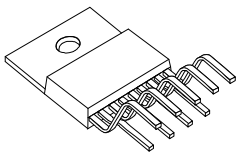
TDA22003

LINEAR INTEGRATED CIRCUIT

10 +10W STEREO AMPLIFIER



TO-220Z9

■ DESCRIPTION

The UTC **TDA22003** is a class AB stereo audio power amplifier that contains two identical amplifiers capable of delivering 10W per channel. It is designed for quality Hi-Fi stereo applications and is easily constructed and with minimum need of external components.

■ FEATURES

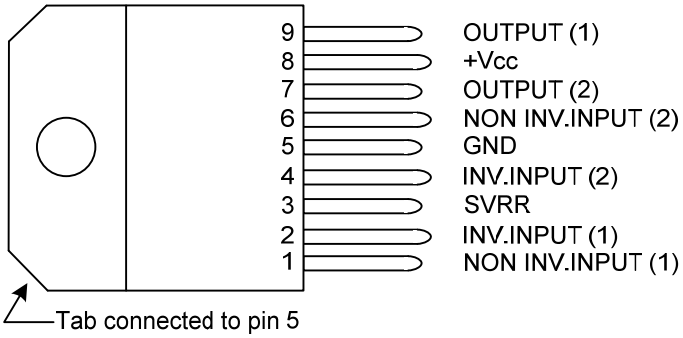
* Supply range 8V ~ 28V
* High power outputs (10W/Channel)
* High output current up to 3.5A
* Short circuit protection
* Thermal protection

■ ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
TDA22003L-TB9-T	TDA22003G-TB9-T	TO-220Z9	Tube

TDA22003L-TB9-T (1)Packing Type (2)Package Type (3)Lead Plating	(1) T: Tube (2) TB9: TO-220Z9 (3) G: Halogen Free, L: Lead Free

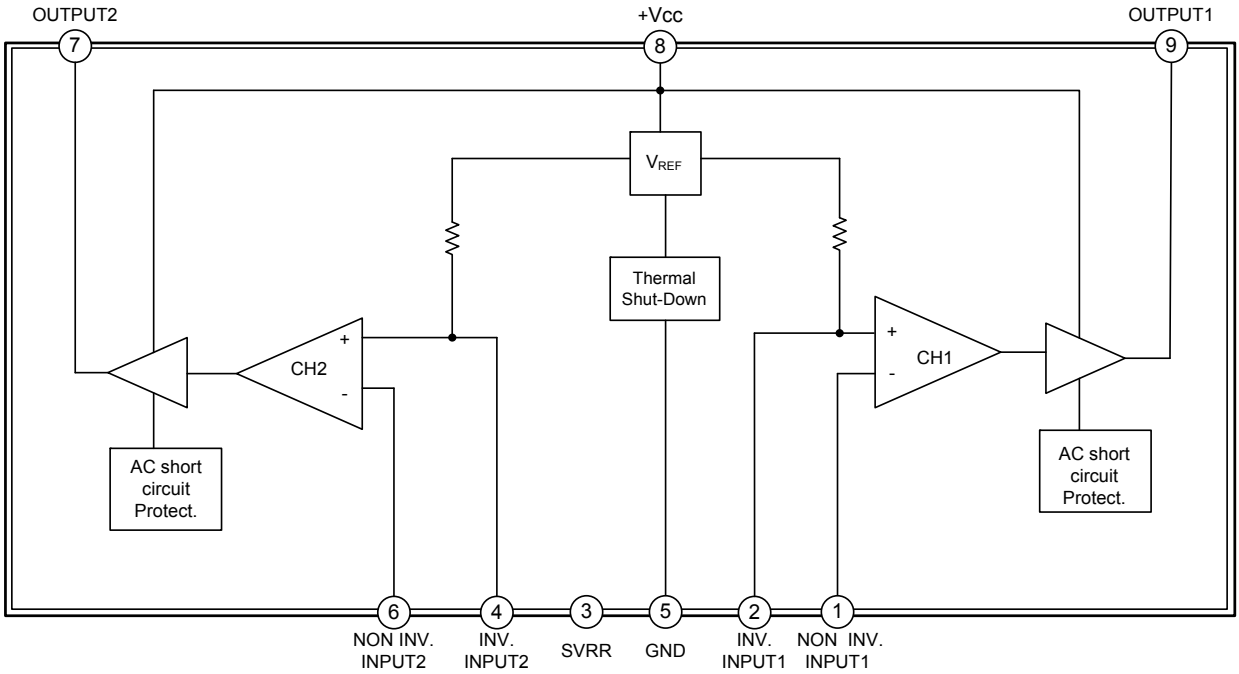
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	NON INV.INPUT1	Non-inverting input1
2	INV.INPUT1	Inverting input1
3	SVRR	Internal 1/2 V_{CC} supply rejection
4	INV.INPUT2	Inverting input2
5	GND	Ground
6	NON INV.INPUT2	Non-inverting input2
7	OUTPUT2	Output2
8	$+V_{CC}$	Supply voltage
9	OUTPUT1	Output1

