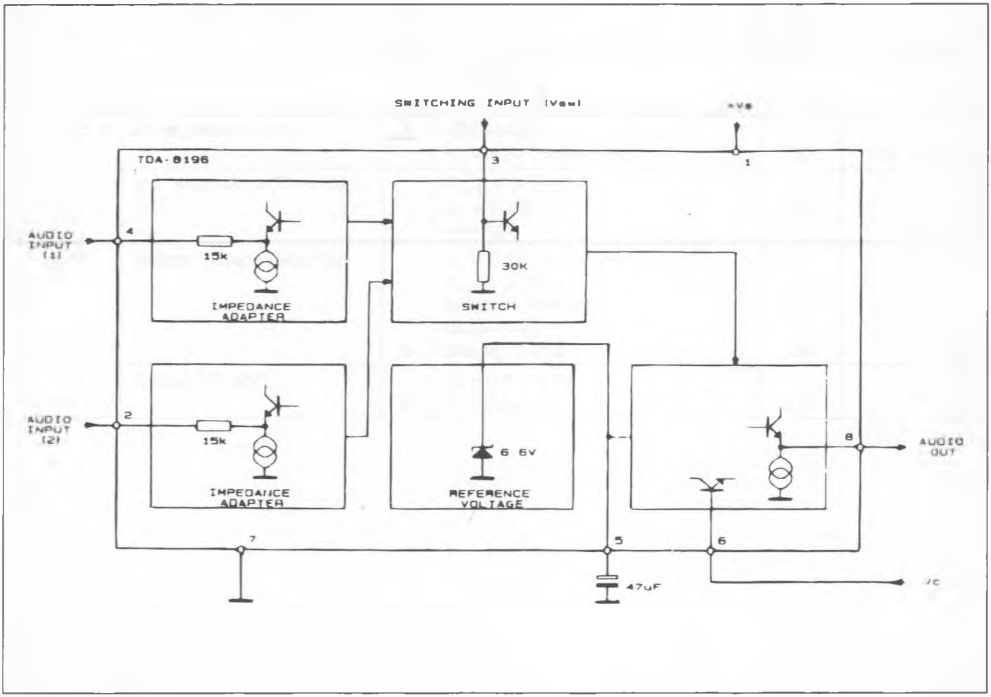
AUDIO SWITCH AND DC VOLUME CONTROL FOR TV

- TWO AUDIO INPUTS CIRCUITS WITH SWITCHING FACILITIES FULLY COMPATIBLE WITH THE SCART EUROPEAN NORM EN 50049
- DC VOLUME CONTROL

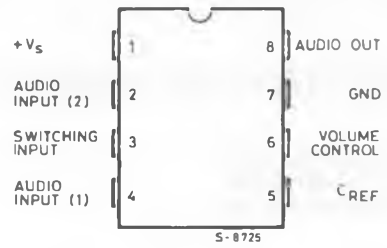
MINIDIP

ORDER CODE : TDA8196

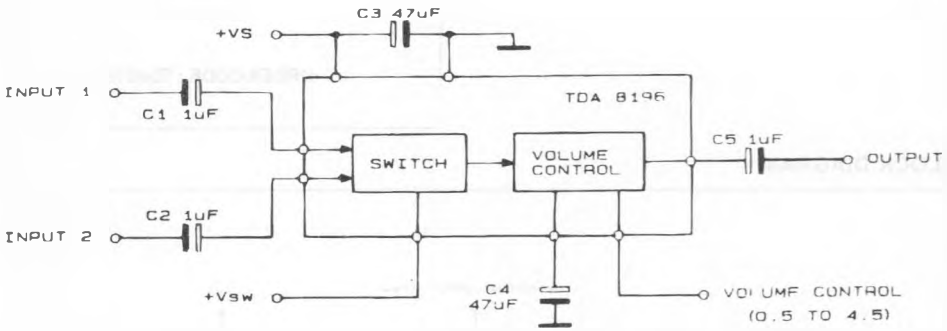
BLOCK DIAGRAM



PIN CONNECTION (top view)



APPLICATION CIRCUIT



ELECTRICAL CHARACTERISTICS

(refer to the test circuit, V_s = 12V, T_{amb} = 25°C unless otherwise specified)

