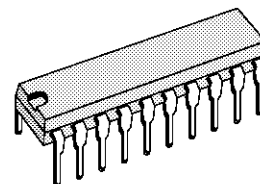


**TV SOUND CHANNEL**

- HIGH SENSITIVITY
- EXCELLENT AM REJECTION
- DC VOLUME CONTROL
- PERITELEVISION FACILITY
- 4W OUTPUT POWER
- LOW DISTORTION
- THERMAL PROTECTION
- TURN-ON AND TURN-OFF MUTING



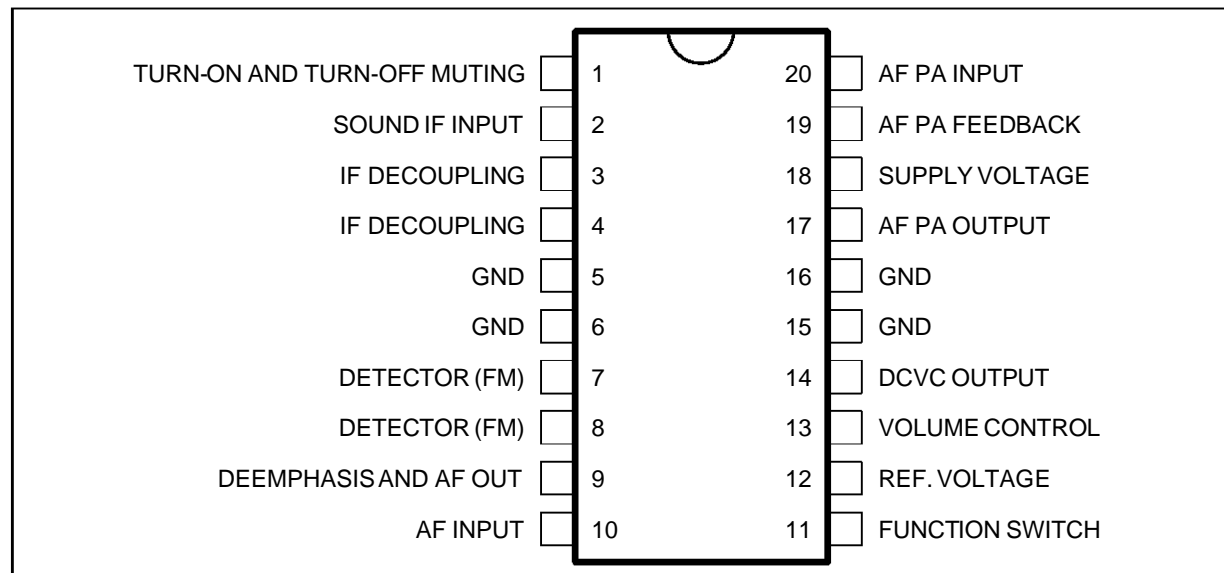
**DIP20**  
(Plastic Package)

