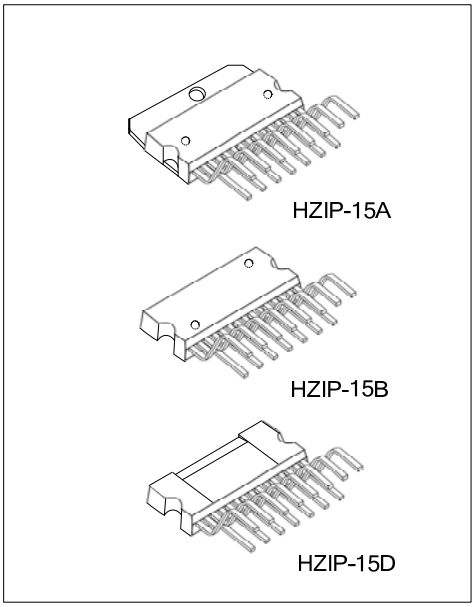
TDA8496

LINEAR INTEGRATED CIRCUIT

5W+5W AMPLIFIER WITH DC VOLUME CONTROL



Lead-free: TDA8496L
Halogen-free: TDA8496G

■ DESCRIPTION

The UTC **TDA8496** is a stereo 5+5W class AB power amplifier with mute and dc volume control, assembled in the HZIP-15A/B/D 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

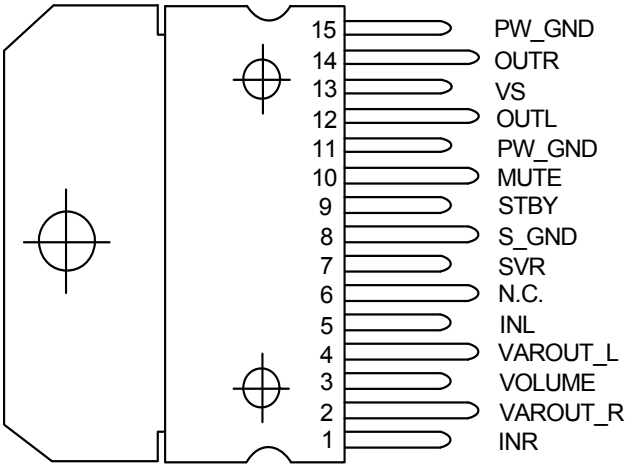
■ ORDERING INFORMATION

Ordering Number			Package	Packing
Normal	Lead Free Plating	Halogen Free		
TDA8496-J15-A-T	TDA8496L-J15-A-T	TDA8496G-J15-A-T	HZIP-15A	Tube
TDA8496-J15-B-T	TDA8496L-J15-B-T	TDA8496G-J15-B-T	HZIP-15B	Tube
TDA8496-J15-D-T	TDA8496L-J15-D-T	TDA8496G-J15-D-T	HZIP-15D	Tube

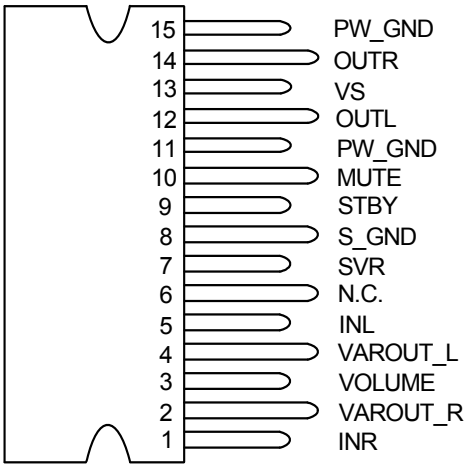
TDA8496L-J15-A-T
(1) Packing Type
(2) Package Type
(3) Lead Plating

(1) T: Tube
(2) J15-A:HZIP-15A, J15-B:HZIP-15B, J15-D:HZIP-15D
(3) G: Halogen Free, L: Lead Free, Blank: Pb/Sn

PIN DESCRIPTION (TOP VIEW)

