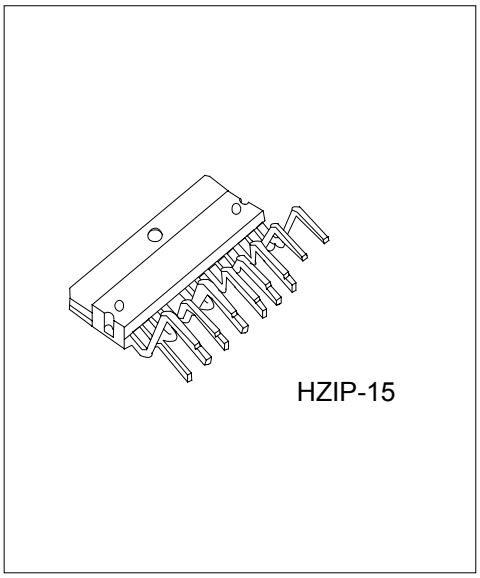
5W+5W AMPLIFIER WITH DC VOLUME CONTROL



*Pb-free plating product number: TDA8496L

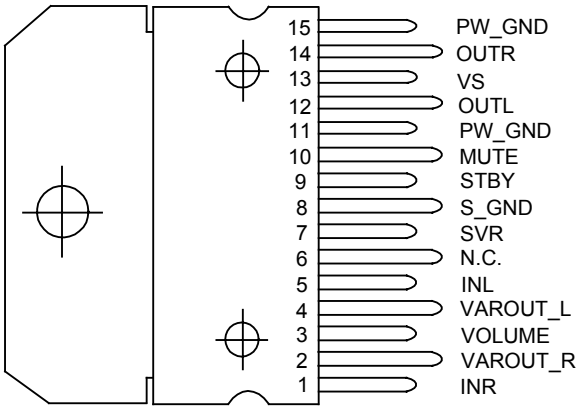
DESCRIPTION

The UTC **TDA8496** is a stereo 5+5W class AB power amplifier with mute and dc volume control,assembled in the HZIP-15 package. It is designed for high quality sound, LCD TV or LCD Monitor applications.

FEATURES

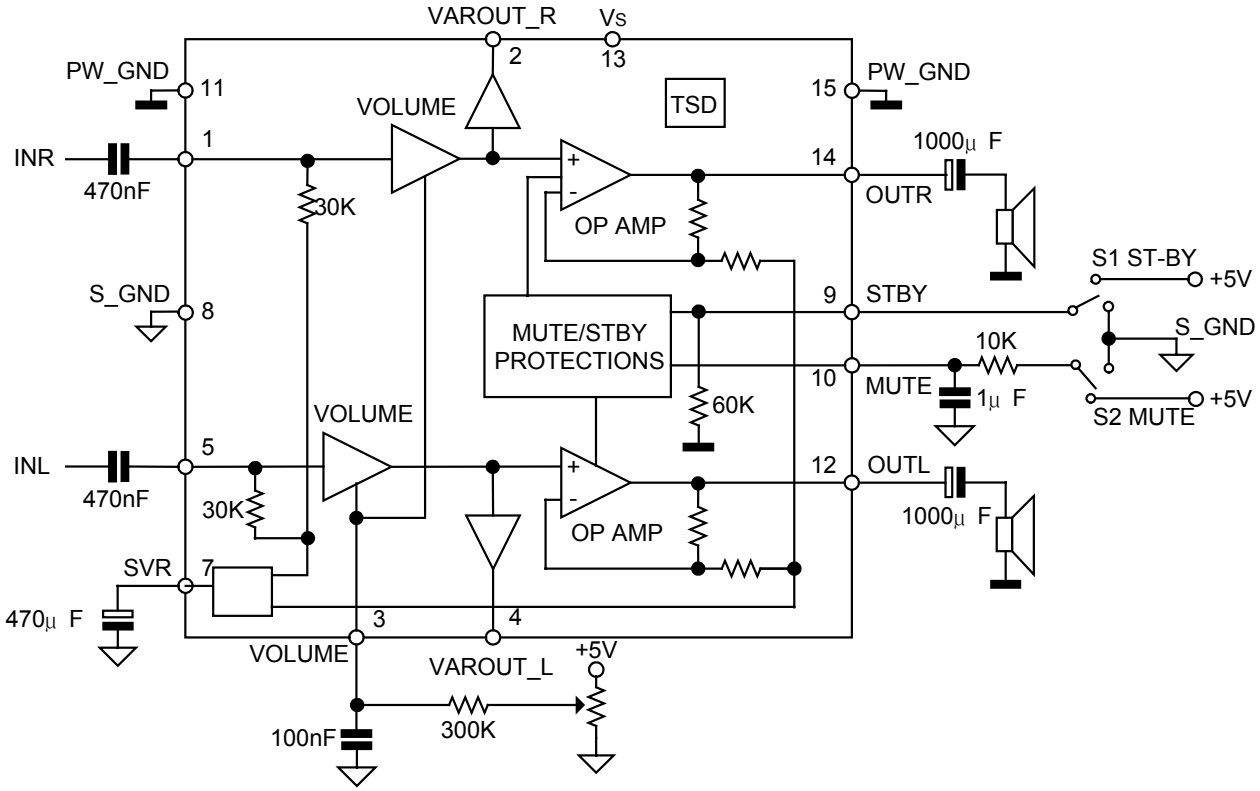
* 5+5W OUTPUT POWER @ V_{CC} = 22V; R_L = 8Ω
* LOW TURN-ON TURN-OFF POP NOISE
* LOW EXTERNAL COMPONENTS
* SHORT CIRCUIT &THERMAL OVERLOAD PROTECTION
* LINEAR VOLUME CONTROL BY DC VOLTAGE
* SOFT CLIPPING
* INTERNALLY FIXED GAIN
* ST-BY AND MUTE FUNCTIONS