**ORDER CODE : TDA8191**

**DESCRIPTION**

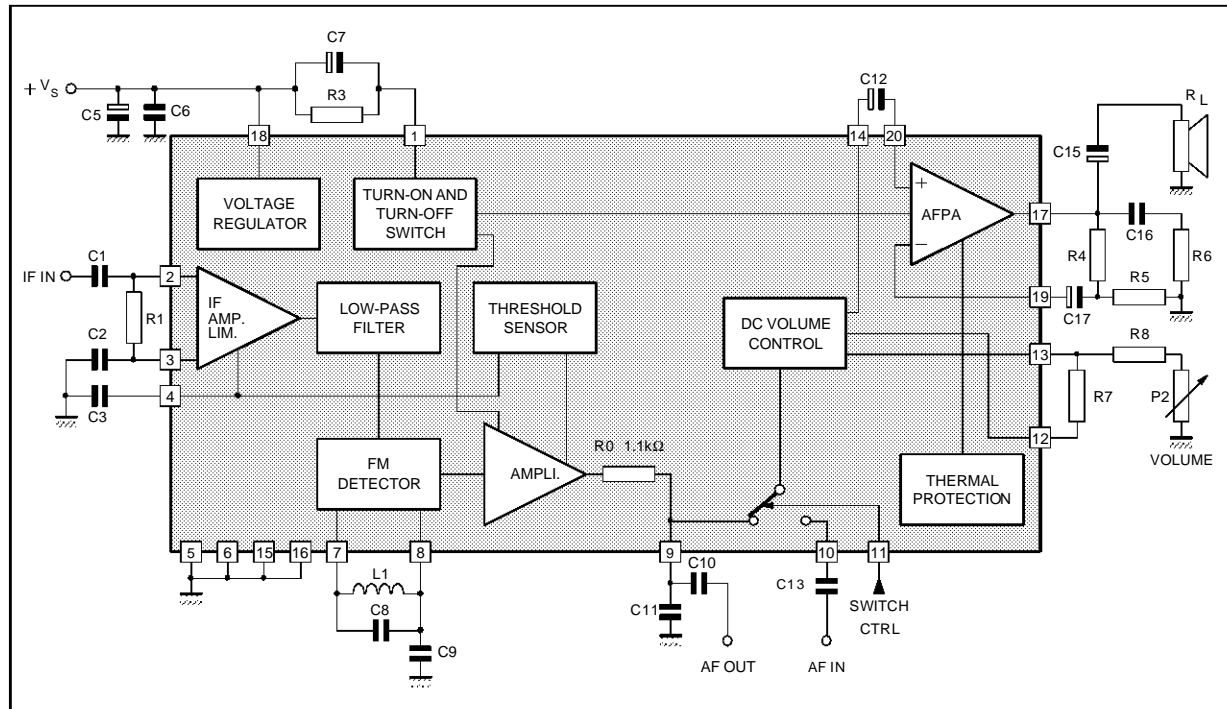
The TDA8191 is a monolithic integrated circuit that includes all the functions needed for a complete TV sound channel. The TDA8191 is assembled in a 20 pin dual in line power package.

**PIN CONNECTION**



8191-01.EPS

BLOCK DIAGRAM



8191-02.EPS

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$V_S$	Supply Voltage (pin 18)	28	V
$V_I$	Voltage at Pin 1	$\pm V_S$	
$V_I$	Input Voltage (pin 2)	1	V <sub>PP</sub>
$I_o$	Output Peak Current (repetitive)	1.5	A
$I_o$	Output Peak Current (non repetitive)	2	A
$P_{tot}$	Total Power Dissipation : at $T_{pins} = 90^\circ C$ at $T_{amb} = 70^\circ C$	4.3 1	W W
$T_{stg}, T_j$	Storage and Junction Temperature	- 40 to 150	$^\circ C$

8191-01.TBL

THERMAL DATA

Symbol	Parameter	Value	Unit
$R_{th(j-pins)}$	Junction-pins Thermal Resistance	Max 14	$^\circ C/W$
$R_{th(j-a)}$	Junction-ambient Thermal Resistance	Max 80	$^\circ C/W$

8191-02.TBL

ELECTRICAL CHARACTERISTICS

(Refer to fig. 1 ;  $V_S = 24V$ ,  $R_L = 16\Omega$ , Pin 11 floating,  $\Delta f = \pm 50kHz$ ,  $V_i = 1mV$ ,  $f_o = 5.5MHz$ ,  $f_m = 1kHz$ ,  $T_{amb} = 25^\circ C$  unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_S$	Supply Voltage (Pin 18)	$V_C = 4.5V$	10.8	24	27	V
$V_O$	Quiescent Output Voltage (Pin 17)	$V_C = 4.5V$	11	12	13	V
$V_I$	Pin 1 DC Voltage	$V_C = 4.5V$		5.3		V
$I_D$	Quiescent Drain Current	$V_C = 4.5V$		35		mA
$V_I$	Input Limiting Voltage at Pin 2 (- 3dB)	$V_O = 4V_{RMS}$		50	100	$\mu V$