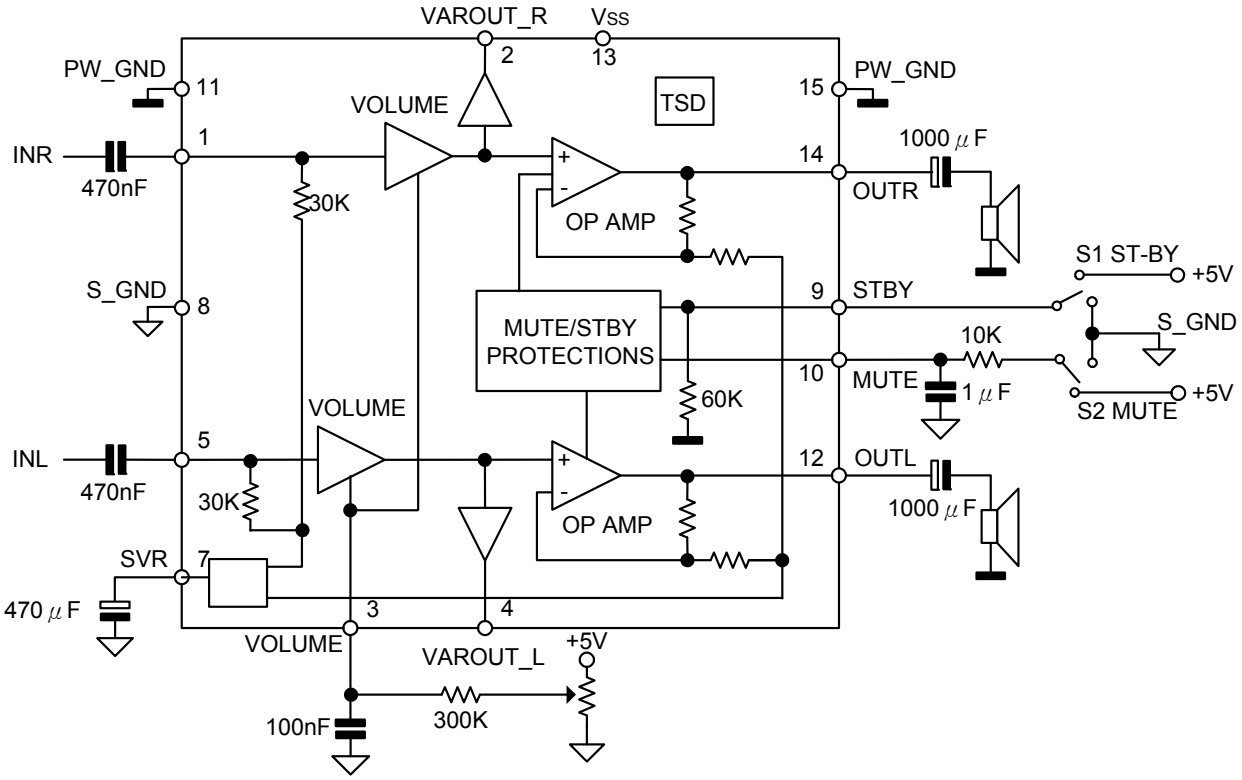


HZIP-15A



HZIP-15B/HZIP-15D

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
DC Supply voltage		V_{SS}	35	V
Maximum Input Voltage		$V_{IN(MAX)}$	8	V_{PP}
Volume Control DC Voltage		V_3	7	V
Total Power Dissipation (T_A=80℃)	HZIP-15A/HZIP-15B	P_D	15	W
	HZIP-15D		12.5	
Junction Temperature		T_J	+150	℃
Ambient Operating Temperature		T_{OPR}	0 ~ +70	℃
Storage Temperature		T_{STG}	-40 ~ +150	℃

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	RATINGS	UNIT
Junction-to-Ambient	HZIP-15A/HZIP-15B	θ_{JA}	35	℃/W
	HZIP-15D		46	

■ ELECTRICAL CHARACTERISTICS (refer to the test circuit V_{SS}= 22V, R_L=8Ω, R_G = 50Ω, T_A=25℃)

PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Supply Voltage Range	V_{SS}			10		32	V
Output DC Offset Referred to SVR Potential	$V_{OUT(OFF)}$	No Input Signal			200		mV
Quiescent Output Voltage	$V_{Q(OUT)}$				11		V
Output Power	P_{OUT}	THD = 10%, R_L = 8Ω		5	5.5		W
		THD = 1%, R_L = 8Ω			4		
		THD = 10%, R_L = 4Ω, V_{SS} = 12V			2.1		W
		THD = 1%, R_L = 4Ω, V_{SS} = 12V			1.0		
Total Harmonic Distortion	THD	G_V = 30dB, P_{OUT} = 1W, f = 1KHz				0.4	%
Total Quiescent Current	I_Q				25	50	mA
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}	$V_{OI\ Ctrl}$ <0.5V		80			dB
Bandwidth	BW				0.6		MHz
Total Output Noise	eN	f =20Hz~22KHz	PLAY, Max volume		500	800	μV
			PLAY, Max attenuation		100	250	μV
			Mute		60	150	μV
Slew Rate	SR			5	8		V/μs
Input Resistance	R_{IN}			22.5	30		KΩ
Variable Output Resistance	$R_{VAR(OUT)}$				30	100	Ω
Variable Output Load	$R_{L(OUT)}$			2			KΩ
Supply Voltage Rejection	SVR	f=1KHz, C_{SVR}=470mF, V_{RIP} =1Vrms	Max volume	35	39		dB
			Max attenuation	55	65		dB
Thermal Muting	T_{MUTE}				150		℃
Thermal Shut-down	T_{SHDN}				160		℃

■ ELECTRICAL CHARACTERISTICS(Cont.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
MUTE STAND-BY & INPUT SELECTION FUNCTIONS						
Stand-by ON Threshold	$V_{THD(SON)}$		3.5			V
Stand-by OFF Threshold	$V_{THD(SOFF)}$				1.5	V
Mute ON threshold	$V_{THD(MON)}$		3.5			V
Mute OFF threshold	$V_{THD(MOFF)}$				1.5	V
Mute Attenuation	A_{MUTE}		50	65		dB
Quiescent Current @ Stand-by	$I_{Q(ST-BY)}$			0.6	1	mA
Stand-by Bias Current	$I_{ST-BY(BIAS)}$	Stand by ON: V_{ST-BY} = 5V,V_{MUTE}= 5V		80		μA
		Play or Mute	-20	-5		μA
Mute Bias Current	$I_{MUTE(BIAS)}$	Mute		1	5	μA

