

8W CAR RADIO AUDIO AMPLIFIER

NOT FOR NEW DESIGN

The TDA2002 is a class B audio power amplifier in Pentawatt® package designed for driving low impedance loads (down to 1.6Ω).

The device provides a high output current capability (up to 3.5A), very low harmonic and cross-over distortion.

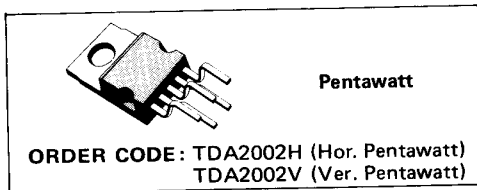
In addition, the device offers the following features:

- very low number of external components
- assembly ease, due to Pentawatt® power package with no electrical insulation requirement
- space and cost saving
- high reliability
- flexibility in use

Protection against:

- a) short circuit;
- b) thermal over range;
- c) fortuitous open ground;
- d) load dump voltage surge.

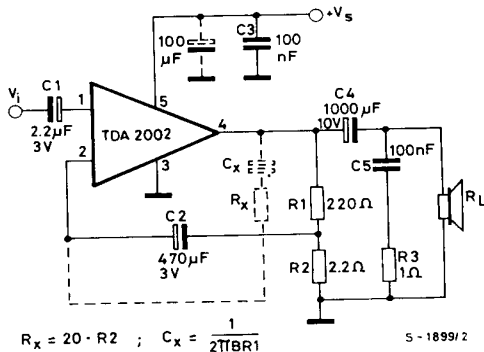
See TDA2003 for more complete information.



ABSOLUTE MAXIMUM RATINGS

V_s	Peak supply voltage (50 ms)	40	V
V_s	DC supply voltage	28	V
V_s	Operating supply voltage	18	V
I_o	Output peak current (repetitive)	3.5	A
I_o	Output peak current (non repetitive)	4.5	A
P_{tot}	Power dissipation at $T_{case} = 90^\circ C$	15	W
T_{stg}, T_j	Storage and junction temperature	-40 to 150	$^\circ C$

Fig. 1 - Application circuit



$$R_x = 20 \cdot R_2 ; C_x = \frac{1}{2T_{BR1}}$$

S-1899/2

ELECTRICAL CHARACTERISTICS ($V_s = 14.4V$, $T_{amb} = 25^\circ C$ unless otherwise specified)

Parameter	Test conditions	Min.	Typ.	Max.	Unit
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DC CHARACTERISTICS (Refer to DC test circuit)

V_s	Supply voltage		8		18	V
V_o	Quiescent output voltage (pin 4)		6.1	6.9	7.7	V
I_d	Quiescent drain current (pin 5)			45	80	mA

AC CHARACTERISTICS (Refer to AC test circuit, $G_v = 40$ dB)

P_o	Output power	$d = 10\%$ $V_s = 16V$	$f = 1$ kHz $R_L = 4\Omega$ $R_L = 2\Omega$ $R_L = 4\Omega$ $R_L = 2\Omega$	4.8 7	5.2 8 6.5 10	W W W W	
$V_{i(rms)}$	Input saturation voltage			300		mV	
V_i	Input sensitivity	$P_o = 0.5W$ $P_o = 0.5W$ $P_o = 5.2W$ $P_o = 8W$	$f = 1$ kHz $R_L = 4\Omega$ $R_L = 2\Omega$ $R_L = 4\Omega$ $R_L = 2\Omega$		15 11 55 50	mV mV mV mV	
B	Frequency response (-3 dB)	$R_L = 4\Omega$	$P_o = 1W$	40 to 15 000		Hz	
d	Distortion		$f = 1$ kHz $P_o = 0.05$ to $3.5W$ $R_L = 4\Omega$ $P_o = 0.05$ to $5W$ $R_L = 2\Omega$		0.2 0.2	% %	
R_i	Input resistance (pin 1)	$f = 1$ kHz		70	150	k Ω	
G_v	Voltage gain (open loop)	$R_L = 4\Omega$	$f = 1$ kHz		80	dB	
G_v	Voltage gain (closed loop)	$R_L = 4\Omega$	$f = 1$ kHz	39.3	40	40.5	dB
e_N	Input noise voltage (*)				4	μV	
i_N	Input noise current (*)				60	pA	
η	Efficiency	$P_o = 5.2W$ $P_o = 8W$	$f = 1$ kHz $R_L = 4\Omega$ $R_L = 2\Omega$		68 58	% %	
SVR	Supply voltage rejection	$R_L = 4\Omega$ $R_g = 10$ k Ω $f_{ripple} = 100$ Hz		30	35	dB	

(*) Filter with noise bandwidth: 22 Hz to 22 KHz.