10W CAR RADIO AUDIO AMPLIFIER HS2003

DESCRIPTION

The HS2003 is a monolithic audio power amplifier ntegrated circuit.
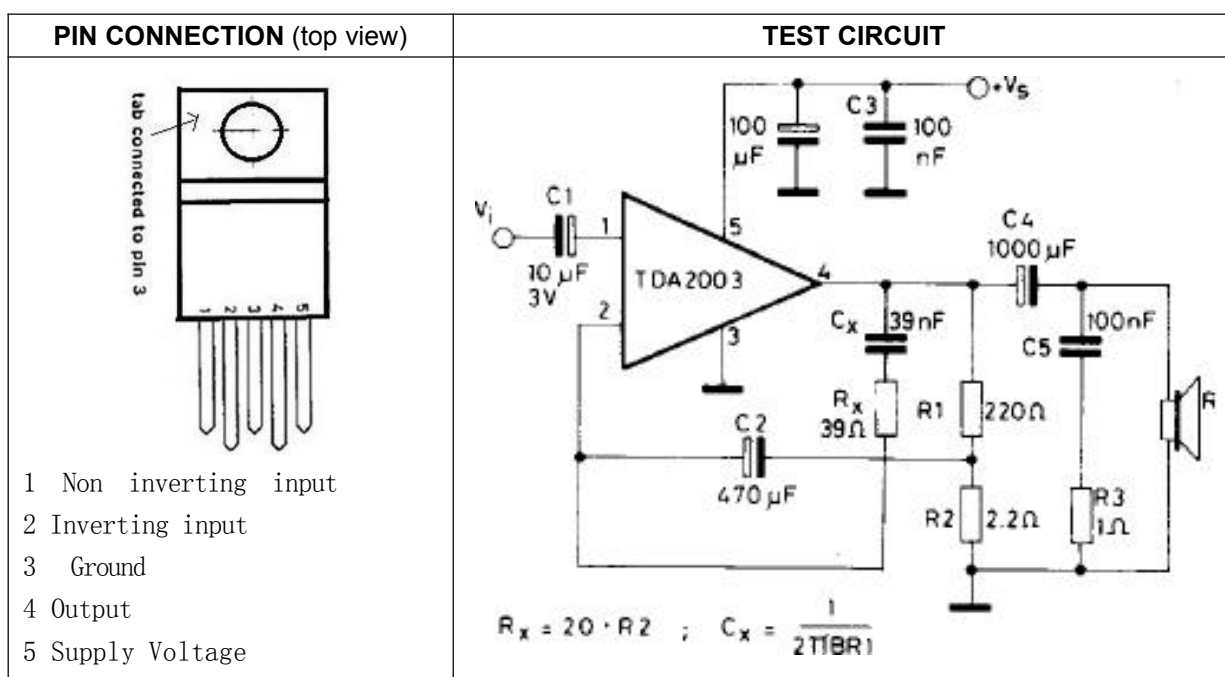
FEATURES

Very low external component required.

High current output (up to 3 A).

Low harmonic and crossover distortion.

Built-in Over temperature protection.

Short circuit protection between all pins.
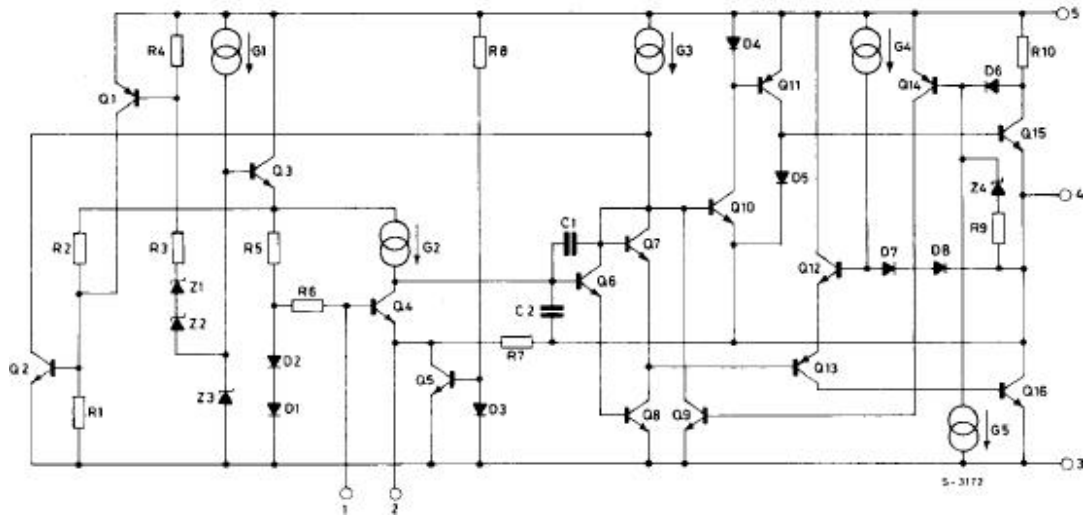
ABSOLUTE MAXIMUM RATINGS (Tamb=25℃)