8191-03.TBL

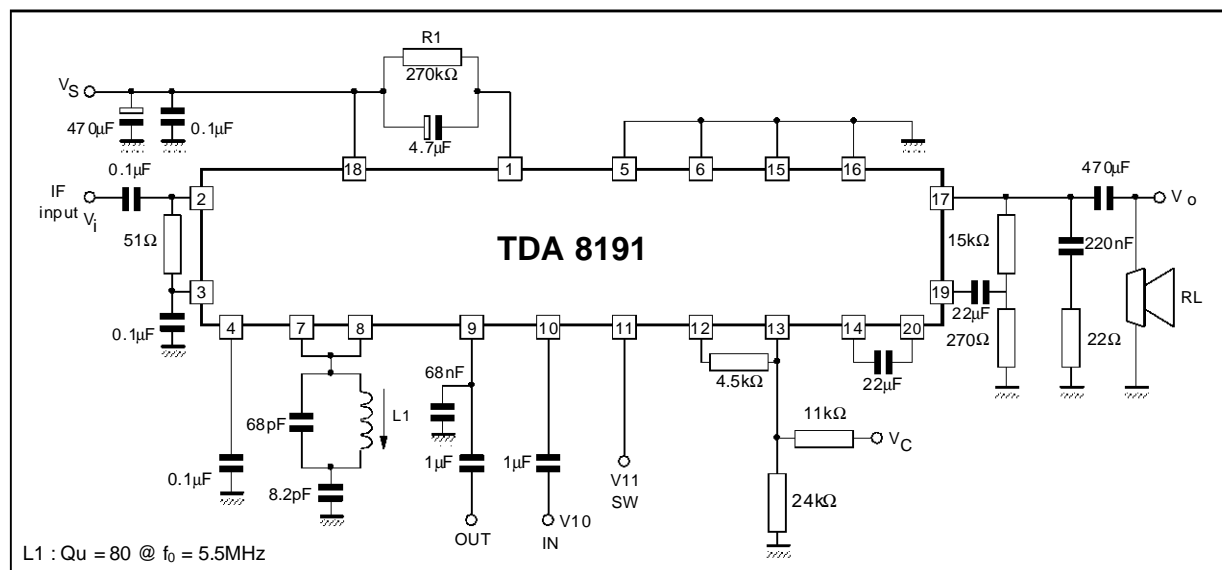
**ELECTRICAL CHARACTERISTICS** (continued)

(Refer to fig. 1 ;  $V_S = 24V$ ,  $R_L = 16\Omega$ , Pin 11 floating,  $\Delta f = \pm 50kHz$ ,  $V_i = 1mV$ ,  $f_o = 5.5MHz$ ,  $f_m = 1kHz$ ,  $T_{amb} = 25^\circ C$  unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_9$	Recovered Audio Voltage (pin 9)	$V_C = 4.5V$ , $\Delta f = \pm 15kHz$	200		400	mV <sub>RMS</sub>
$R_9$	Deemphasis Resistance	$f = 20Hz$ to $20kHz$	500	700	1000	$\Omega$
AMR	Amplitude Modul. Rejection	$m = 0.3$ , $V_O = 4V_{RMS}$	45	60		dB
$R_I$	Input Resistance (pin 2)	$\Delta f = 0$		30		k $\Omega$
$C_I$	Input Capacitance (pin 2)	$\Delta f = 0$ , $V_C = 4.5V$		6		pF
$V_{12}$	DCVC Reference Voltage		5.6		6.2	V
$K_v$	Volume Attenuation	$V_C = 0.5V$ ; Fig. 2 $V_C = 4.5V$ ; Fig. 2	80		1.0	dB dB
$\frac{\Delta K_v}{\Delta T_j}$	Volume Attenuation Thermal Drift	$T_j = 300$ to $380^\circ K$ Fig. 3		- 0.05	-0.1	dB/ $^\circ C$
$P_O$	Output Power (d = 10%)		3.5	4		W
SVR	Supply Voltage Rej. (Pin 17) (Pin 9)	$V_C = 4.5V$ $f_{ripple} = 100Hz$	20 50	26 60		dB dB
$V_{11}$	Function Switch. - Television Broadc. Reproduction  - Peritelevision Reproduction		0 8		2 12	V V
$R_{11}$	Input Resistance		10			k $\Omega$
$V_{10}$	Input Voltage (d $\leq$ 2%)	$V_O = 4V_{RMS}$ ; $V_{11} = 12V$		0.5	2.0	V <sub>RMS</sub>
$R_{10}$	Input Resistance	$f = 20Hz$ to $20kHz$	10			k $\Omega$
CT	Crosstalk between Pins 9, 10		60			dB
$\frac{S+N}{N}$	Signal to Noise Ratio	$\Delta f = 0$ ; $V_O = 4V_{RMS}$	60	70		dB
d	Distortion ( $P_O = 250mV$ )				2	%
$\Delta f$	Deviation Sens.	$V_C = 0.5V$ ; $V_O = 4V_{RMS}$		$\pm 4$	$\pm 10$	kHz