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		V_{CC}	28	V
Peak Output Current	repetitive, f ≥20Hz	$I_{O(PEAK)}$	3.5	A
	non repetitive, tp=100μs		4.5	A
Power Dissipation (T_C = 90°C)		P_D	20	W
Junction Temperature		T_J	+150	°C
Storage Temperature		T_{STG}	-40 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

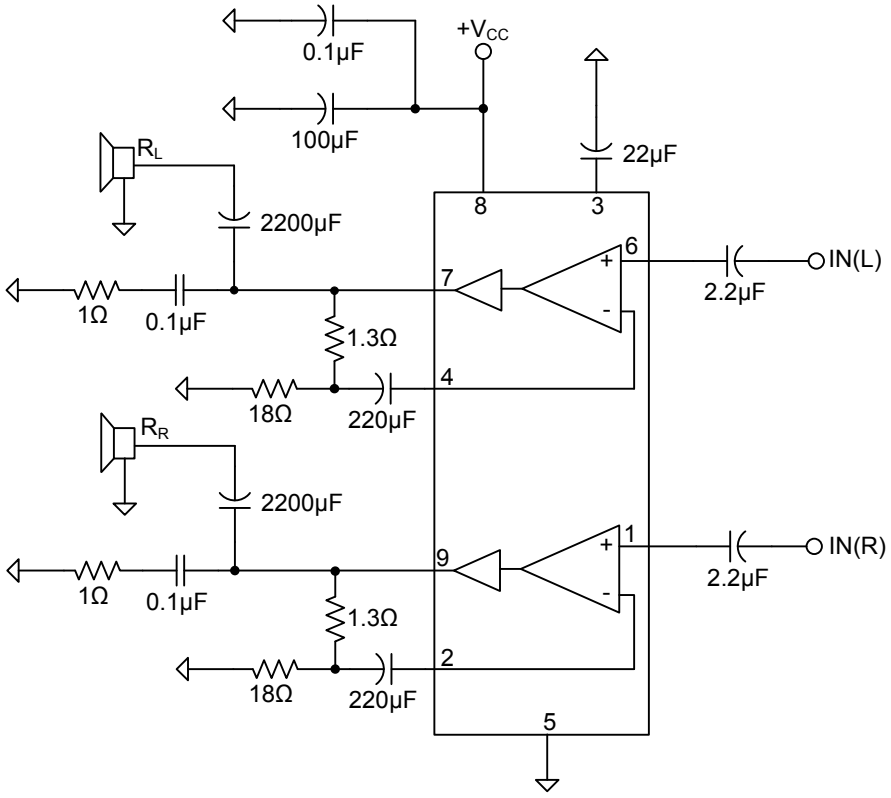
PARAMETER	SYMBOL	RATING	UNIT
Junction to Case	θ_{JC}	3	°C/W

■ ELECTRICAL CHARACTERISTICS

(Refer to test circuit, Ta= 25°C, V_{CC} = 24V, G_V = 36dB, unless otherwise specified)

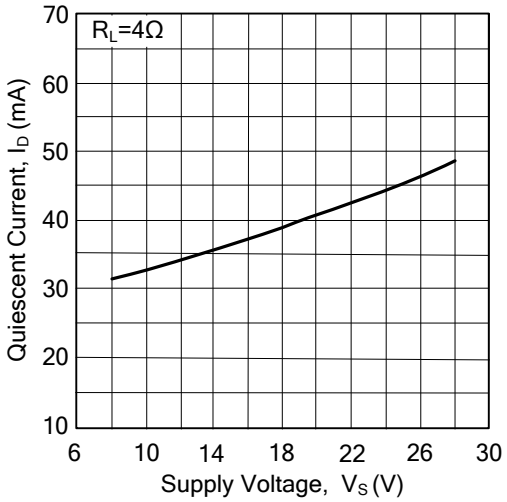
PARAMETER		SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Supply Voltage		V_{CC}			8		28	V
Quiescent Output Voltage		V_{OUT}	V_{CC} = 24V			11.5		V
Input Saturation Voltage (rms)		$V_{IN(SAT)}$			300			mV
Total Input Noise Voltage		e_N	R_g = 10KΩ, 22Hz~22KHz			2.5	8	μV
Total Quiescent Drain Current		I_Q	V_{CC} = 24V			60	120	mA
Output Power for each channel	RL=4Ω	P_{OUT}	THD=1%,V_{CC}=24V, f=1kHz			12.5		W
	RL=8Ω					7		W
	RL=4Ω		f = 40Hz ~12.5kHz		10			W
	RL=8Ω				5			W
	RL=4Ω		V_{CC} = 18V, f = 1kHz			7		W
	RL=8Ω					4		W
Total Harmonic Distortion for each channel	RL=4Ω	THD	V_{CC}=24V, f = 1kHz	P_{OUT} = 0.1~7.0W		0.2		%
	RL=8Ω			P_{OUT} = 0.1~3.5W		0.1		%
	RL=4Ω		V_{CC}=18V	P_{OUT} = 0.1~5.0W		0.2		%
	RL=8Ω			P_{OUT} = 0.1~2.5W		0.1		%
Input Resistance		R_{IN}	f = 1kHz, Non-Inverting Input		70	200		kΩ
Frequency Roll off (-3dB)	Low	f_L	R_L =4Ω			20		Hz
	High	f_H	R_L =4Ω			80		kHz
Closed Loop Voltage Gain		Gv	f = 1kHz		35.5	36	36.5	dB
Closed Loop Gain Matching		ΔGv				0.5		dB
Cross Talk	f = 1kHz	CT	R_L = ∞, Rg = 10KΩ			60		dB
	f = 10kHz					50		
Supply Voltage Rejection for each channel		SVR	f_{RIPPLE} =100Hz, V_{RIPPLE} =0.5V, R_g =10kΩ			55		dB
Thermal Shut-Down Junction Temp.						145		°C

