



TDA7360

Preliminary

CMOS IC

20W BRIDGE/STEREO AUDIO AMPLIFIER WITH CLIPPING DETECTOR

DESCRIPTION

The UTC **TDA7360** is a new technology class AB Audio Power Amplifier in the Multiwatt® package. The high power performance of the UTC **TDA7360** is obtained without bootstrap capacitors due to the fully complementary PNP/NPN output configuration

The audible on/off noise is eliminated by a delayed turn-on mute circuit, and a novel short circuit protection system prevents spurious intervention.

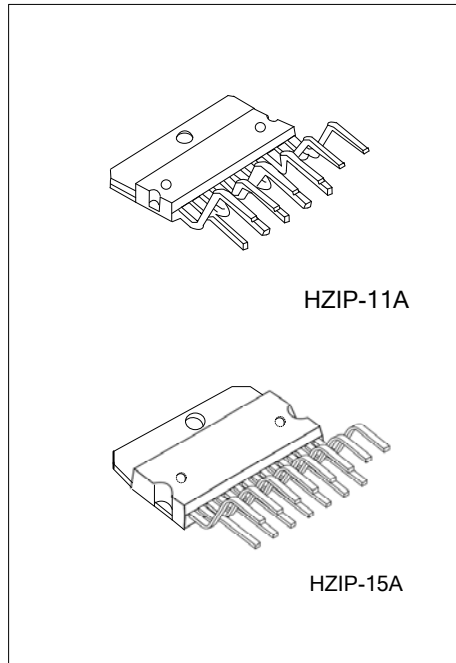
The device provides a circuit for the detection of clipping in the output stages. An open collector output is able to drive systems with automatic volume control.

FEATURES

- * Very few external components
- * Without boucherot cells
- * Without bootstrap capacitors
- * High output power
- * Very low STAND-BY current
- * Fixed gain (20dB stereo)
- * Programmable turn-on delay
- * Clipping detector
- * No switch on/off noise
- * STAND-BY function

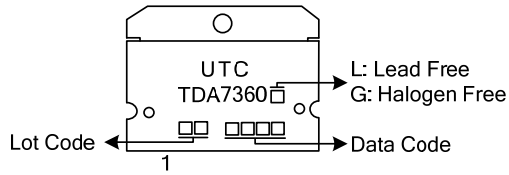
ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
TDA7360L-J11-T	TDA7360G-J11-T	HZIP-11A	Tube
TDA7360L-J15 -T	TDA7360G-J15-T	HZIP-15A	Tube

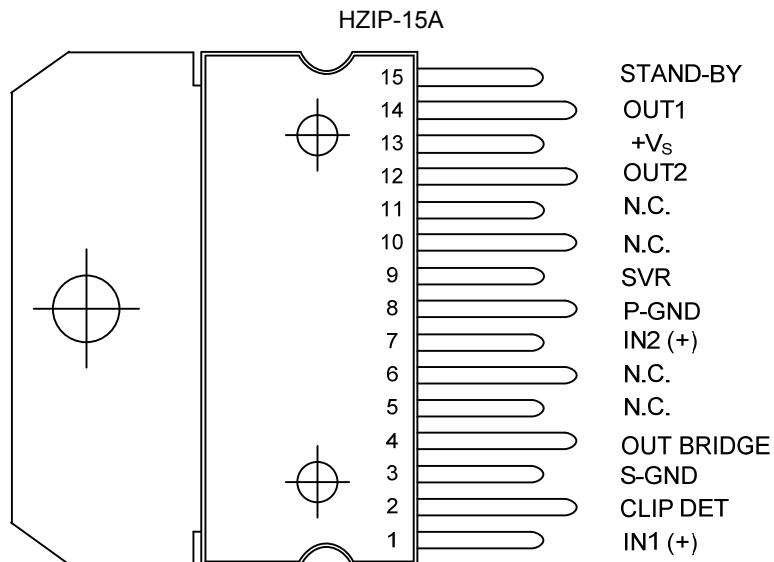
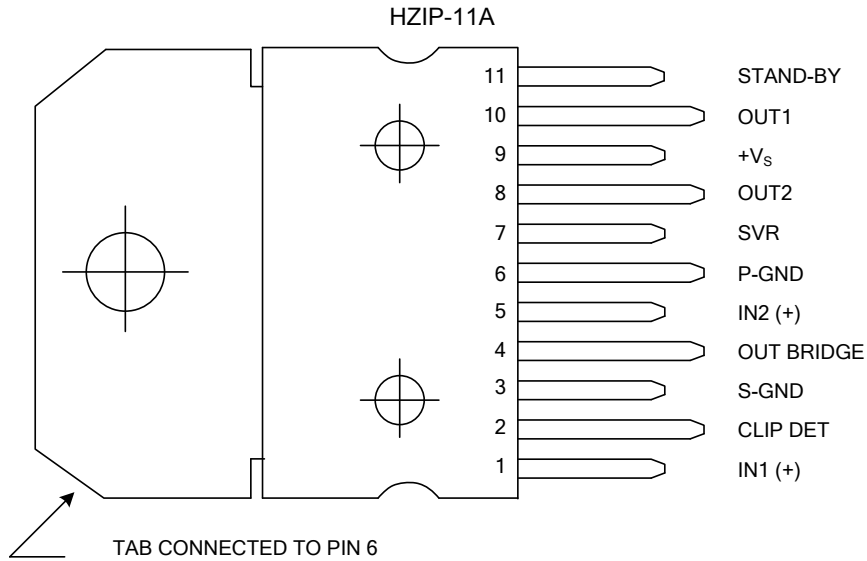