8191-04.TBL

**Figure 1 : Test Circuit**



8191-03.EPS

TYPICAL APPLICATION

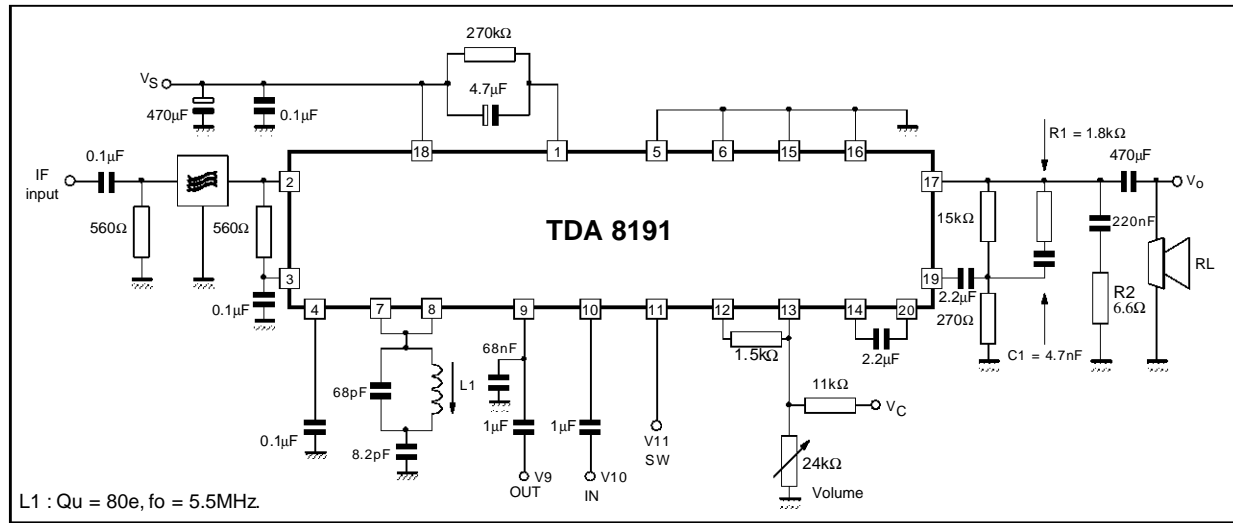


Figure 2 : Volume Attenuation versus DC Volume Control Voltage

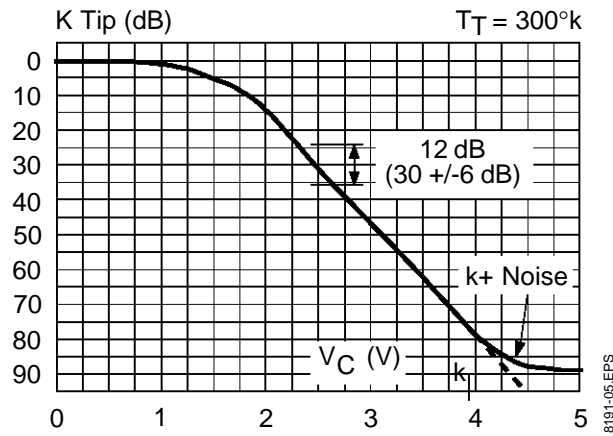


