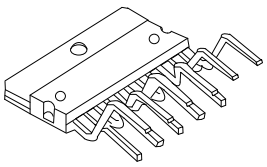
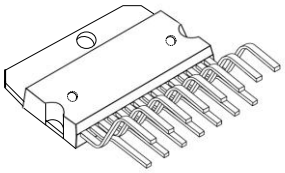
TDA7360 **Preliminary** ***CMOS IC***

20W BRIDGE/STEREO AUDIO AMPLIFIER WITH CLIPPING DETECTOR



HZIP-11A



HZIP-15A

■ 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

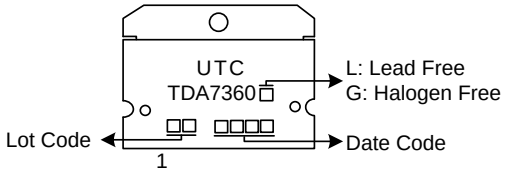
* Very few external components
* Without boucherot cells
* Without boostrap capacitors
* High output power
* Very low STAND-BY current
* Fixed gain (20dB stereo)
* Programmable turn-on delay
* Clipping detector
* No switch on/off noise
* STAND-BY function

■ 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

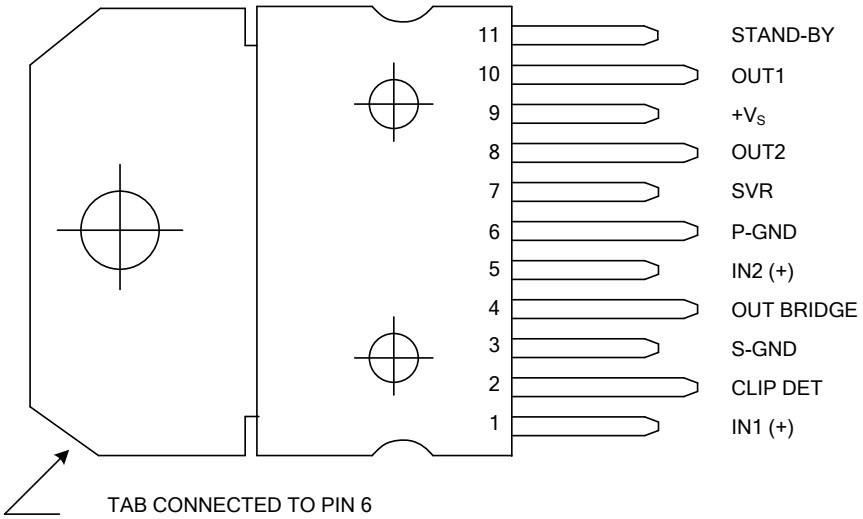
TDA7360G-J11-T (1)Packing Type (2)Package Type (3)Green Package	(1) T: Tube (2) J11-A: HZIP-11A, J15: HZIP-15A (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING

