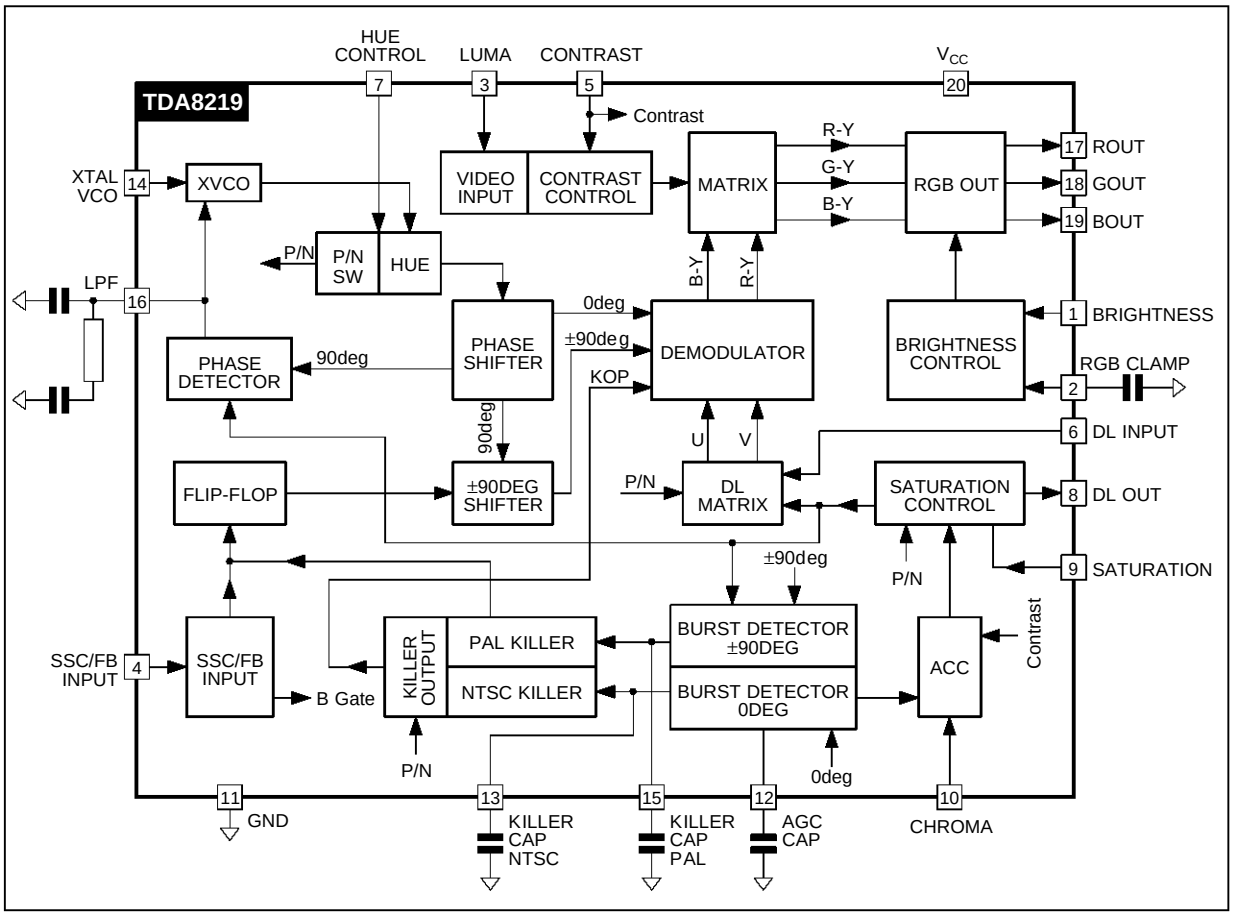
The TDA8219 is a monolithic integrated color decoder for the PAL/NTSC standard. It includes in a 20 pins IC all the functions required for the identification and demodulation of PAL/NTSC signals, and all the videoprocessor functions up to the drive of the video stages. Used with TDA8213 (video & sound IF system) and TDA8214B (H/V deflection circuit), this IC permits a complete low-cost solution for PAL/NTSC applications.