PIN CONFIGURATION



(Top View)

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
DC Supply voltage	V_S	35	V
Maximum Input Voltage	V_{IN}	8	V_{PP}
Volume Control DC Voltage	V_3	7	V
Total Power Dissipation (Ta = 80℃)	P_{tot}	15	W
Ambient Operating Temperature	T_{amb}	0 ~ 70	℃
Junction Temperature	T_j	-40 ~ 150	℃
Storage Temperature	T_{stg}	-40 ~ 150	℃

THERMAL DATA

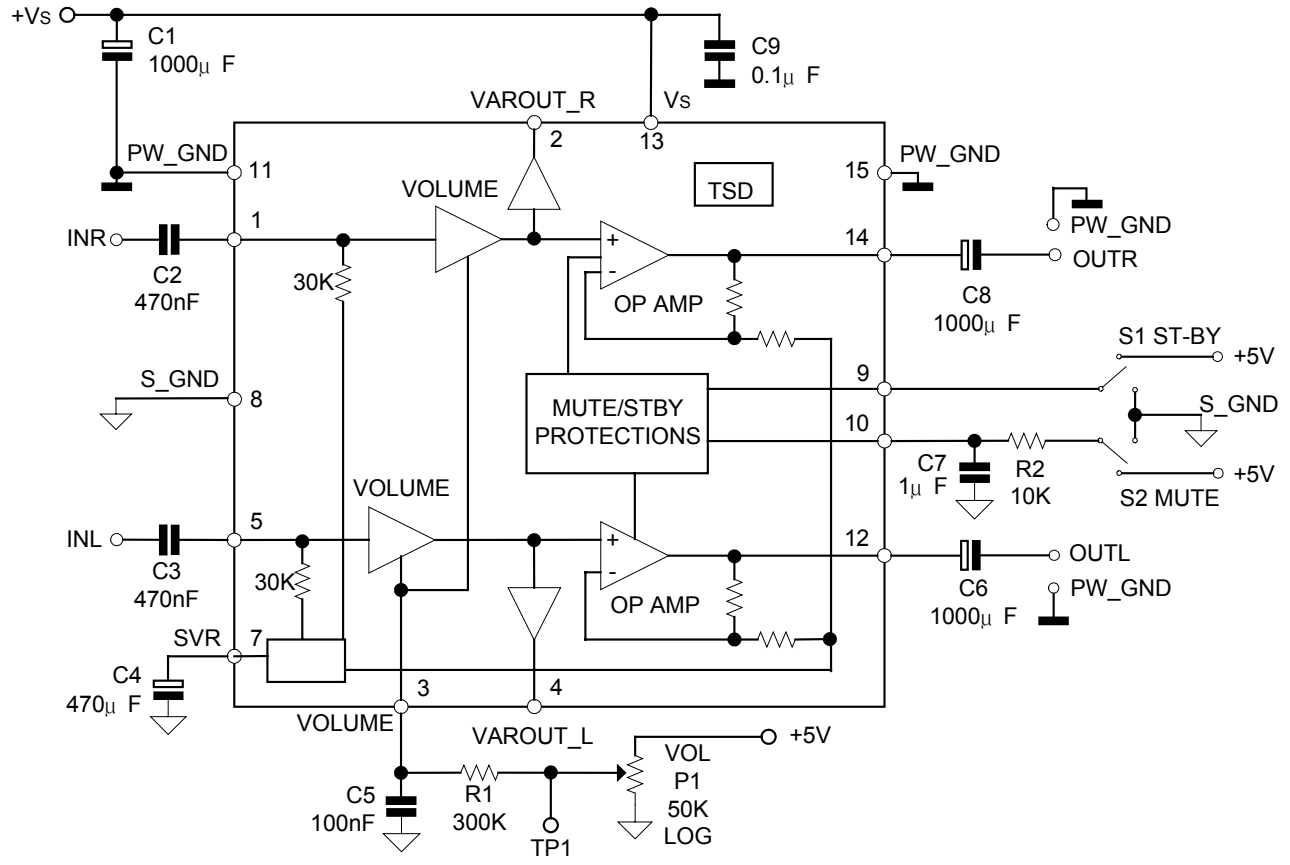
PARAMETER	SYMBOL	RATINGS	UNIT
Thermal Resistance junction-case	Θ_{JC}	Typ. = 4, Max. = 4.6	℃/W
Thermal Resistance junction-ambient Max.	Θ_{JA}	35	℃/W

ELECTRICAL CHARACTERISTICS

(Refer to the test circuit V_S = 22V, R_L = 8Ω, R_g = 50Ω, Ta=25℃)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage Range	V_S		10		32	V
Total Quiescent Current	I_q			25	50	mA
Output DC Offset Referred to SVR Potential	DCV_{OS}	No Input Signal		200		mV
Quiescent Output Voltage	V_O			11		V
Output Power	P_O	THD = 10%, R_L = 8Ω THD = 1%, R_L = 8Ω	5	5.5 4		W
		THD = 10%, R_L = 4Ω, VS = 12V THD = 1%, R_L = 4Ω, VS = 12V		2.1 1.0		W
Total Harmonic Distortion	THD	G_v = 30dB, P_O = 1W, f = 1KHz			0.4	%
Output Peak Current	I_{peak}	(internally limited)	1.0	1.3		A
Input Signal	V_{IN}				2.8	Vrms