Figure 4 : Relative Audio Output Voltage and Output Noise versus Input Signal

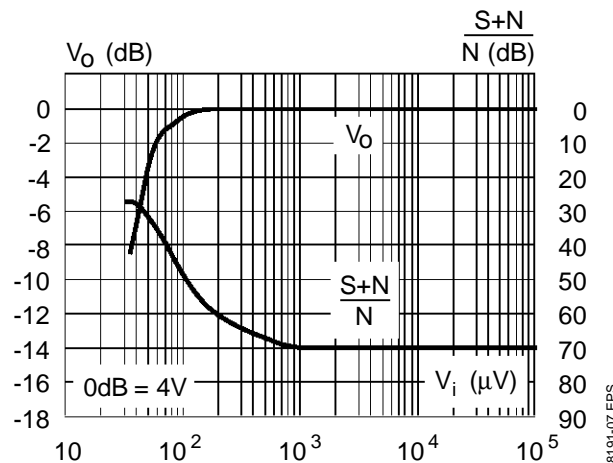


Figure 3 : Volume Attenuation Thermal Drift

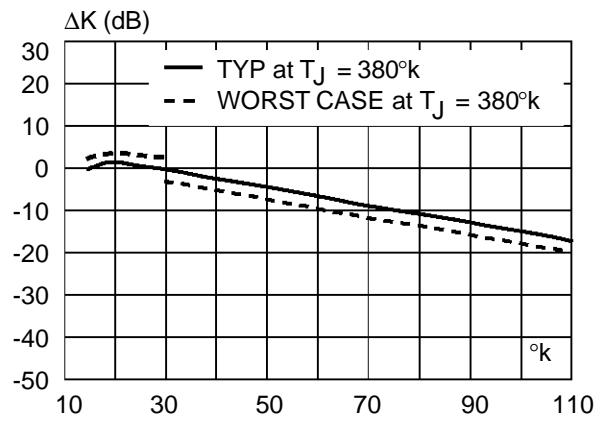
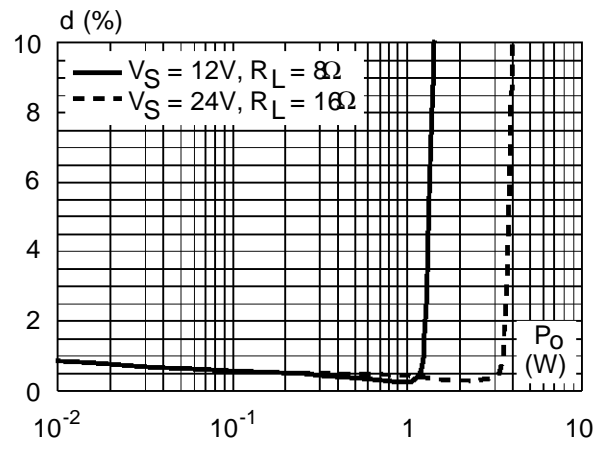
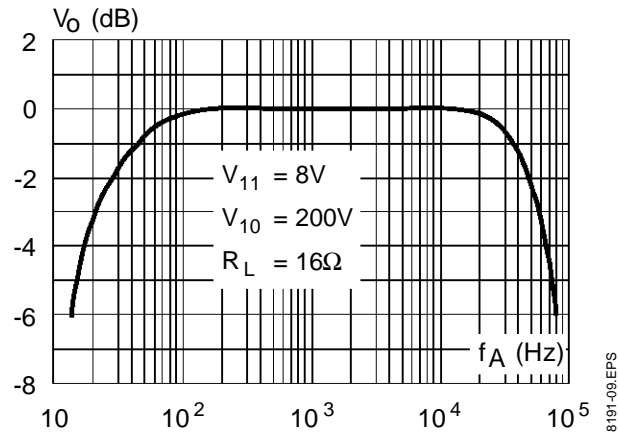