PIN CONNECTIONS



8219-01.EPS

BLOCK DIAGRAM



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

8219-01.TBL

THERMAL DATA

Symbol	Parameter		Value	Unit
$R_{TH\ (j-a)}$	Junction to ambient thermal resistance	Max.	80	°C/W

8219-02.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 at V_{CC} = 9V	20	30	40	mA
P_D	Total Power Dissipation	No Load		270	450	mW
LUMINANCE INPUT (Pin 3)						
	Input Level (Black to White)			350	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

8219-03.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)						
	Input Level			300	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}
	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		200		µA
	Discharging Current	During Burst Gate Period			10	µA
	Leakage Current	Out of Burst Gate Period			5	µA
PAL KILLER CAPACITOR (Pin 15)						
	Color off Voltage	No Chroma Signal		5.2		V
	Color on Voltage			5.4		V
	PAL flip-flop inhibition level			3.2		V
	Control Current			200		µA
	Leakage Current				5	µA
	Voltage with Nominal Input Signal			6.0		V
NTSC KILLER CAPACITOR (Pin 13)						
	Color off Voltage	No Chroma Signal		5.2		V
	Color on Voltage			5.4		V
	Control Current			200		µA
	Leakage Current				5	µA
	Voltage with Nominal Input Signal			6.0		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}

8219-04.TBL

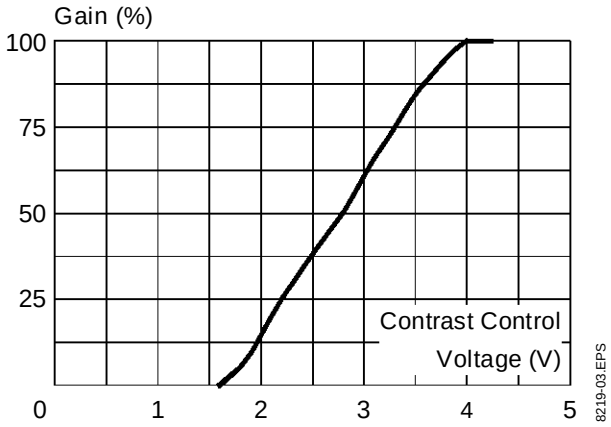
DC AND AC ELECTRICAL CHARACTERISTICS (continued)

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
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)	300mV$_{PP}$ (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		1.5	2	2.5	mA
	Maximum Peak White Level		7.4	7.8	8.2	V
	Blanking Level		1.0	1.2	1.4	V
	Black Level Differential Error				350	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)			7		MHz
HUE CONTROL INPUT (Pin 7) (see Figure 4)						
	Control Range		± 20	± 45		deg
	Input Current				10	µA
	NTSC Select Voltage		2.0		6.0	V
	PAL Select Voltage		00		0.5	V
XTAL (Pin 14)						
	Catching Range	PAL, XTAL with CM = 13fF NTSC, XTAL with CM = 13fF		± 700 ± 700		Hz Hz
RGB CLAMP CAPACITOR (Pin 2)						
	Control Current		50	100	150	µA
	Leakage Current				5	µA