Closed Loop Gain	G_V	$V_{OI\ Ctrl}$ >4.5V	28.5	30	31.5	dB
Monitor Out Gain	G_{VLine}	$V_{OI\ Ctrl}$ >4.5V, Zload >30KΩ	-1.5	0	1.5	dB
Attenuation at Minimum Volume	A_{Min} V_{OL}	$V_{OI\ Ctrl}$ <0.5V	80			dB
	BW			0.6		MHz
Total Output Noise	eN	f =20Hz ~ 22KHz(PLAY, max volume)		500	800	μV
		f =20Hz ~ 22KHz PLAY, max attenuation		100	250	μV
		f = 20Hz ~ 22KHz MUTE		60	150	μV
Slew Rate	SR		5	8		V/μs
Input Resistance	R_i		22.5	30		KΩ
Variable Output Resistance	$R_{Var\ Out}$			30	100	Ω
Variable Output Load	$R_{L\ Var\ Out}$		2			KΩ
Supply Voltage Rejection	SVR	f = 1KHz, max volume C_{SVR} = 470mF, V_{RIP} = 1Vrms	35	39		dB
		f = 1KHz, max attenuation C_{SVR} = 470mF, V_{RIP} = 1Vrms	55	65		dB
Thermal Muting	T_M			150		℃
Thermal Shut-down	T_S			160		℃
MUTE STAND-BY & INPUT SELECTION FUNCTIONS						
Stand-by ON Threshold	V_{ST-ON}		3.5			V
Stand-by OFF Threshold	V_{ST-OFF}				1.5	V
Mute ON threshold	V_{MUTEON}		3.5			V
Mute OFF threshold	$V_{MUTEOFF}$				1.5	V
Mute Attenuation	A_{MUTE}		50	65		dB
Quiescent Current @ Stand-by	I_{qST-BY}			0.6	1	mA
Stand-by bias current	$I_{stbyBIAS}$	Stand by ON: V_{ST-BY} = 5V, V_{mute} = 5V		80		μA
		Play or Mute	-20	-5		μA
Mute Bias Current	$I_{muteBIAS}$	Mute		1	5	μA
		Play		0.2	2	μA