■ TYPICAL APPLICATION CIRCUIT

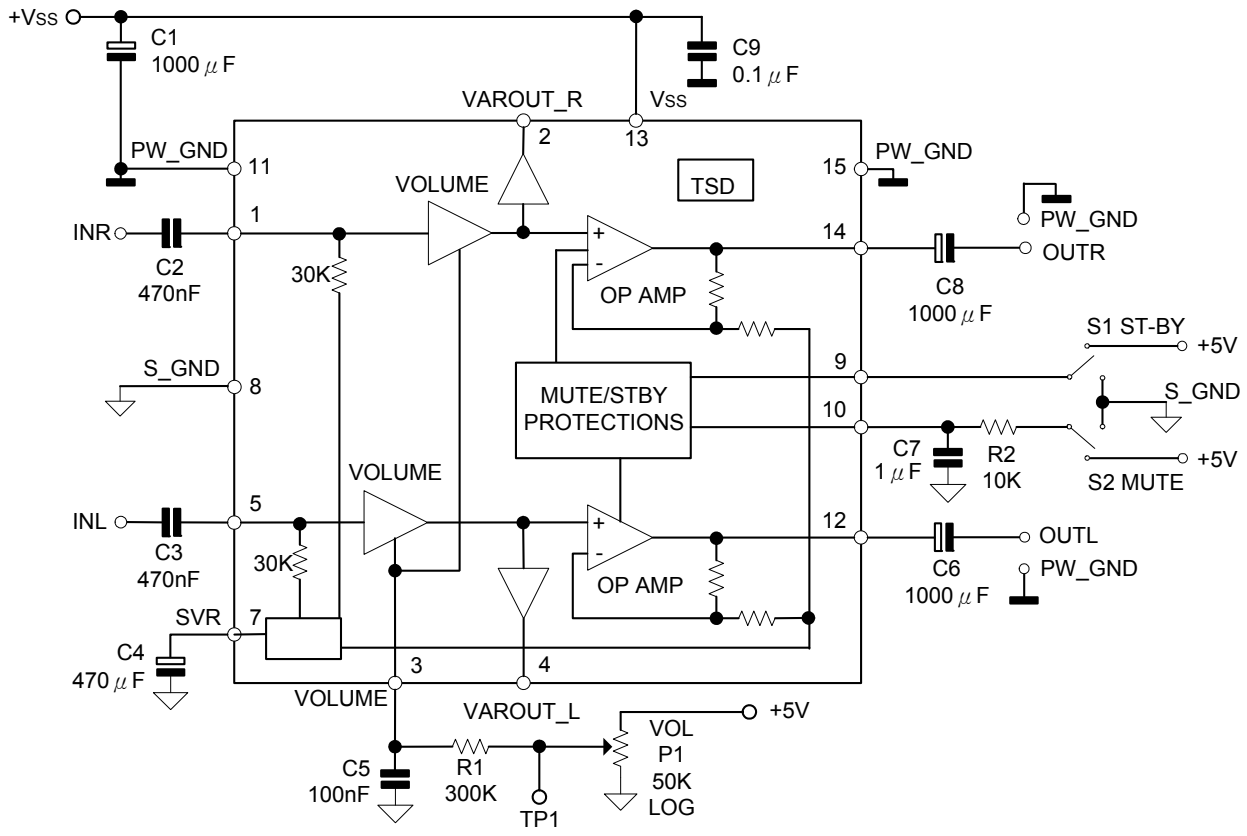


Figure 1: APPLICATION CIRCUIT

MUTE STAND-BY TRUTH TABLE

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

■ TYPICAL APPLICATION CIRCUIT(Cont.)

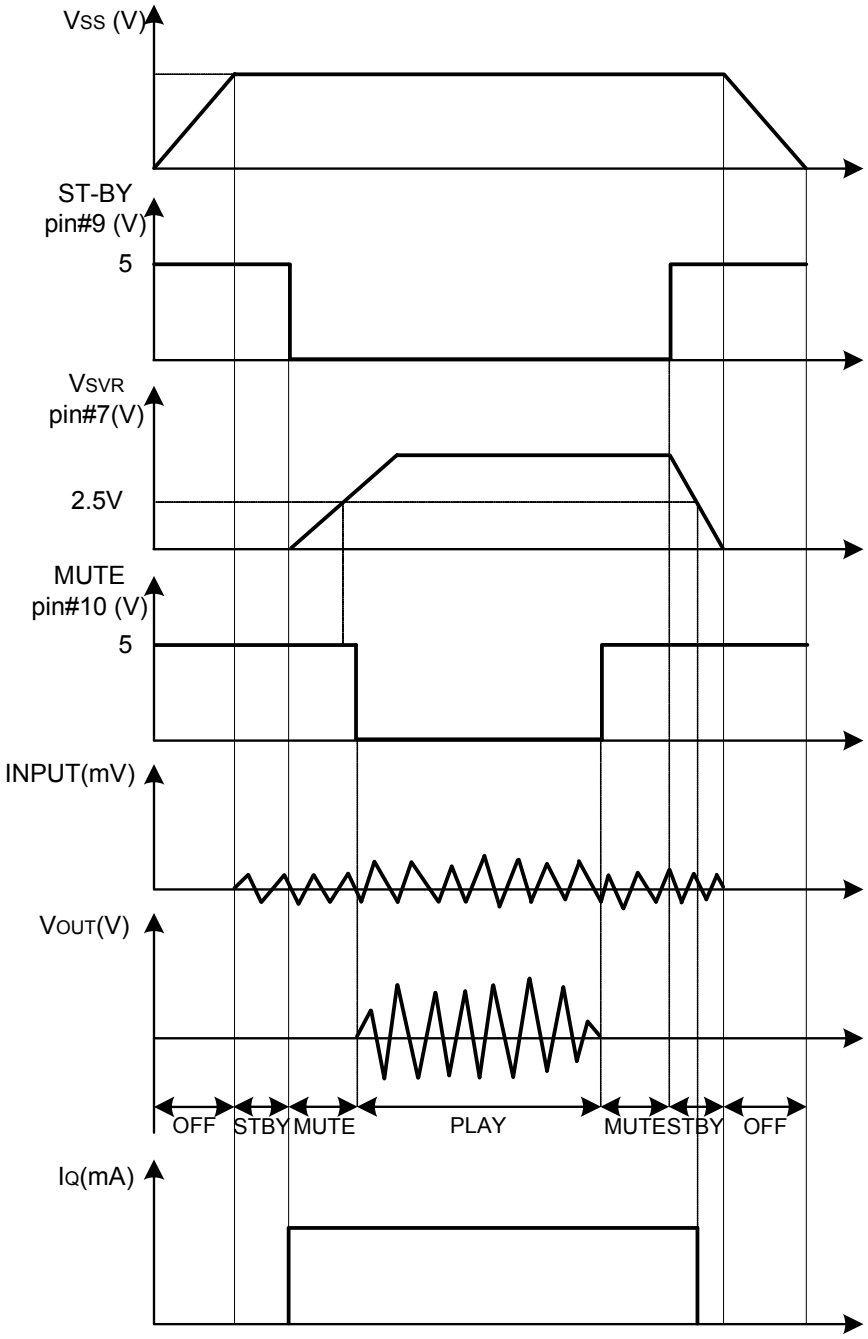
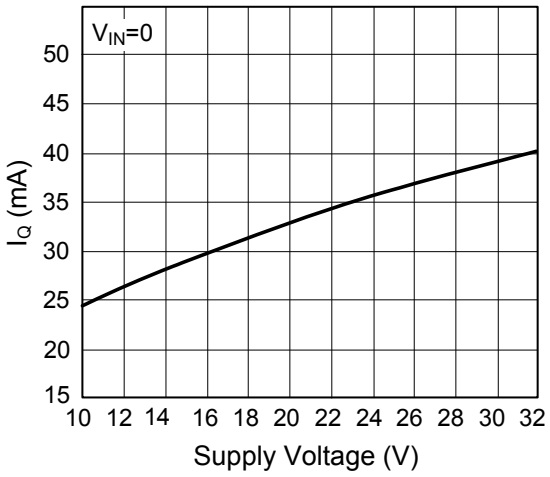