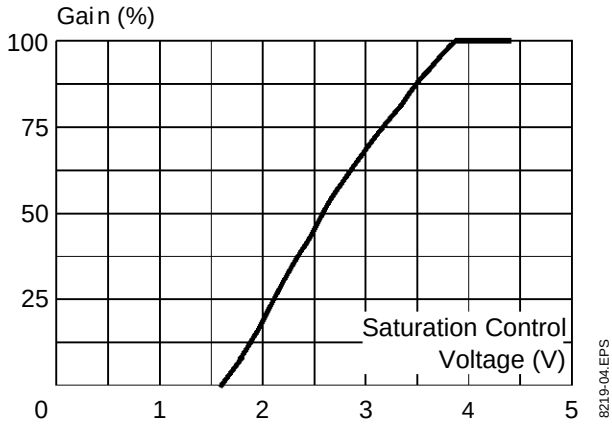
8219-05.TBL

Figure 1 : Contrast Control Voltage Range



8219-03.EPS

Figure 2 : Saturation Control Voltage Range



8219-04.EPS

Figure 3 : Brightness Control Voltage Range

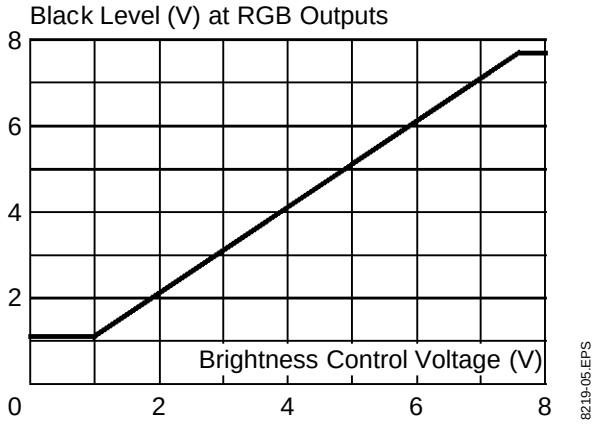
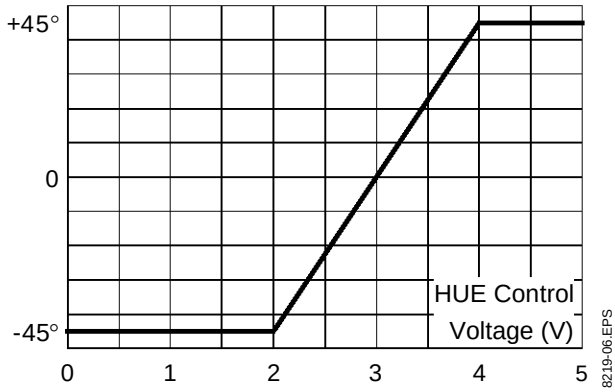