■ TEST AND APPLICATION CIRCUIT (G_V = 36dB)

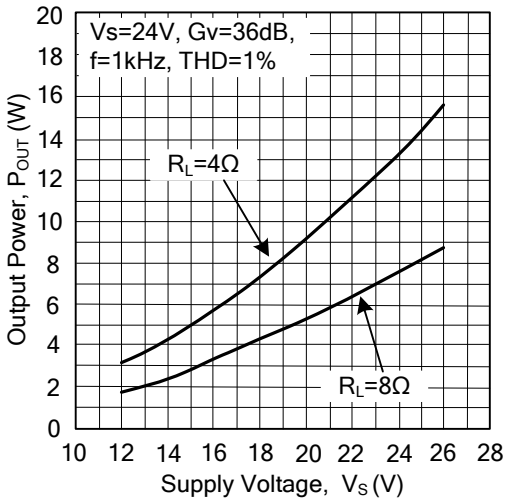


■ TYPICAL CHARACTERISTICS

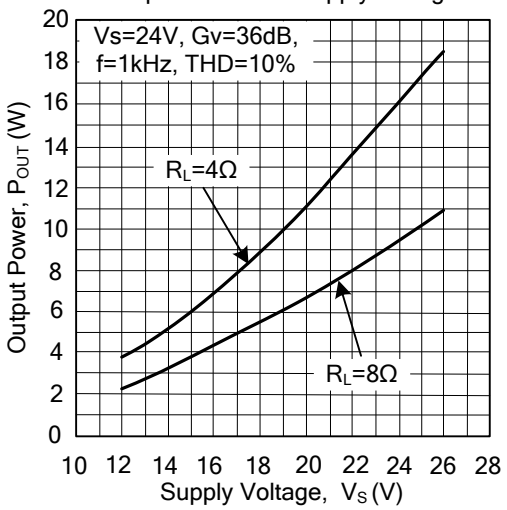
Quiescent Current vs. Supply Voltage



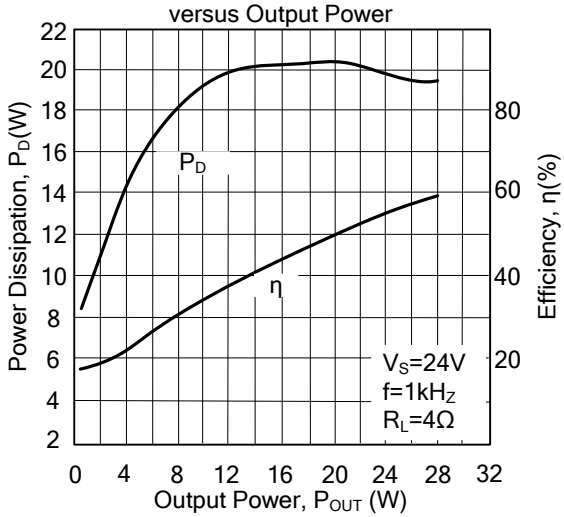
Output Power vs. Supply Voltage



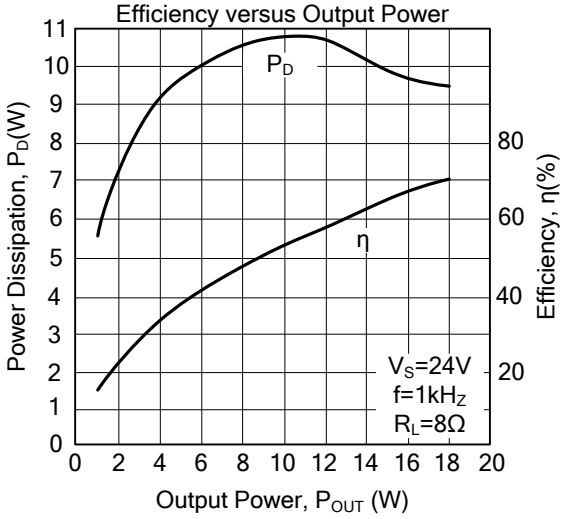
Output Power vs. Supply Voltage



Total Power Dissipation and Efficiency versus Output Power



Total Power Dissipation and Efficiency versus Output Power



Distortion vs. Output Power