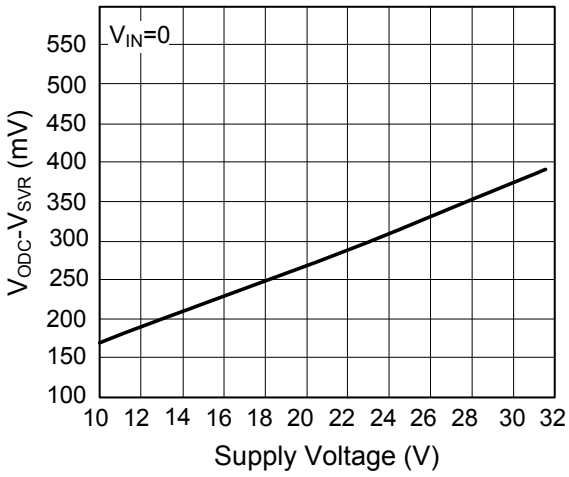
Figure 2. Turn ON/OFF Sequences (use only the MUTE function)

■ TYPICAL CHARACTERISTICS

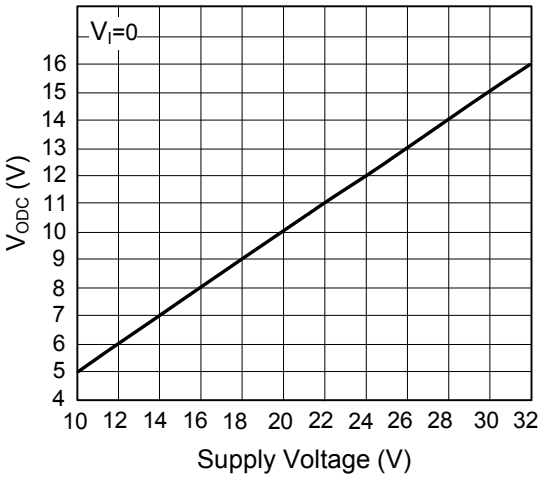
Quiescent Current vs. Supply Voltage



Output DC Offset vs. Supply Voltage



Output Dc Offset vs. Supply Voltage



Output Power vs. Supply Voltage