Figure 4 : Hue Control Voltage Range



INPUT / OUTPUT PIN CONFIGURATION

Figure 5 : Pins 1 - 2 Configuration

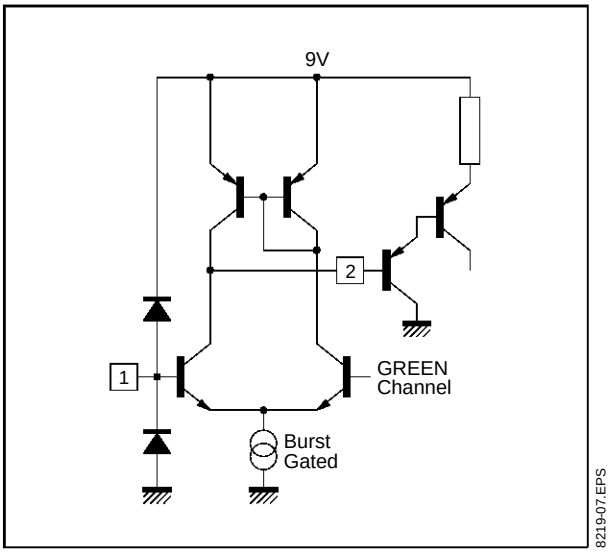


Figure 6 : Pin 3 Configuration

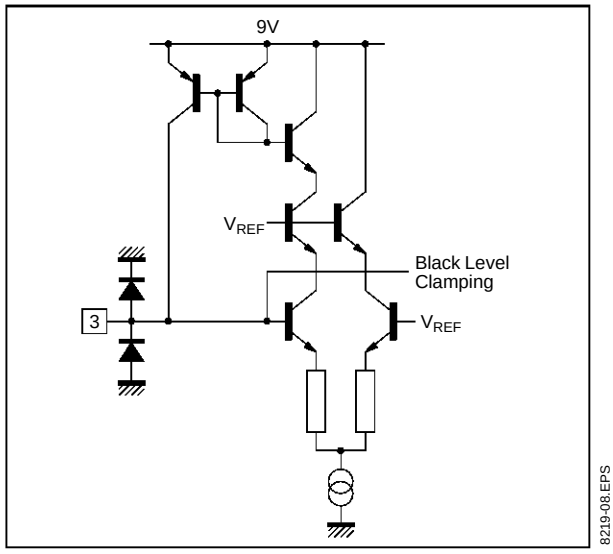


Figure 7 : Pin 4 Configuration

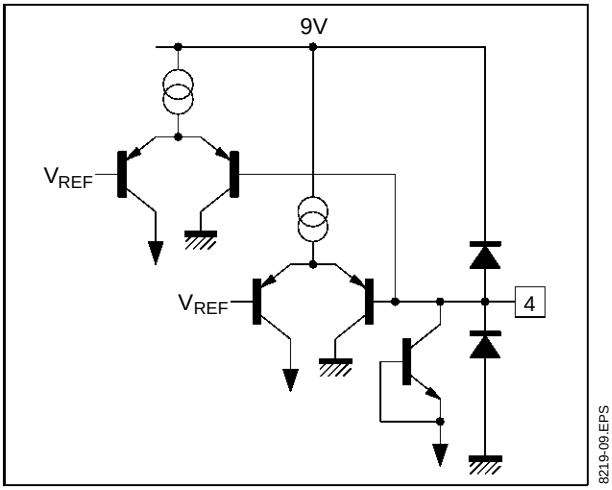
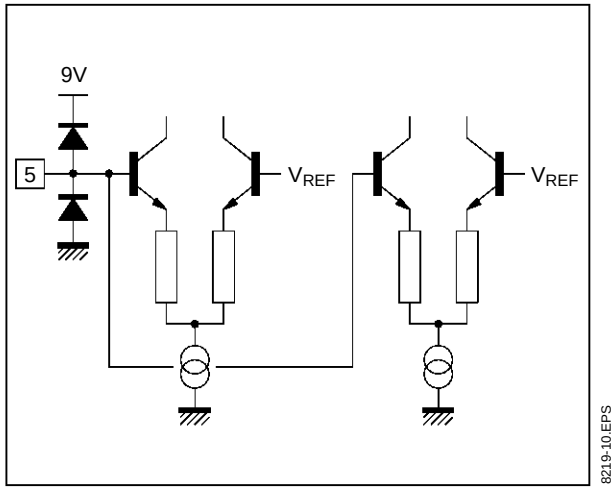


Figure 8 : Pin 5 Configuration



INPUT / OUTPUT PIN CONFIGURATION (continued)