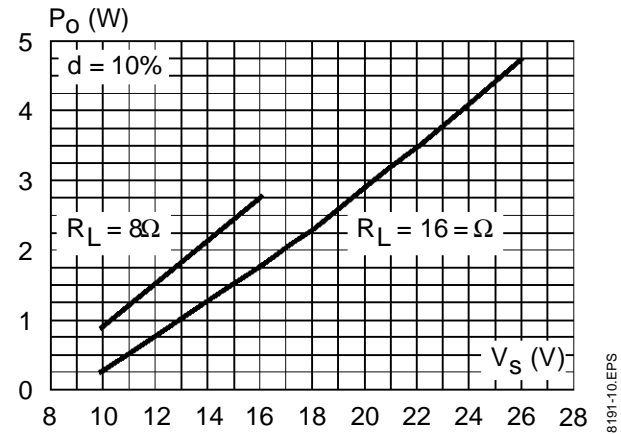
Figure 5 : Distortion versus Output Power



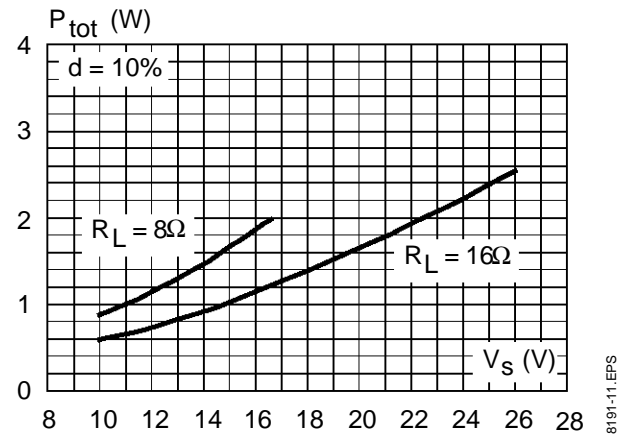
**Figure 6 :** Audio Amplifier Frequency Response



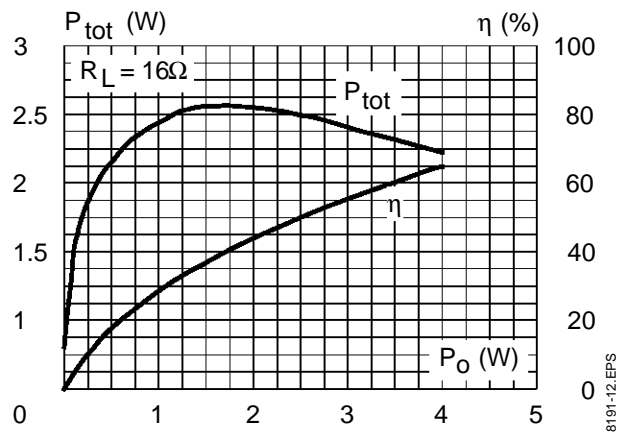
**Figure 7 :** Output Power versus Supply Voltage