PARAMETER	SYMBOL	VALUE	UNIT
Peak supply voltage (50ms)	Vs	40	V
DC Supply Voltage	Vs	28	V
Operating supply voltage	Vs	18	V
Output peak current (repetitive)	Io	3.5	A
Output peak current (non repetitive)	Io	4.5	A
Power Dissipation at Tcase=90℃	Ptot	20	W
Storage and junction temeperature	Tstg, Tj	−40～150	℃
Thermal resistance junction-case max	Rth-j-case	3	℃/W

PIN CONNECTION AND TEST CIRCUIT

PIN CONNECTION (top view)	TEST CIRCUIT
 tab connected to pin 3 1 Non inverting input 2 Inverting input 3 Ground 4 Output 5 Supply Voltage	

$$R_x = 20 \cdot R2 \quad ; \quad C_x = \frac{1}{2\pi \beta R1}$$

SCHEMATIC　DIAGRAM

DC TEST CIRCUIT

AC TEST CIRCUIT

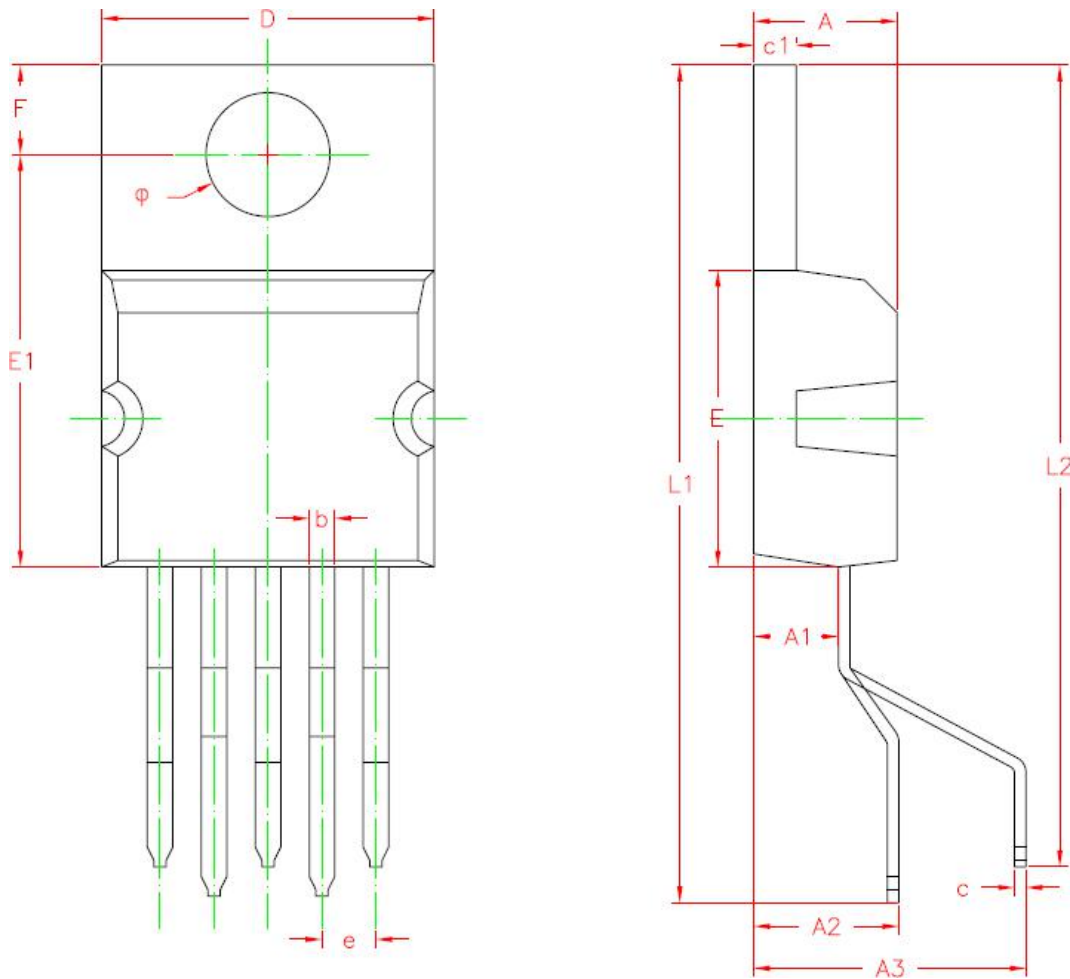$$R_x = 20 \cdot R2 \quad ; \quad C_x = \frac{1}{2\pi BR1}$$