<p>TDA7360L-J11-A-T</p> <p>(1)Packing Type (2)Package Type (3)Green Package</p>	<p>(1) T: Tube (2) J11-A: HZIP-11A, J15: HZIP-15A (3) L: Lead Free, G: Halogen Free and Lead Free</p>
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MARKIN



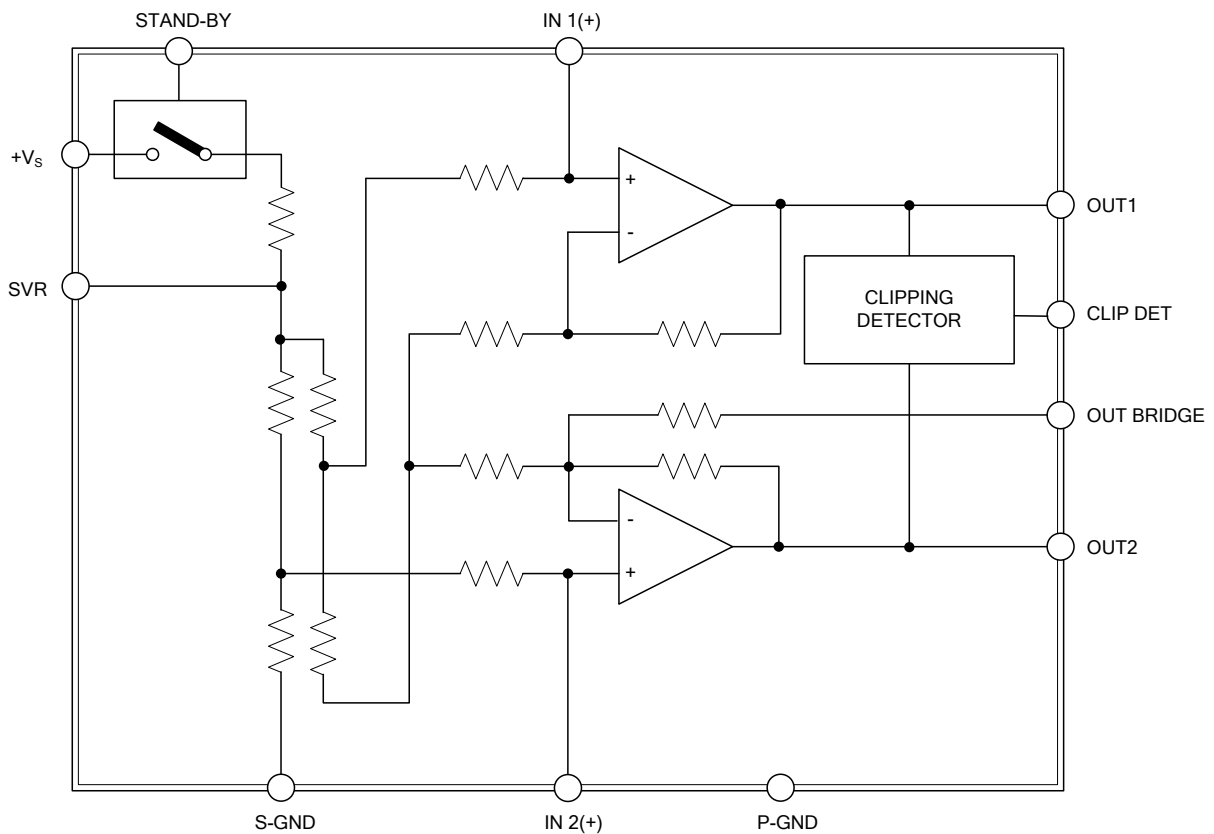
PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.		PIN NAME	DESCRIPTION
HZIP-11A	HZIP-15A		
1	1	IN1 (+)	Amp IN1 (+)
2	2	CLIP DET	Clip detector
3	3	S-GND	Signal Ground
4	4	OUT BRIDGE	Bridge output
5	7	IN2 (+)	Amp IN2 (+)
6	8	P-GND	Power Ground
7	9	SVR	Supply voltage rejection
8	12	OUT2	Output2
9	13	+V _S	Supply voltage
10	14	OUT1	Output1
11	15	STAND-BY	Stand-by
-	5, 6, 10, 11	N.C.	

