

10W CAR RADIO AUDIO AMPLIFIER TDA2003

DESCRIPTION

The TDA2003 is a monolithic audio power amplifier integrated circuit.

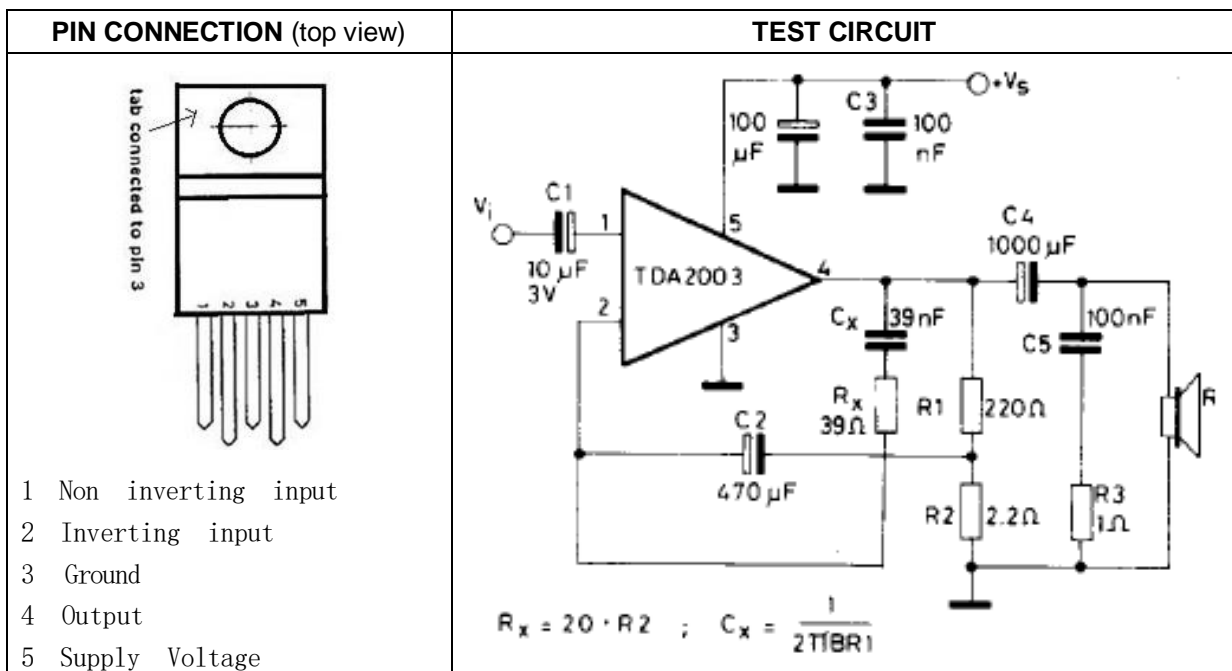
FEATURES

- 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.

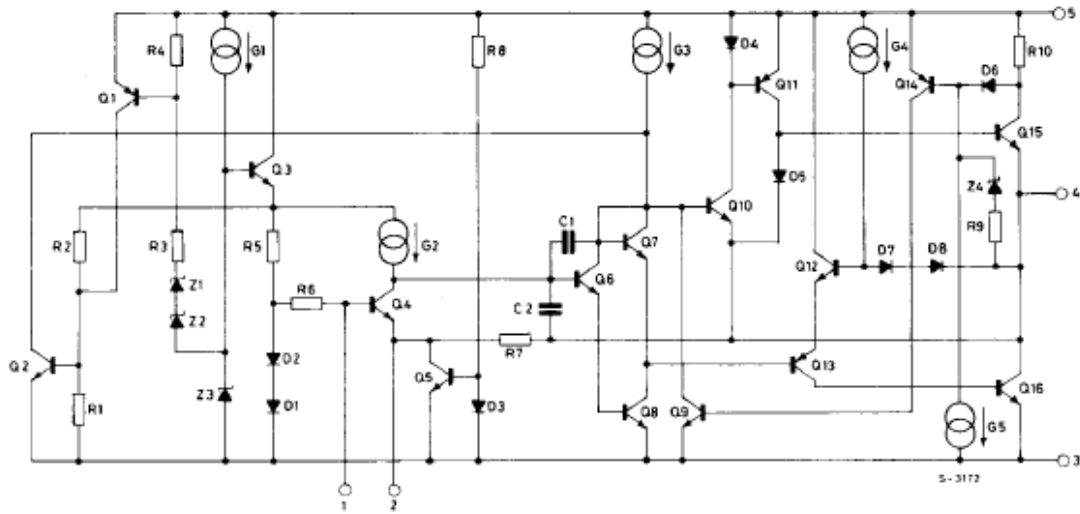
ABSOLUTE MAXIMUM RATINGS (Tamb=25°C)

