

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.

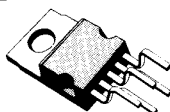
In addition, the device offers the following features:

- 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:

- short circuit;
- thermal over range;
- fortuitous open ground;
- load dump voltage surge.

See TDA2003 for more complete information.



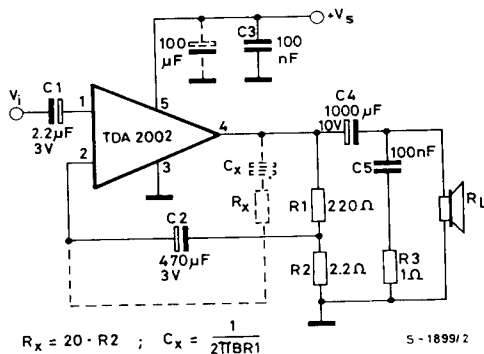
Pentawatt

ORDER CODE: TDA2002H (Hor. Pentawatt)
 TDA2002V (Ver. Pentawatt)

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 $T_{case} = 90^\circ\text{C}$	15	W
T_{stg}, T_j	Storage and junction temperature	-40 to 150	$^\circ\text{C}$

Fig. 1 - Application circuit



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

Parameter	Test conditions	Min.	Typ.	Max.	Unit
-----------	-----------------	------	------	------	------

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 = 4Ω R _L = 2Ω R _L = 4Ω R _L = 2Ω	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 = 4Ω R _L = 2Ω R _L = 4Ω R _L = 2Ω		15 11 55 50	mV mV mV mV	
B	Frequency response (-3 dB)	R _L = 4Ω	P _o = 1W	40 to 15 000		Hz	
d	Distortion	f = 1 kHz P _o = 0.05 to 3.5W R _L = 4Ω P _o = 0.05 to 5W R _L = 2Ω			0.2 0.2	% %	
R _i	Input resistance (pin 1)	f = 1 kHz		70	150	kΩ	
G _V	Voltage gain (open loop)	R _L = 4Ω	f = 1 kHz		80	dB	
G _V	Voltage gain (closed loop)	R _L = 4Ω	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 = 4Ω R _L = 2Ω		68 58	% %	
SVR	Supply voltage rejection	R _L = 4Ω R _g = 10 kΩ f _{ripple} = 100 Hz		30	35	dB	

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