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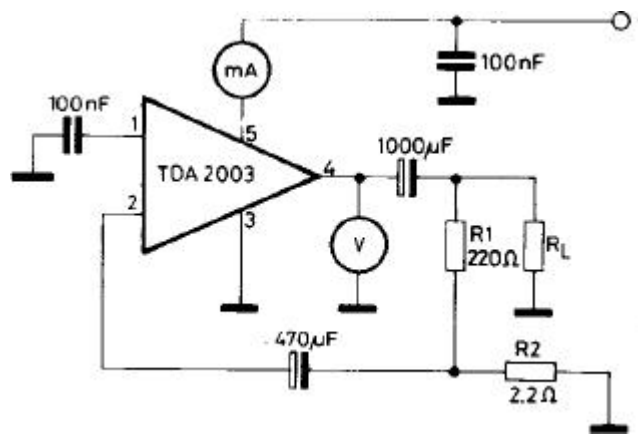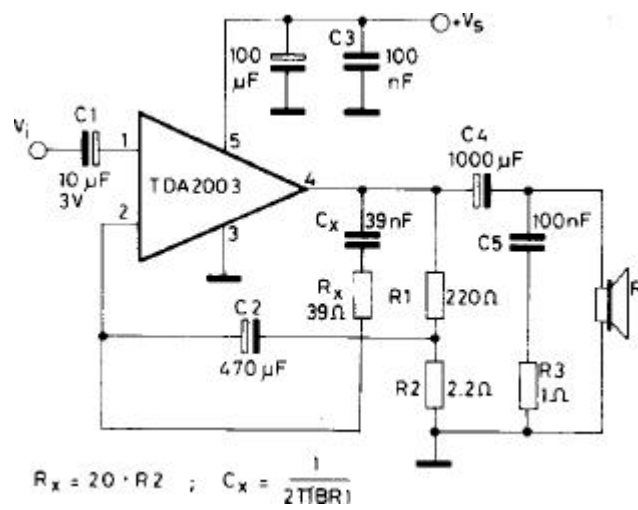
ELECTRICAL CHARACTERISTICS (Vs = 14.4V, Tamb = 25 °C unless otherwise specified)

Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Unit
DC CHARACTERISTICS (Refer to DC test circuit)						
Supply voltage	Vs		8		18	V
Quiescent output voltage (pin 4)	Vo		6.1	6.9	7.7	v
Quiescent drain current (pin 5)	Id			44	50	mA
AC CHARACTERISTICS (Refer to AC test circuit, Gv = 40 dB)						
Output power	Po	d = 10% f = 1 kHz RL = 4 Ω RL = 2 Ω RL = 3.2 Ω RL = 1.6 Ω	5.5 9	6 10 7.5 12		W W W W
Input saturation voltage	Vi(rms)		300			mV
Input sensitivity	Vi	f = 1 kHz Po = 0.5W RL = 4 Ω Po = 6W RL = 4 Ω Po = 0.5W RL = 2 Ω Po = 10W RL = 2 Ω		14 55 10 50		mV mV mV mV
ELECTRICAL CHARACTERISTICS (continued)						
Frequency response (–3 dB)	B	Po = 1W RL = 4 Ω		40 to 15000		Hz
Distortion	d	f = 1 kHz Po = 0.05 to4.5W RL = 4 Ω Po = 0.05 to 7.5W RL = 2 Ω		0.15 0.15		% %
Input resistance (pin 1)	Ri	f = 1 kHz	70	150		k Ω
Voltage gain (open loop)	Gv	f = 1 kHz f = 10 kHz		80 60		db
Voltage gain (closed loop)	Gv	f = 1 kHz RL = 4 Ω	39.3	40	40.3	db
Input noise voltage (0)	eN			1	5	uA
Input noise current (0)	iN			60	200	pA
Efficiency	η	= 1 Hz Po = 6W RL = 4 Ω Po = 10W RL = 2 Ω		69 65		% %
Supply voltage rejection	SVR	f = 100 Hz Vripple = 0.5V Rg = 10 k Ω RL = 4 Ω	30	36		db

PACKAGE

尺寸符号	数值（单位：mm）	
	最小值	最大值
A	4.30	4.50
A1	2.40	2.60
A2	4.60	4.90
A3	8.30	8.70
b	0.70	0.90
c	0.30	0.45
c1	1.20	1.40
D	10.05	10.35
E	8.90	9.30
E1	12.45	12.85
e	1.60	1.80
F	2.60	2.85
L1	25.30	25.70
L2	24.40	24.80
Φ	3.80	3.90