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Operating Supply Voltage	V_S	22	V
Output Peak Current (non rep. for $t=100\mu s$)	I_o	5	A
Output Peak Current (rep. freq. $>10Hz$)	I_o	4	A
Power Dissipation At $T_{CASE}=85^\circ C$	P_D	36	W
Storage And Junction Temperature	T_{STG}, T_J	-40 ~ +150	$^\circ C$

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

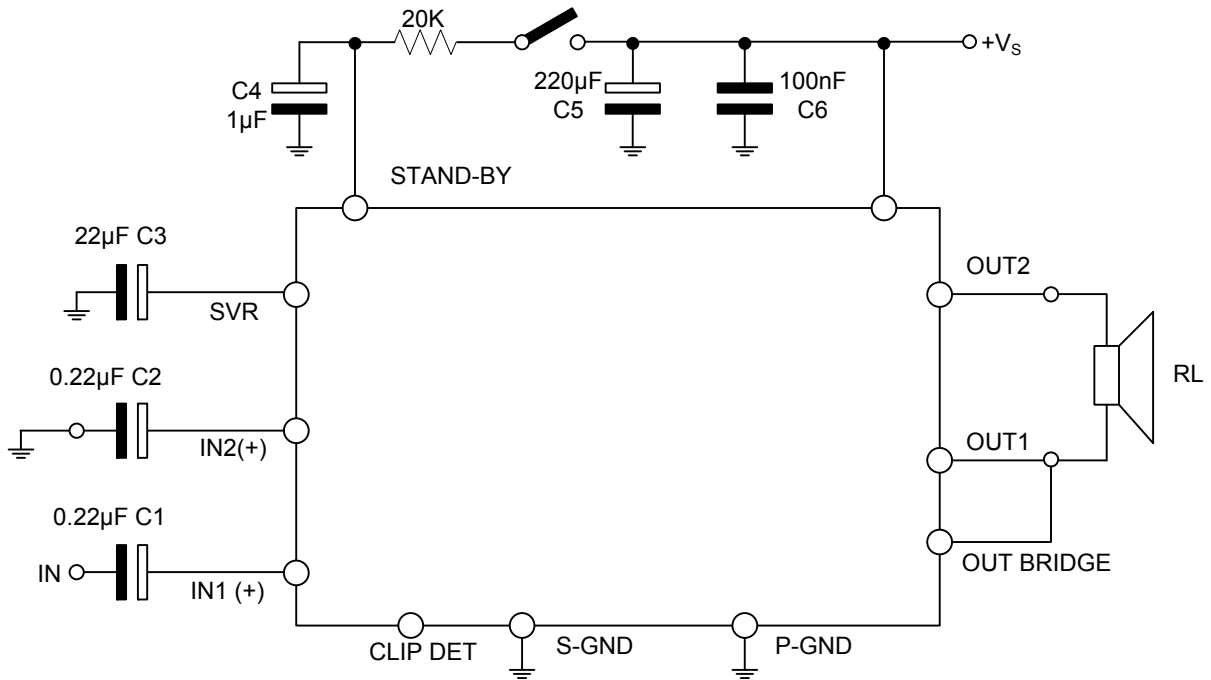
PARAMETER	SYMBOL	RATINGS	UNIT
Thermal Resistance Junction-case Max	$R_{THJ-CASE}$	1.8	$^\circ C/W$