Figure 1: APPLICATION CIRCUIT

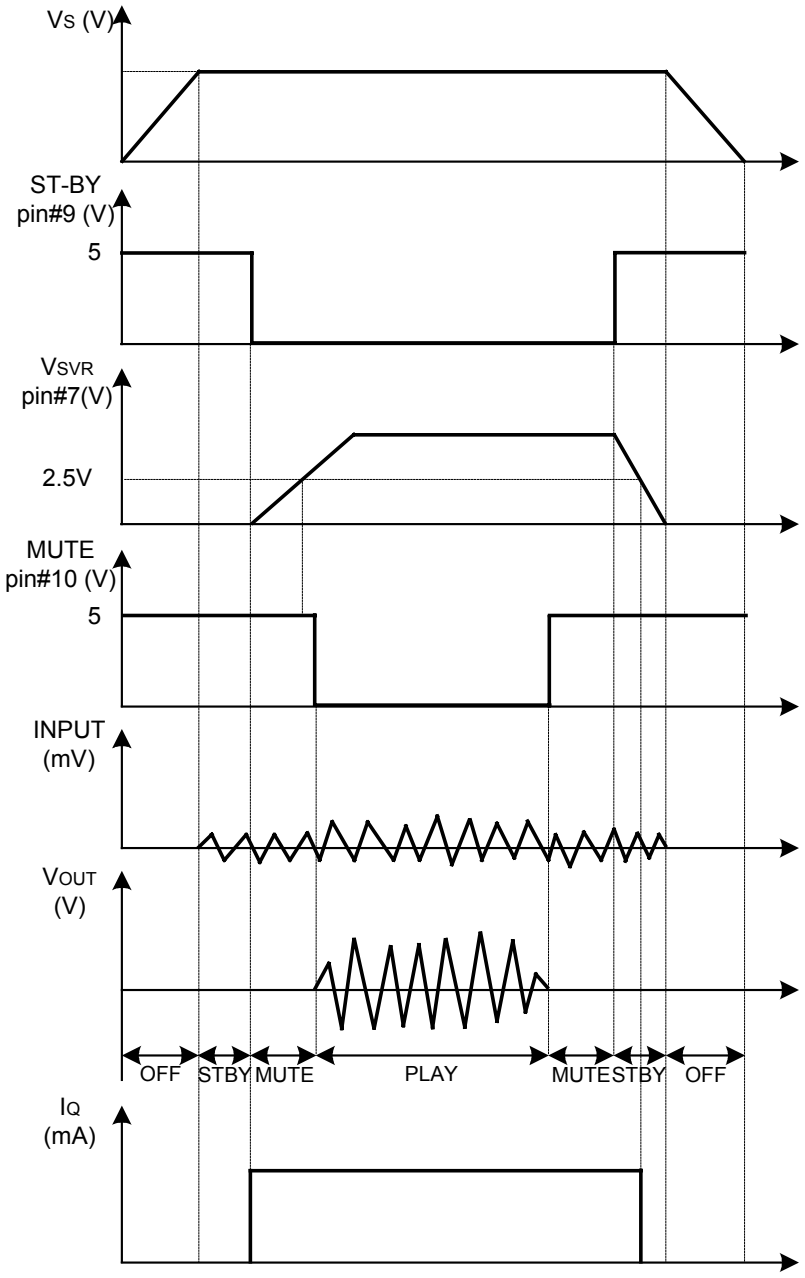


MUTE STAND-BY TRUTH TABLE

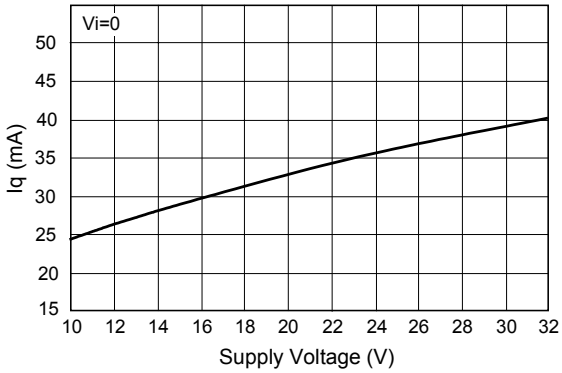
MUTE	St-BY	OPERATING CONDITION
H	H	STAND-BY
L	H	STAND-BY
H	L	MUTE
L	L	PLAY

Turn ON/OFF Sequences

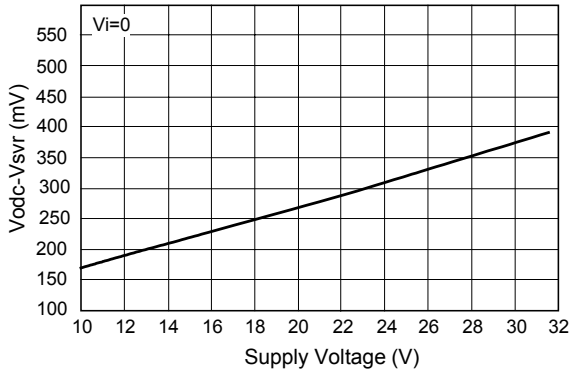
USING ONLY THE MUTE FUNCTION