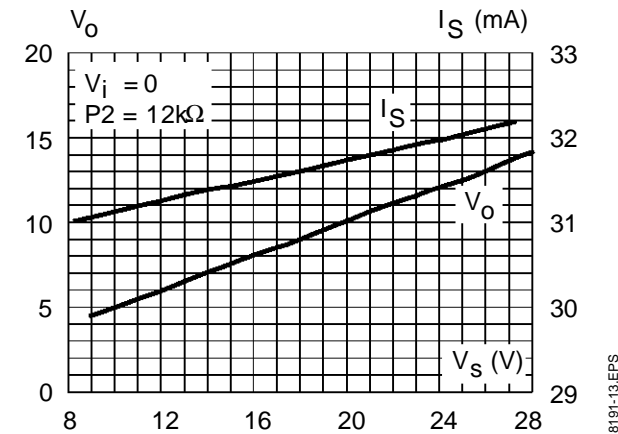
**Figure 8 :** Power Dissipation versus Supply Voltage (sine wave operation)



**Figure 9 :** Power Dissipation and Efficiency versus Output Power



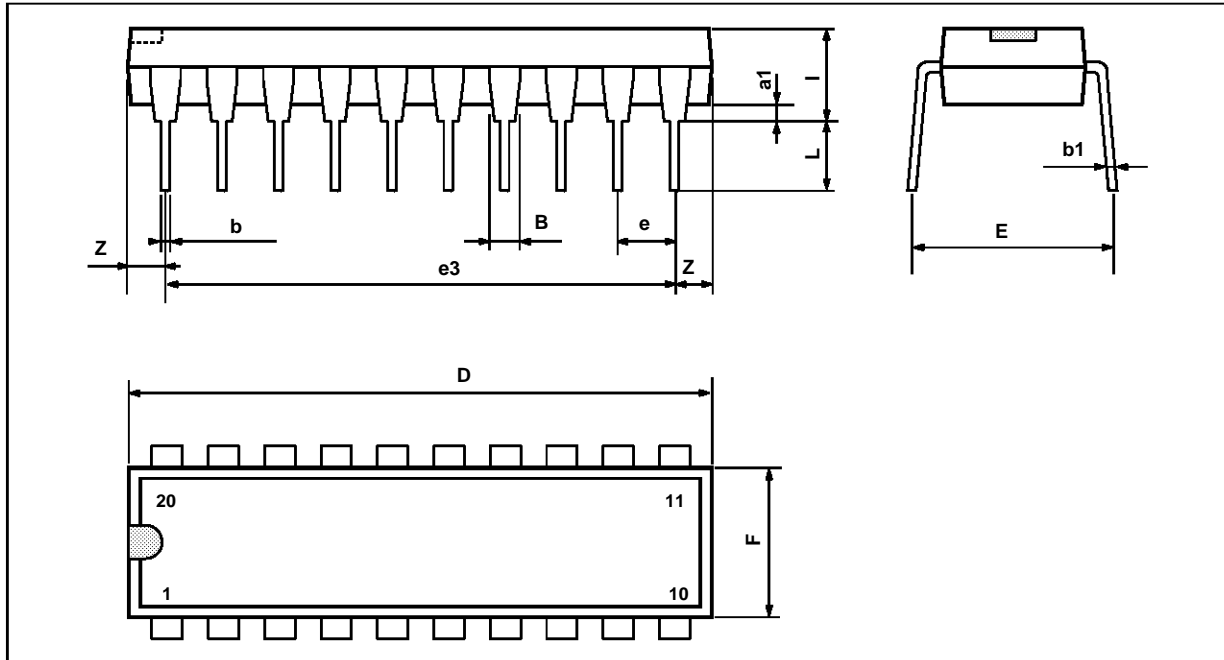
**Figure 10 :** Quiescent Drain and Quiescent Output Voltage versus Supply Voltage



# TDA8191

## 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

Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No licence is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1994 SGS-THOMSON Microelectronics - All Rights Reserved

Purchase of I<sup>2</sup>C Components of SGS-THOMSON Microelectronics, conveys a license under the Philips I<sup>2</sup>C Patent. Rights to use these components in a I<sup>2</sup>C system, is granted provided that the system conforms to the I<sup>2</sup>C Standard Specifications as defined by Philips.

SGS-THOMSON Microelectronics GROUP OF COMPANIES

Australia - Brazil - China - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco  
The Netherlands - Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A.