Symbol	Parameter	Pin	Test Conditions	Min.	Typ.	Max.	Unit
V_S	Supply Voltage	1		10.8	12	13.2	V
I_S	Supply Current	1	V_i = 0 ; V_c = 0.5V		12		mA
V_r	Reference Voltage	5			6.6		V
V_{sw}	Switching Voltage Audio Input 1 Audio Input 2	3		 0 8		 5 12	 V V
R_{sw}	Switching Input Resistance	3	V_{sw} = 12V	20	30		K_{ohm}
C_{sw}	Switching Input Capacitance	3				10	pF
C_t	Crosstalk Between Switched Inputs		Selective Voltmeter (B_w = 8Hz) ; see fig. 1	70	90		dB
V_i	Audio Input Amplitude (1 or 2)	4 2			0.5	2	V_{rms}
R_i	Audio Input Resistance (1 or 2)	4 2		10	13		K_{ohm}
K_{min}	Output/input Gain for Max Vol				0		dB
R_o	Audio Output Resistance	8			0.2	1	K_{ohm}
K_v	Volume Control Range		Selective Voltmeter (B_w = 8Hz) ; see fig. 2	80	120		dB
V_c	Control Voltage Range $K_v = K_{max}$ (vol. min) $K_v = K_{min}$ (vol. max)	6			0.5 4.5		V
THD	Distortion	8	$Vi = 2V_{rms}$ @ V_c = 4.5V		0.4	1	%
En	Output Noise Level	8	DIN 45405 V_c = 0.5V Weighted		20		uV_{rms}
En	Output Noise Level	8	DIN 45405 V_c = 4.5V Unweighted		50	150	uV_{rms}
$\frac{K_v}{\Delta T_a}$	Vol. Attenuation Thermal Drift		T_{amb} = 0 to 70°C K_v = 30dB See fig.3		0.04		$\frac{dB}{°C}$
SVR	Supply Voltage Rejection	8	V_c = 0.5V ; f = 100Hz $V_{ripple} = 1V_{pp}$ Selective Voltmeter (B_w = 8Hz) See fig. 4 and 5		38		dB
V_o	Output DC Shift	8	V_c = 0.5 ÷ 4.5V $V_i = 2V_{rms}$		0.25		V

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_s	Supply Voltage (pin 1)	16	V
T_{stg}, T_j	Storage and Junction Temperature	– 55 to 125	°C
T_{amb}	Operating Ambient Temperature	0 to 70	°C

THERMAL DATA

$R_{th\,j\text{-}amb}$	Thermal Resistance Junction-ambient	Max	200	°C/W

TEST CIRCUIT

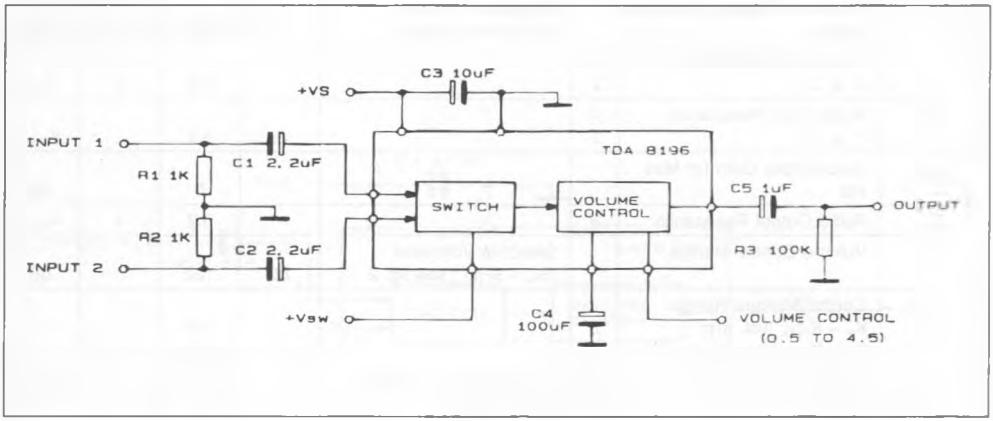


Figure 1 : TDA8196 Crosstalk.

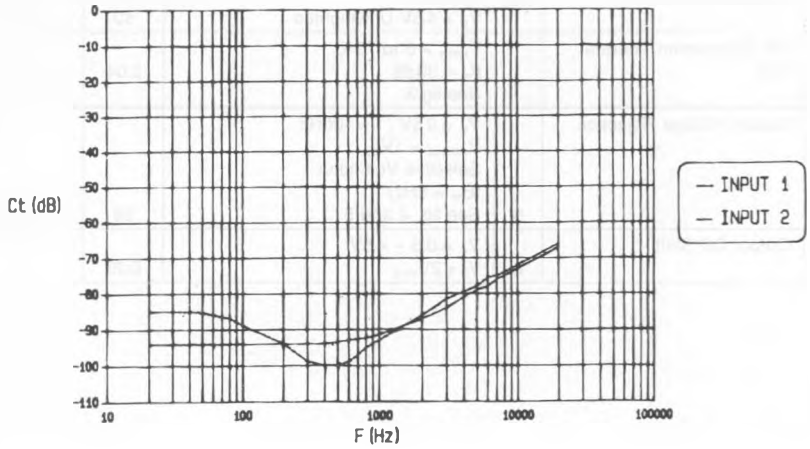


Figure 2 : Output Attenuation versus DC Volume Control Voltage.