Figure 9 : Pin 6 Configuration

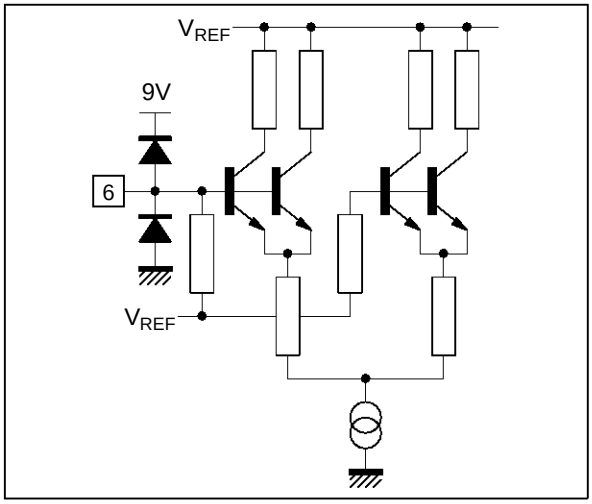


Figure 10 : Pin 7 Configuration

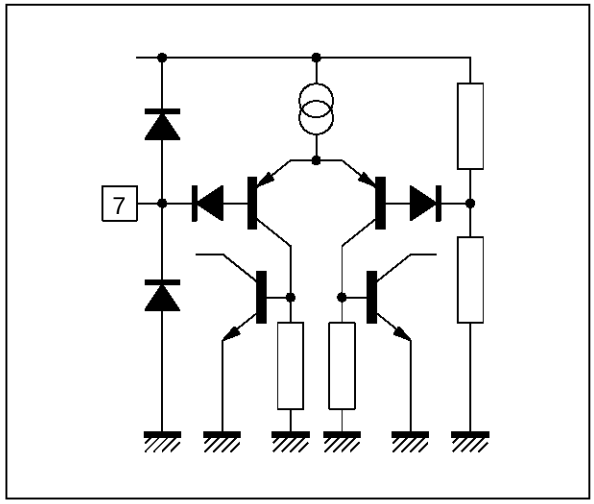


Figure 11 : Pin 8 Configuration

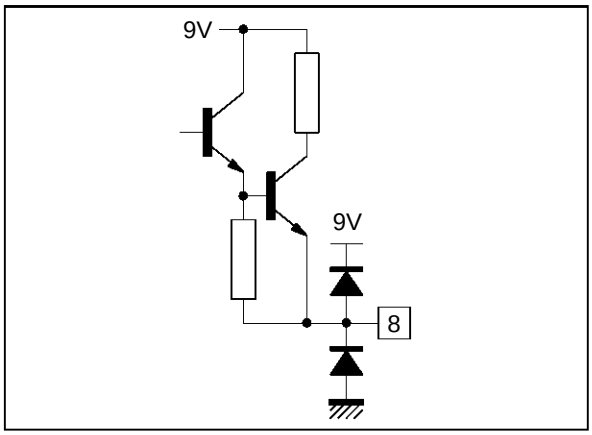


Figure 12 : Pin 9 Configuration

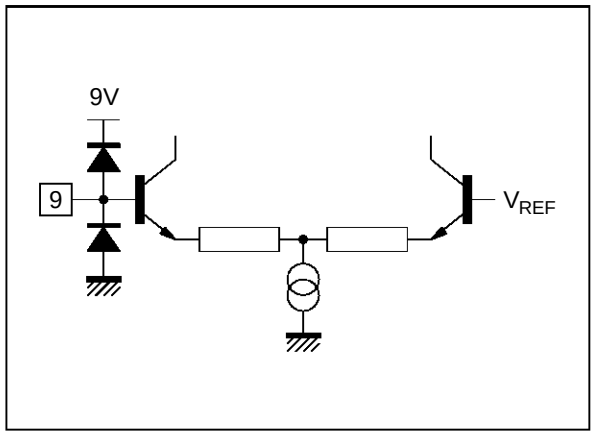


Figure 13 : Pin 10 Configuration

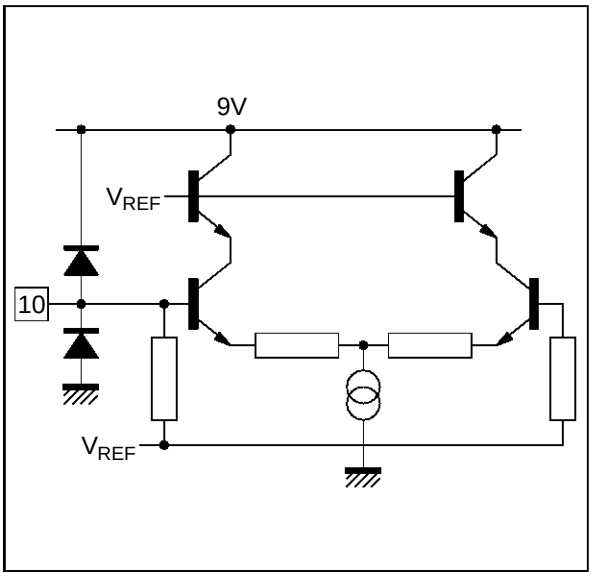
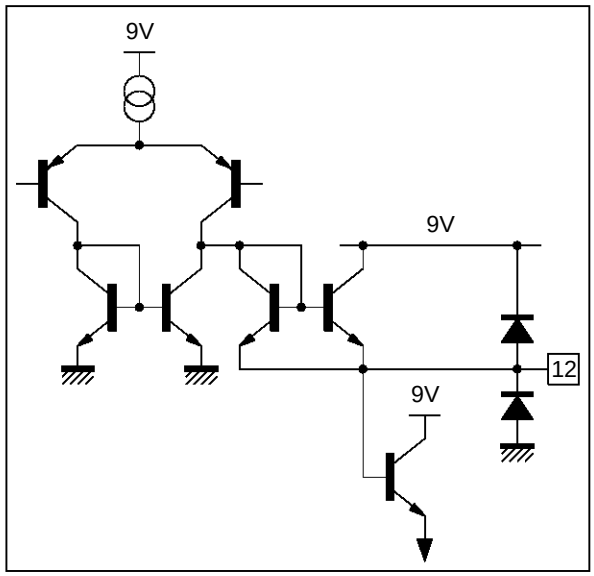


Figure 14 : Pin 12 Configuration



INPUT / OUTPUT PIN CONFIGURATION (continued)

