



TDA22003

LINEAR INTEGRATED CIRCUIT

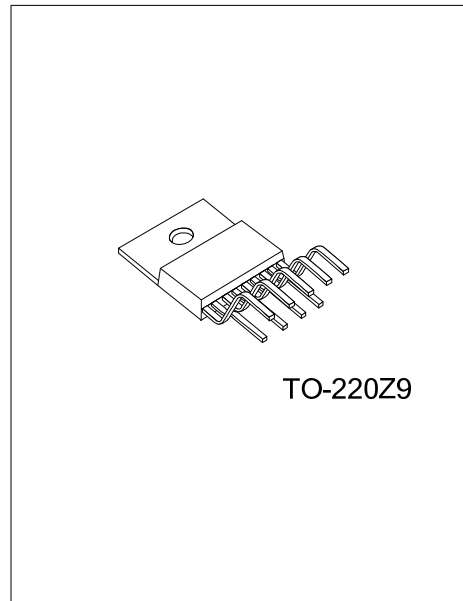
10 +10W STEREO AMPLIFIER

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

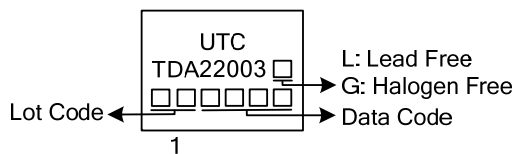


ORDERING INFORMATION

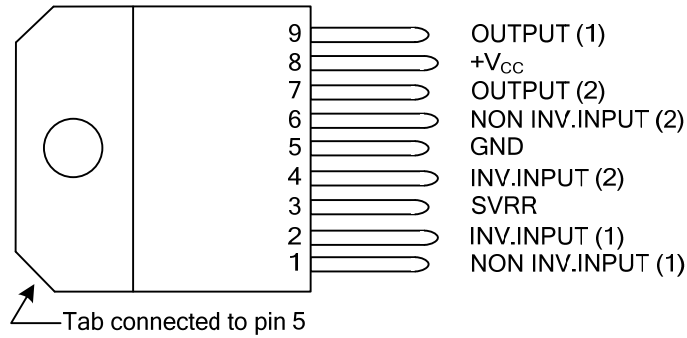
Ordering Number		Package	Packing
Lead Free	Halogen Free		
TDA22003L-TB9-T	TDA22003G-TB9-T	TO-220Z9	Tube

<p>TDA22003L-TB9-T</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p>	<p>(1) T: Tube</p> <p>(2) TB9: TO-220Z9</p> <p>(3) L: Lead Free, G: Halogen Free and Lead Free</p>
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MARKING