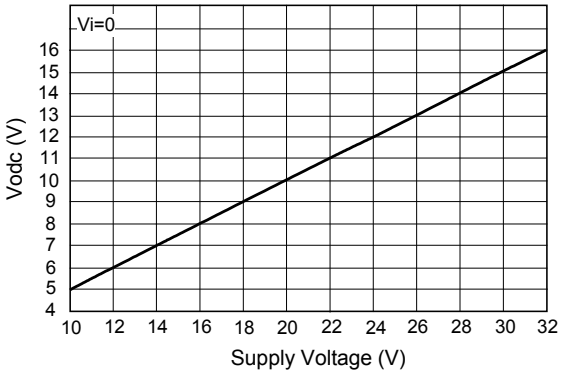
Quiescent Current vs. Supply Voltage



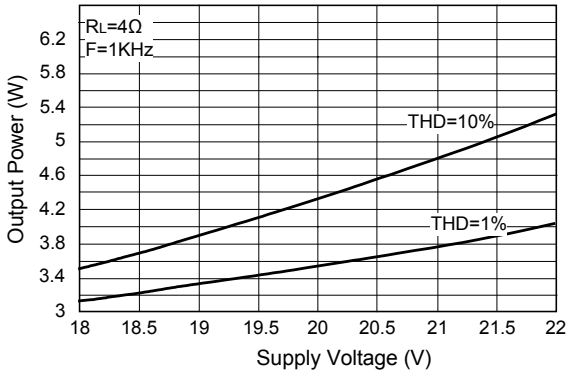
Output DC Offset vs. Supply Voltage



Output Dc Offset vs. Supply Voltage



Output Power vs Supply Voltage



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