Figure 15 : Pins 13 - 15 Configuration

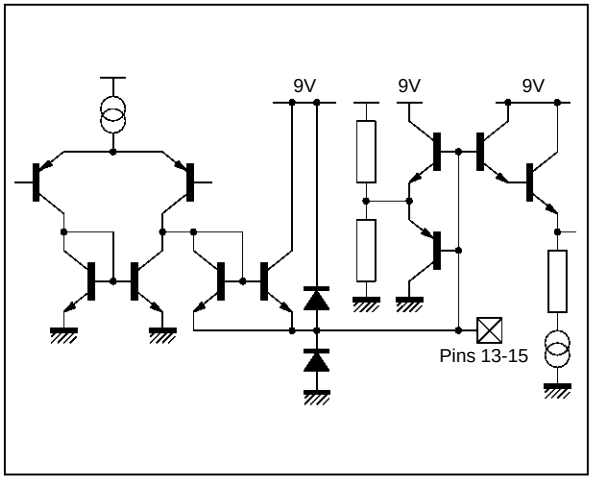


Figure 16 : Pin 14 Configuration

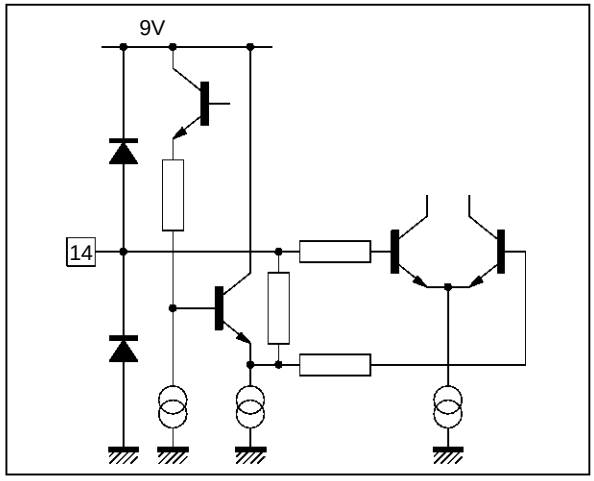


Figure 17 : Pin 16 Configuration

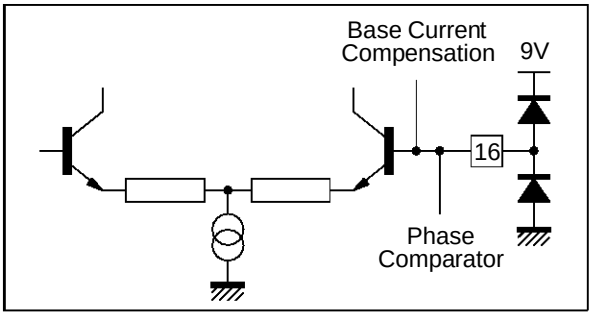
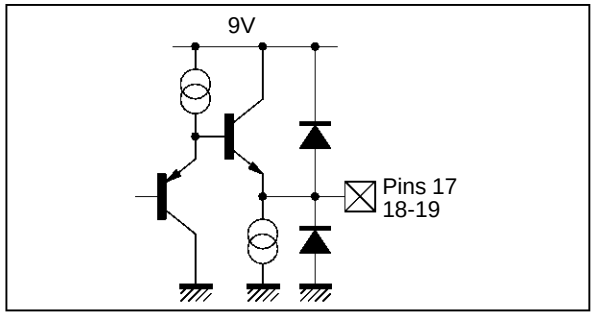
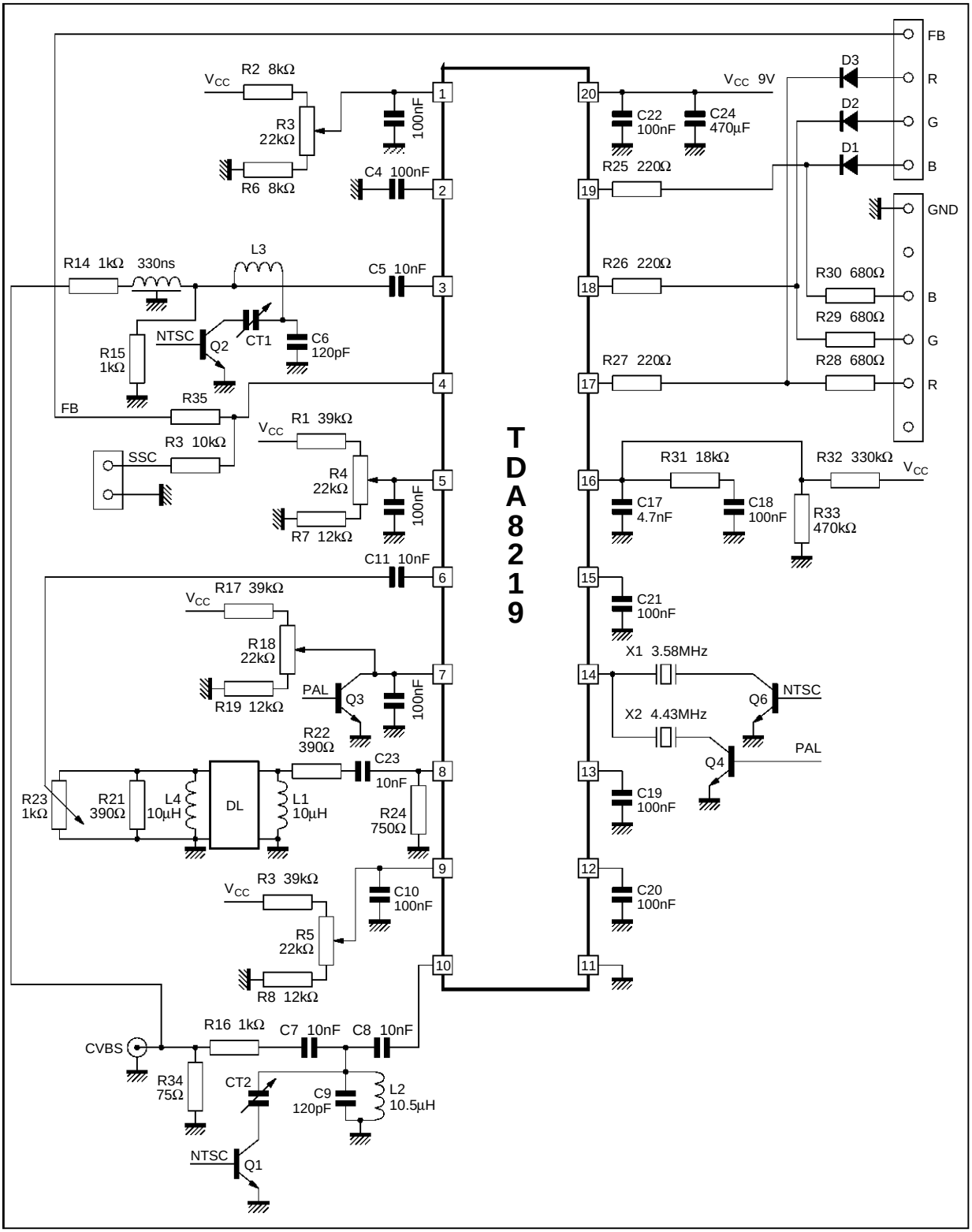