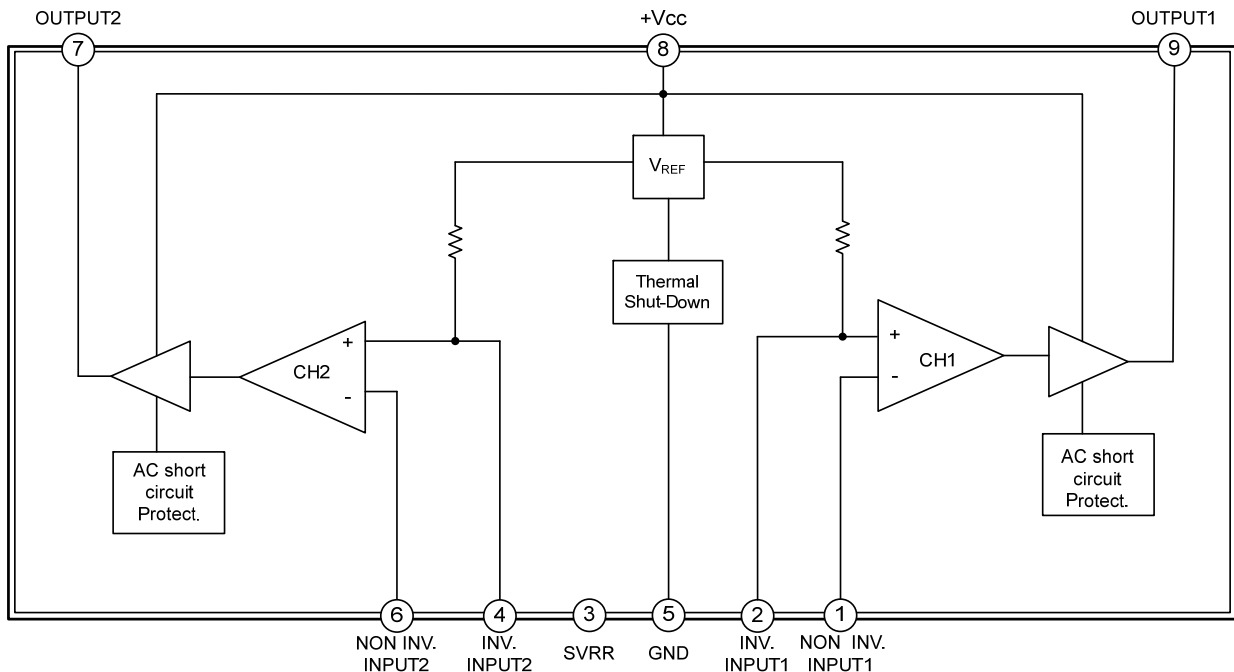
PIN CONFIGURATION



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, $f \geq 20\text{Hz}$	$I_{O(PEAK)}$	3.5	A
	non repetitive, $t_p=100\mu\text{s}$		4.5	A
Power Dissipation ($T_C = 90^\circ\text{C}$)		P_D	20	W
Junction Temperature		T_J	+150	$^\circ\text{C}$
Storage Temperature		T_{STG}	-40 ~ +150	$^\circ\text{C}$

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

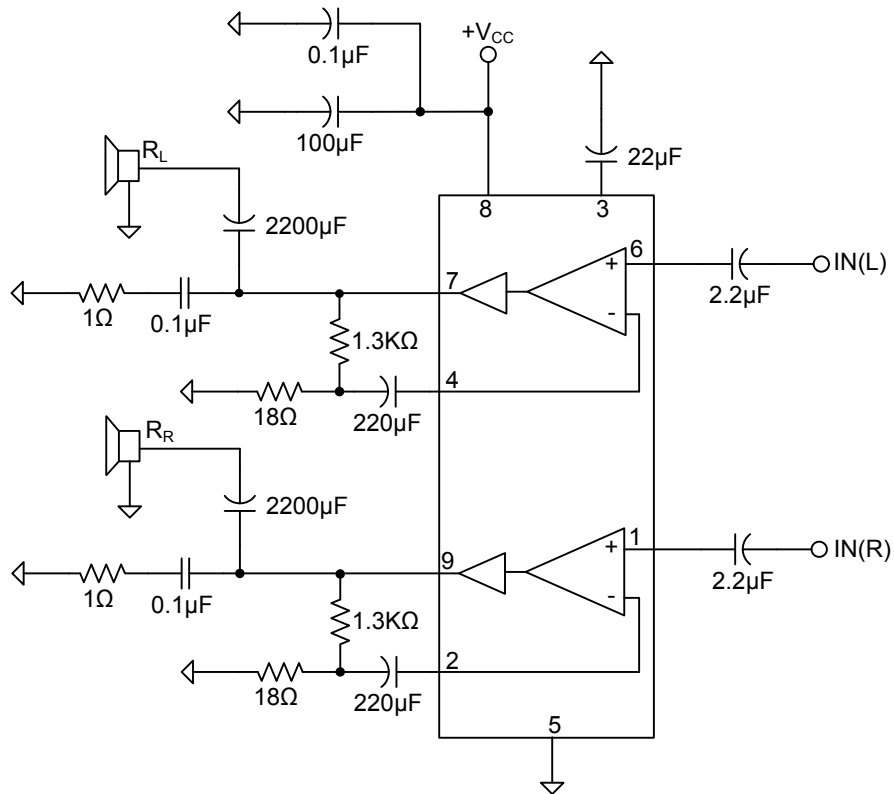
PARAMETER	SYMBOL	RATING	UNIT
Junction to Case	θ_{JC}	3	$^\circ\text{C/W}$