■ ELECTRICAL CHARACTERISTICS

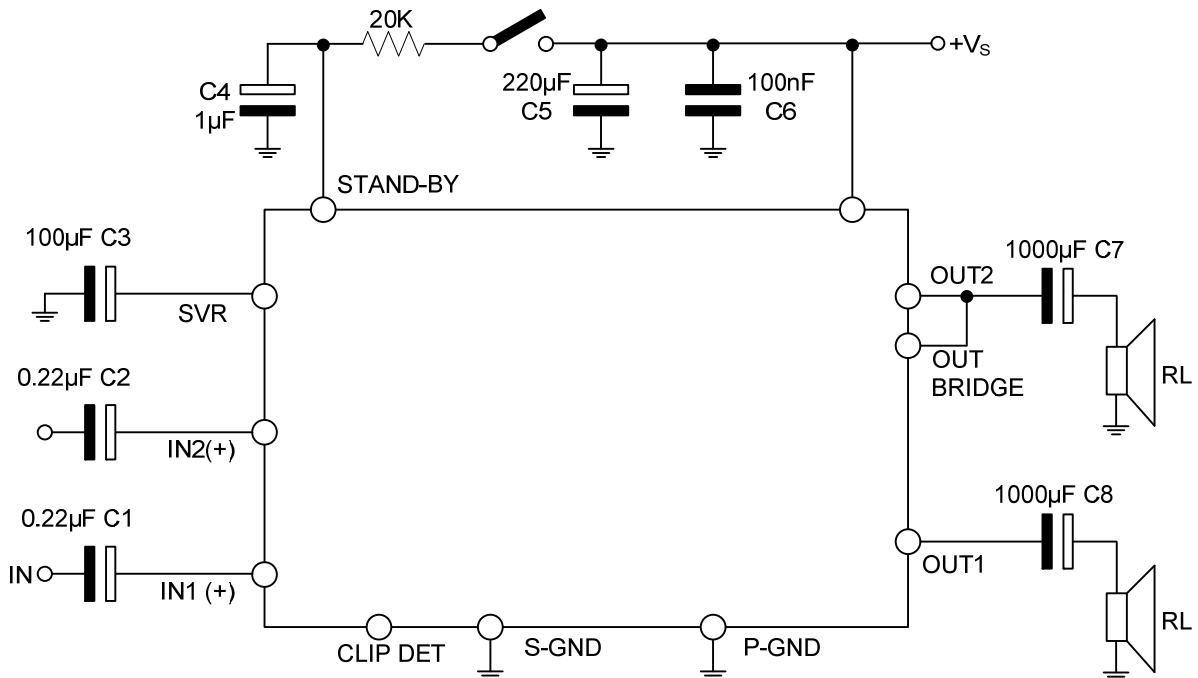
(Refer to the test circuits, $T_{AMB}=25^\circ C$, $V_S=14.4V$, $f=1KHz$ unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
Supply Voltage Range	V_S		8		18	V	
Total Quiescent Drain Current	I_D	stereo configuration		65	120	mA	
Stand-by Attenuation	A_{SB}		60	80		dB	
Stand-by Current	I_{SB}				100	μA	
Standby ON Threshold	V_{ST_ON}				1	V	
Standby OFF Threshold	V_{ST_OFF}		3.5			V	
Clip Detector Prog. Current	I_{CO}	pin 2 pull up to 5V $d=1\%$ with 10KW $d=5\%$		70 130		μA	
STEREO							
Output Power (each channel) THD=10%	P_o	$R_L=2\Omega$		11		W	
		$R_L=3.2\Omega$	7	8			
		$V_{CC}=12V, R_L=4\Omega$		4.5			
		$R_L=4\Omega$		6.5			
Distortion	D	$P_o=0.1\sim 2.5W, R_L=4\Omega$		0.05	0.5	%	
		$P_o=0.1\sim 4W, R_L=3.2\Omega$		0.05	0.5		
Supply Voltage Rejection	SVR	$R_g=10K\Omega, C_3=22\mu F$ $f=100Hz, C_3=100\mu F$	45	62		dB	
Crosstalk	CT	$f=1KHz$ $f=10KHz$	45	55		dB	
Input Resistance	R_i			50		K Ω	
Voltage Gain	G_v		19	20	21	dB	
Voltage Gain Match	G_v				1	dB	
Input Noise Voltage	E_{IN}	22Hz~22KHz	$R_g=50\Omega$		2.5	5	μV
			$R_g=10K\Omega$		3	7	
			$R_g=\infty$		3.5		
BRIDGE							
Output Offset Voltage	V_{OS}				250	mV	
Output Power THD=10%	P_o	$V_{CC}=12V, R_L=4\Omega$		15		W	
		$V_{CC}=14.4V, R_L=4\Omega$	16	20			
Distortion	d	$P_o=0.1\sim 7W, R_L=4\Omega$		0.05	0.5	%	
Supply Voltage Rejection	SVR	$R_g=10K\Omega, C_3=22\mu F$ $f=100Hz, C_3=100\mu F$	45	62		dB	
Input Resistance	R_i			50		K Ω	
Voltage Gain	G_v			26		dB	
Input Noise Voltage	EIN	22Hz~22KHz	$R_g=50\Omega$		3.5	μV	
			$R_g=10K\Omega$		4	μV	

BRIDGE APPLICATION CIRCUIT



STEREO APPLICATION CIRCUIT



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