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°C	Ptot	20	W
Storage and junction temperature	Tstg, Tj	-40~150	°C
Thermal resistance junction-case max	Rth-j-case	3	°C/W

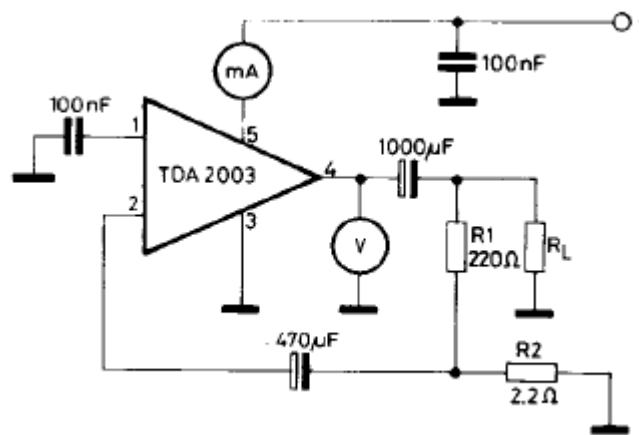
PIN CONNECTION AND TEST CIRCUIT TDA2003 TO220-5



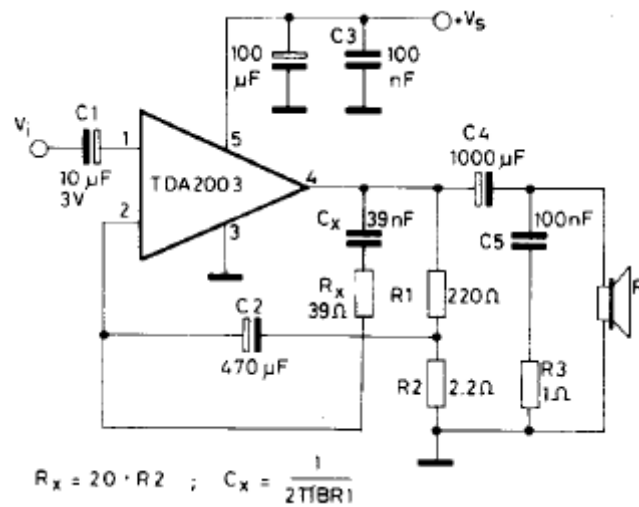
SCHEMATIC DIAGRAM



DC TEST CIRCUIT



AC TEST CIRCUIT

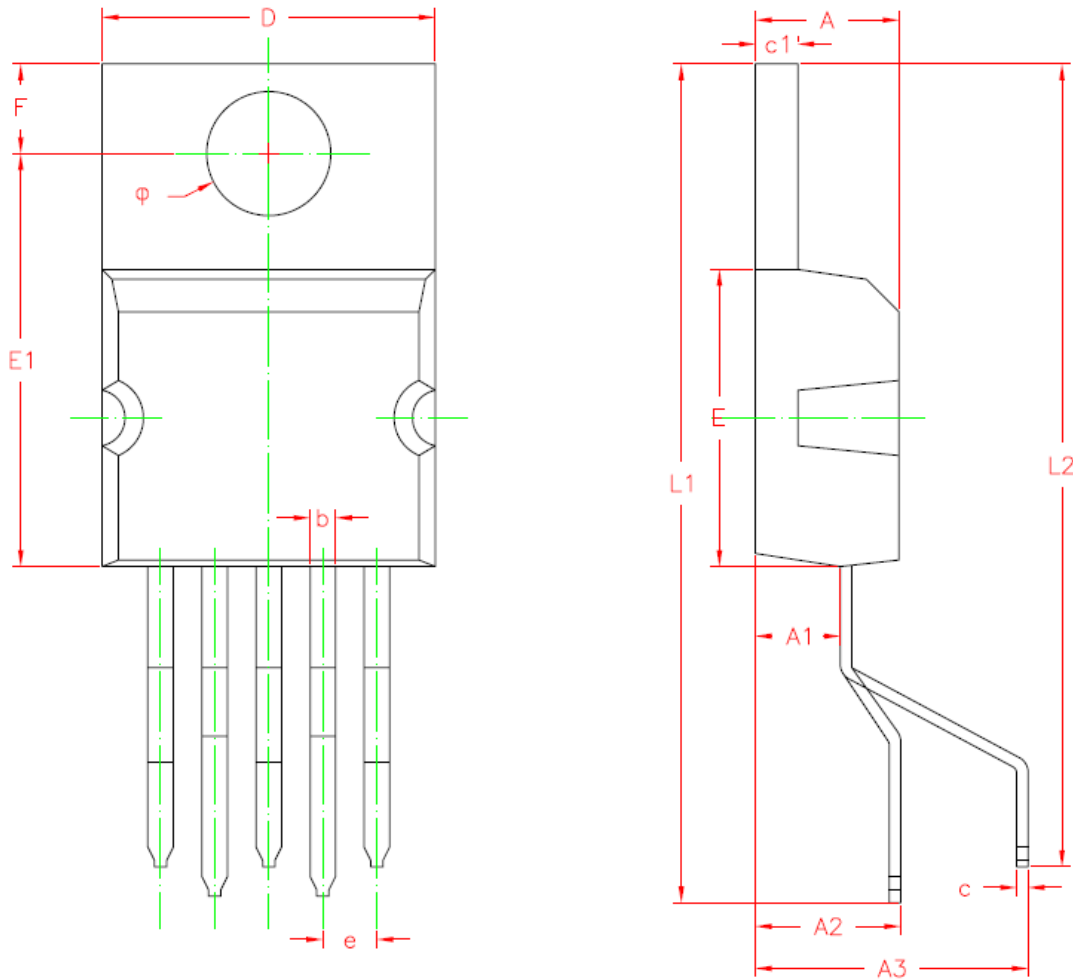


$$R_x = 20 \cdot R_2 ; C_x = \frac{1}{2\pi f R_1}$$

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

Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Unit					
DC CHARACTERISTICS (Refer to DC test circuit)											
Supply voltage	V_s		8		18	V					
Quiescent output voltage (pin 4)	V_o		6.1	6.9	7.7	v					
Quiescent drain current (pin 5)	I_d			44	50	mA					
AC CHARACTERISTICS (Refer to AC test circuit, $G_v = 40$ dB)											
Output power	P_o	$d = 10\%$	5.5	6		W					
		$f = 1$ kHz $R_L = 4\ \Omega$					9	10	W		
		$R_L = 2\ \Omega$								7.5	W
		$R_L = 3.2\ \Omega$									
$R_L = 1.6\ \Omega$											
Input saturation voltage	$V_i(\text{rms})$		300			mV					
Input sensitivity	V_i	$f = 1$ kHz		14		mV					