■ ELECTRICAL CHARACTERISTICS

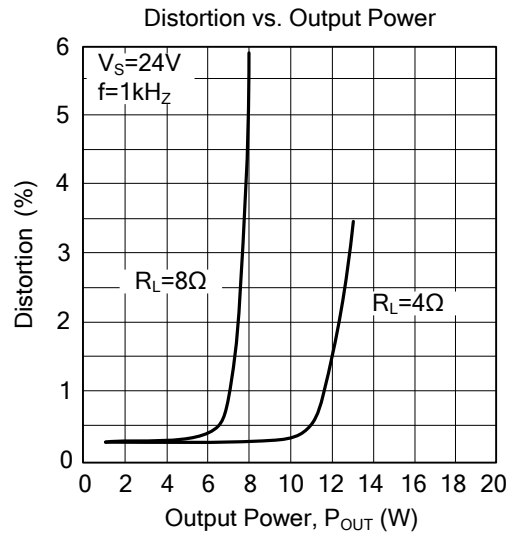
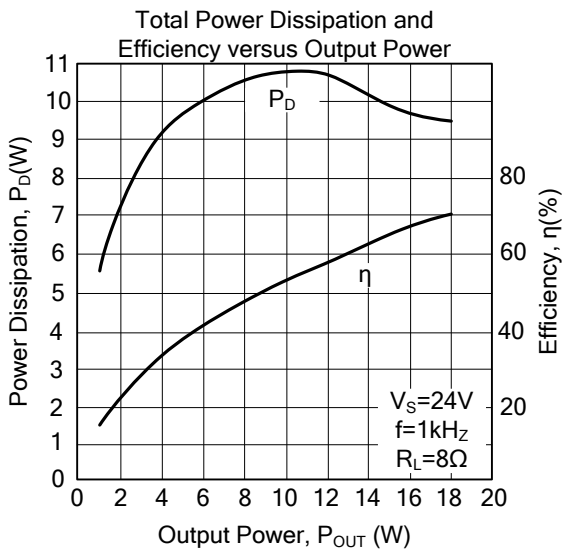
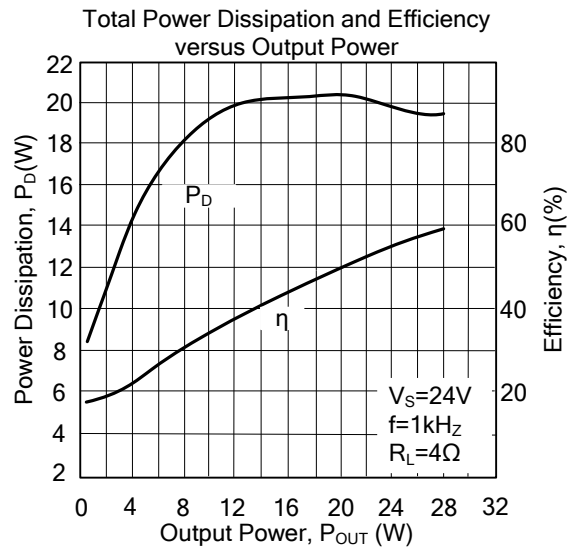
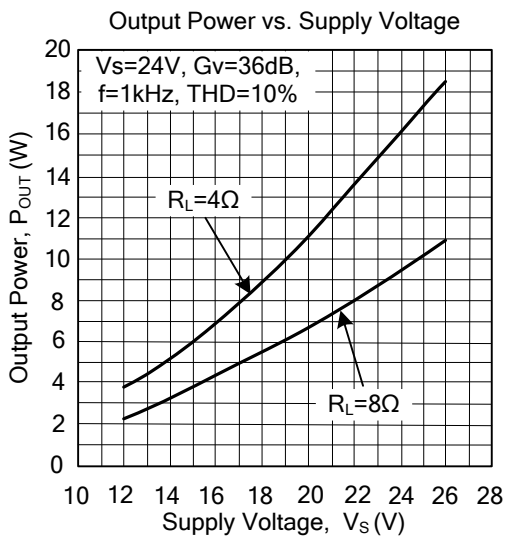
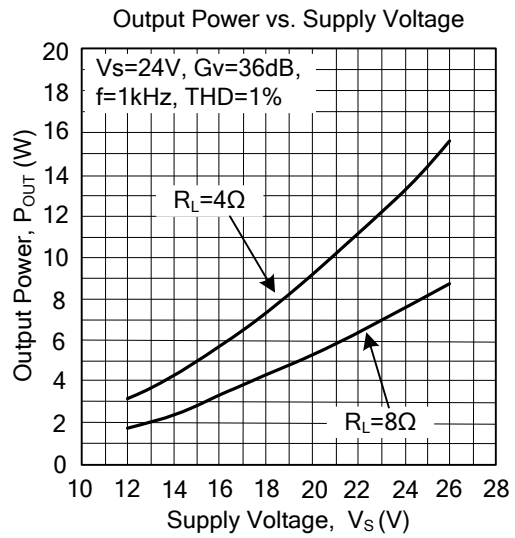
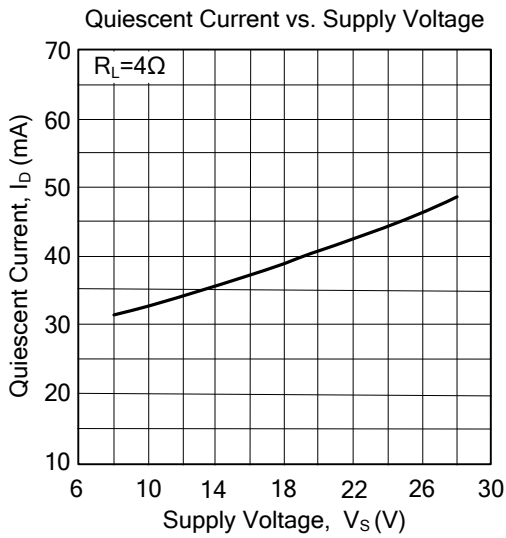
(Refer to test circuit, $T_A = 25^\circ\text{C}$, $V_{CC} = 24\text{V}$, $G_V = 36\text{dB}$, unless otherwise specified)

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

■ TEST AND APPLICATION CIRCUIT ($G_v = 36\text{dB}$)



TYPICAL CHARACTERISTICS



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