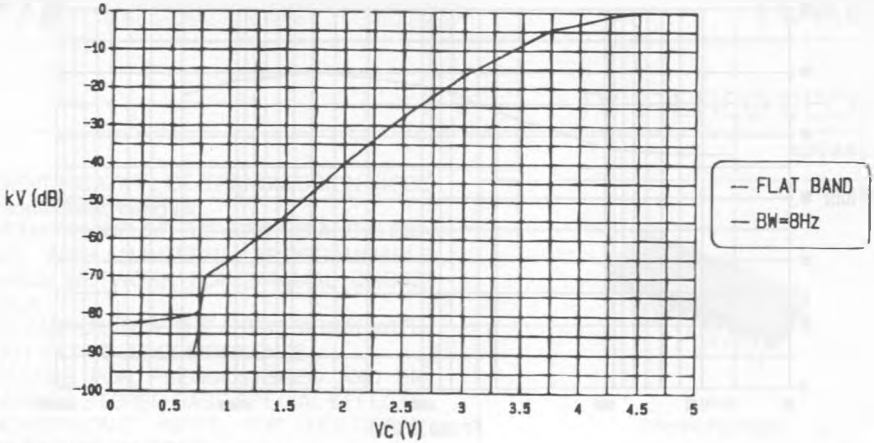


Figure 3 : K_V Drift vs. T_{amb} Variation.

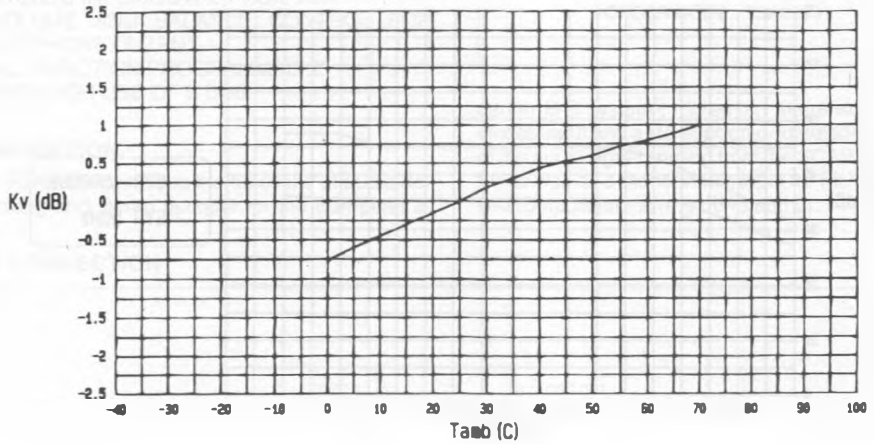


Figure 4 : SVR vs. Ripple Frequency.

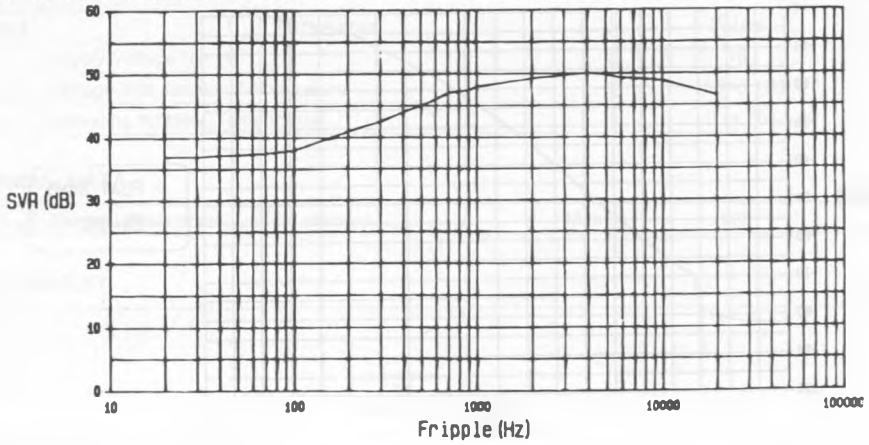


Figure 5 : SVR vs. Volume Attenuation.