		$P_o = 0.5W$ $R_L = 4\ \Omega$					55	mV			
		$P_o = 6W$ $R_L = 4\ \Omega$							10	mV	
		$P_o = 0.5W$ $R_L = 2\ \Omega$									50
$P_o = 10W$ $R_L = 2\ \Omega$											
ELECTRICAL CHARACTERISTICS (continued)											
Frequency response (-3 dB)	B	$P_o = 1W$ $R_L = 4\ \Omega$	40 to 15000			Hz					
Distortion	d	$f = 1$ kHz		0.15		%					
		$P_o = 0.05$ to $4.5W$ $R_L = 4\ \Omega$					0.15	%			
		$P_o = 0.05$ to $7.5W$ $R_L = 2\ \Omega$									
Input resistance (pin 1)	R_i	$f = 1$ kHz	70	150		k Ω					
Voltage gain (open loop)	G_v	$f = 1$ kHz $f = 10$ kHz		80 60		db					
Voltage gain (closed loop)	G_v	$f = 1$ kHz $R_L = 4\ \Omega$	39.3	40	40.3	db					
Input noise voltage (0)	eN			1	5	μA					
Input noise current (0)	iN			60	200	pA					
Efficiency	η	$f = 1$ Hz		69		%					
		$P_o = 6W$ $R_L = 4\ \Omega$ $P_o = 10W$ $R_L = 2\ \Omega$					65	%			
Supply voltage rejection	SVR	$f = 100$ Hz $V_{\text{ripple}} = 0.5V$ $R_g = 10$ k Ω $R_L = 4\ \Omega$	30	36		db					

PACKAGE TO220-5



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

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