Figure 18 : Pins 17 - 18 - 19 Configuration

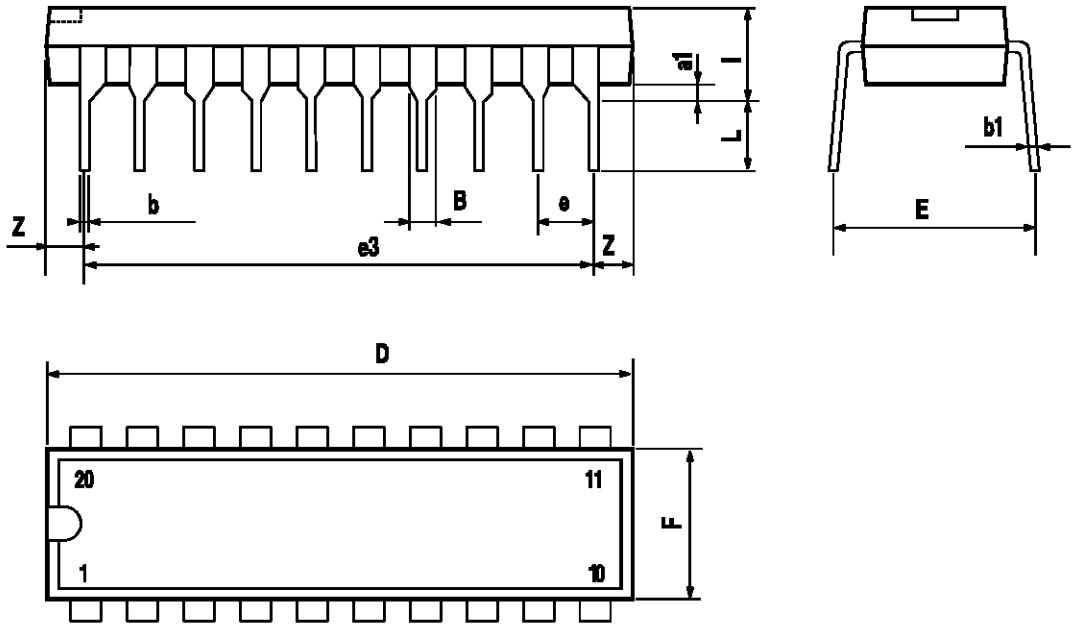


APPLICATION DIAGRAM (with OSD capability)



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

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