

# **8W CAR RADIO AUDIO AMPLIFIER**

NOT FOR NEW DESIGN

The TDA2002 is a class B audio power amplifier in Pentawatt<sup>®</sup> package designed for driving low impedance loads (down to  $1.6\Omega$ ).

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<sup>®</sup> 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.

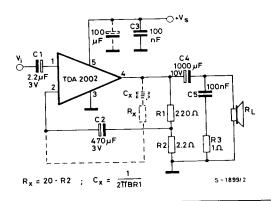
#### See TDA 2003 for more complete information.



### ABSOLUTE MAXIMUM RATINGS

V <sub>s</sub> V <sub>s</sub>	Peak supply voltage (50 ms) DC supply voltage	40 28 18	V V V
$V_s$	Operating supply voltage	3.5	Α
l <sub>o</sub>	Output peak current (repetitive)	4.5	Α
I <sub>o</sub>	Output peak current (non repetitive) Power dissipation at T <sub>case</sub> = 90°C	15	W
P <sub>tot</sub> T <sub>eta</sub> , T <sub>i</sub>	Storage and junction temperature	-40 to 150	°C

Fig. 1 - Application circuit



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

DC CHARACTERISTICS (Refer to DC test circuit)							
Vs	Supply voltage	8		18	V		
Vo	Quiescent output voltage (pin 4)	6.1	6.9	7.7	V		
L L	Quiescent drain current (pin 5)		45	80	mA		

Test conditions

Unit

Max.

Min.

Тур.

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

**Parameter** 

Po	Output power		d = 10%	f = 1 kHz R <sub>L</sub> = 4Ω R <sub>L</sub> = 2Ω	4.8	5,2		Ī.,,
			V <sub>s</sub> = 16V	$R_{L}^{-}=2\Omega$ $R_{L}^{-}=4\Omega$ $R_{L}^{-}=2\Omega$	7	6.5		8 8
				R <sub>L</sub> = 2Ω		10		W
V <sub>i (rms)</sub>	Input saturation voltage				300			mV
Vi	Input sensitivity		P <sub>o</sub> = 0.5W P <sub>o</sub> = 0.5W P <sub>o</sub> = 5.2W P <sub>o</sub> = 8W	f = 1 kHz R <sub>L</sub> = 4Ω R <sub>L</sub> = 2Ω R <sub>L</sub> = 4Ω R <sub>L</sub> = 2Ω		15 11 55 50		m > m > m > m > m >
В	Frequency response (-3 dB)		R <sub>L</sub> = 4Ω	P <sub>o</sub> = 1W	40 to 15 000			Hz
d	Distortion		P <sub>o</sub> = 0.05 to : P <sub>o</sub> = 0.05 to	f = 1  kHz 3.5W $R_{\perp} = 4\Omega$ 5W $R_{\perp} = 2\Omega$		0.2 0.2		% %
Ri	Input resistance (pin 1)		f = 1 kHz		70	150		kΩ
G <sub>V</sub>	Voltage gain (open loop)		R <sub>L</sub> = 4Ω	f = 1 kHz		80		dB
G <sub>V</sub>	Voltage gain (closed loop)		R <sub>L</sub> = 4Ω	f = 1 kHz	39.3	40	40.5	dB
e <sub>N</sub>	Input noise voltage	(*)				4		μV
iN	Input noise current	(*)	]		<u> </u>	60		pA
η	Efficiency		P <sub>o</sub> = 5.2W P <sub>o</sub> = 8W	f = 1 kHz R <sub>L</sub> = 4Ω R <sub>L</sub> = 2Ω		68 58		% %
SVR	Supply voltage rejection		$R_L = 4\Omega$ $R_g = 10 \text{ k}\Omega$ $f_{ripple} = 100 \text{ l}$	Hz	30	35		dB

<sup>(\*)</sup> Filter with noise bandwidth: 22 Hz to 22 KHz.