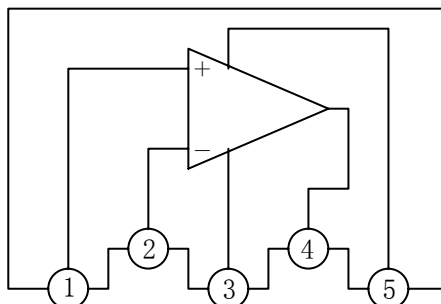


10W AUDIO AMPLIFIER—TDA2003

DESCRIPTION

The TDA2003 has very low number of external components, ease of assembly, space and cost saving, are maintained. The device provides a high output current capability (up to 3.5A) very low harmonic and cross- over distortion. Completely safe operation is guaranteed due to protection against DC and AC short circuit between all pins and ground, thermal over-range, load dump voltage surge up to 40V and fortuitous open ground.

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS (Tamb=25℃)

PARAMETER	SYMBOL	VALUE	UNIT
Peak Supply Voltage(50ms)	Vccp	40	V
DC Supply Voltage	Vcc	28	V
Operating Supply Voltage	Vcc	18	V
Output Peak Current(repetitive)	Io	3.5	A
Output Peak Current (non repetitive)	Io	4.5	A
Power Dissipation at Tc=90℃	P _D	20	W
Ambient operating temperature	Topr	-20~+75	℃
Storage And Junction Temperature	Tstg	-40~+150	℃

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ELECTRICAL CHARACTERISTICS

(Tamb=25°C, V=16.5V, f=1kHz, Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	NIN	TYP	MAX	UNIT
Supply Voltage	Vcc		8		18	V
Quiescent Output Voltage	Vo		6.1	6.9	7.7	V
Quiescent Drain Current	Iccq			44	50	mA
Output Power	Po	THD=10%, $R_L=4\Omega$	5.5	6		W
		THD=10%, $R_L=2\Omega$	9	10		
		THD=10%, $R_L=3.2\Omega$		7.5		
		THD=10%, $R_L=1.6\Omega$		12		
Input Saturation Voltage	Vim			300		mV
Input Sensitivity	Vi	Po=0.5W, $R_L=4\Omega$		14		mV
		Po=6W, $R_L=4\Omega$		55		
		Po=0.5W, $R_L=2\Omega$		10		
		Po=10W, $R_L=2\Omega$		50		
Frequency Response	BW	Po=1W, $R_L=4\Omega$	40 to 15000			Hz
Distortion	THD	Po=0.05~4.5W, $R_L=4\Omega$		0.15		%
		Po=0.05~7.5W, $R_L=2\Omega$		0.15		%
Input Resistance (pin 1)	Zi	f=1kHz	70	150		K Ω
Input Noise Current	I _{NI}			60	200	pA
Input Noise Voltage	V _{NI}			1	5	μ V
Voltage Gain (Open Loop)	Gvo	f=1kHz		80		dB
		f=10kHz		60		dB
Voltage Gain (closed Loop)	Gv	$R_L=4\Omega$	39.3	40	40.3	dB
Efficiency	η	Po=6W, $R_L=4\Omega$		69		%
		Po=10W, $R_L=2\Omega$		65		%
Supply Voltage Rejection	SVR	f=100Hz, Vr=0.5V $R_g=10k\Omega$, $R_L=4\Omega$	30	36		dB

The circuit diagram shows an op-amp configured as a voltage follower. The input signal V_{in} is connected to the non-inverting input (+) through a $10\ \mu$ capacitor (labeled 1). The inverting input (-) is connected to the output (labeled 4) through a feedback network consisting of a $220\ \Omega$ resistor, a $2.2\ \Omega$ resistor, and a $0.1\ \mu$ capacitor in parallel. Additionally, there is a $470\ \mu$ capacitor and a $0.039\ \mu$ capacitor connected to the inverting input. The op-amp is powered by V_{cc} and ground. Other components include a $1000\ \mu$ capacitor and a $0.1\ \mu$ capacitor connected to the non-inverting input, and a $39\ \Omega$ resistor connected to the output.

Inches / millimeters