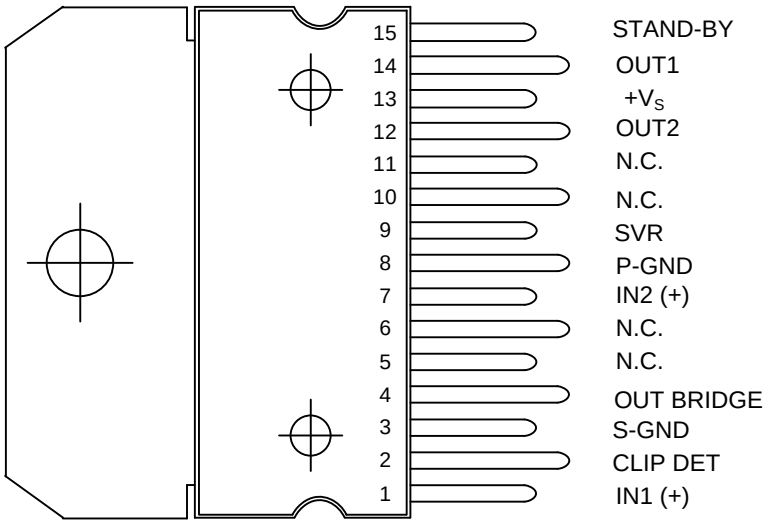


■ PIN CONFIGURATION

HZIP-11A



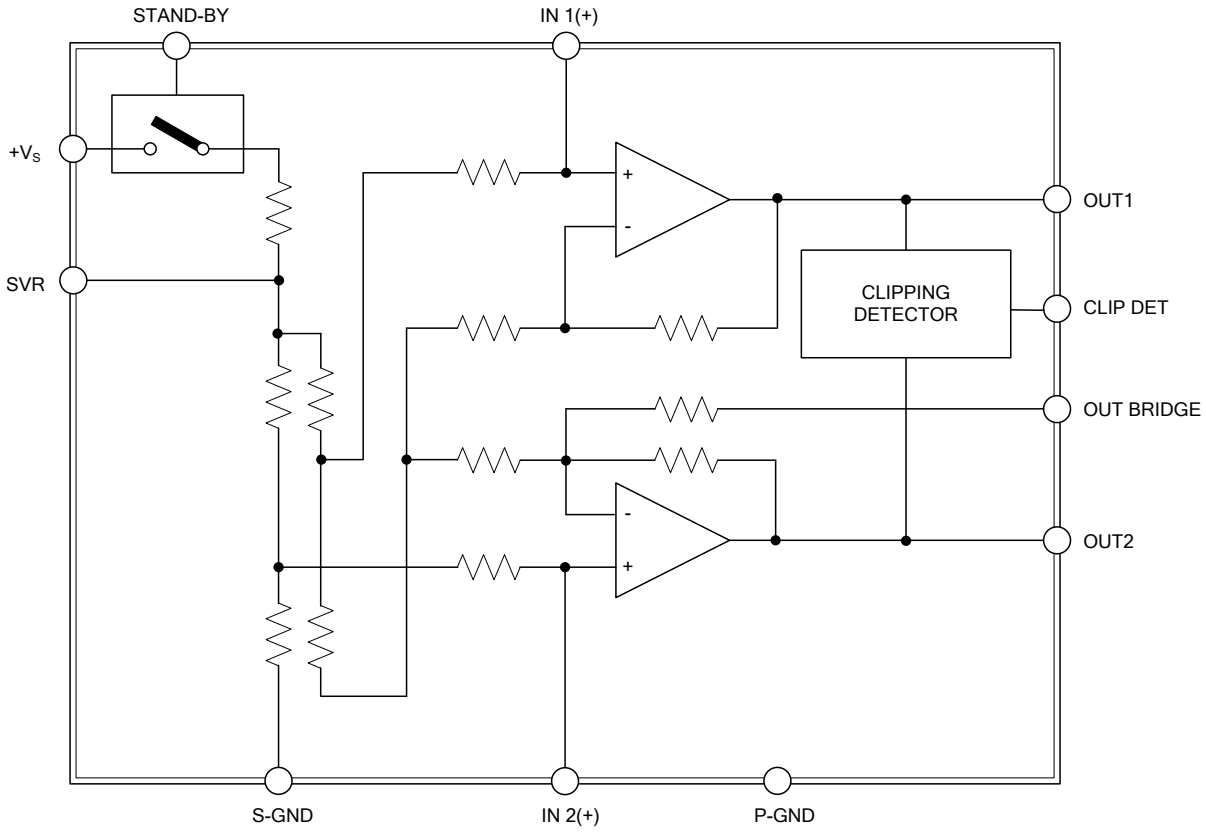
HZIP-15A



■ 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=100µs)	I_O	5	A
Output Peak Current (rep. freq. >10Hz)	I_O	4	A
Power Dissipation At T_{CASE}=85°C	P_D	36	W
Storage And Junction Temperature	T_{STG}, T_J	-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

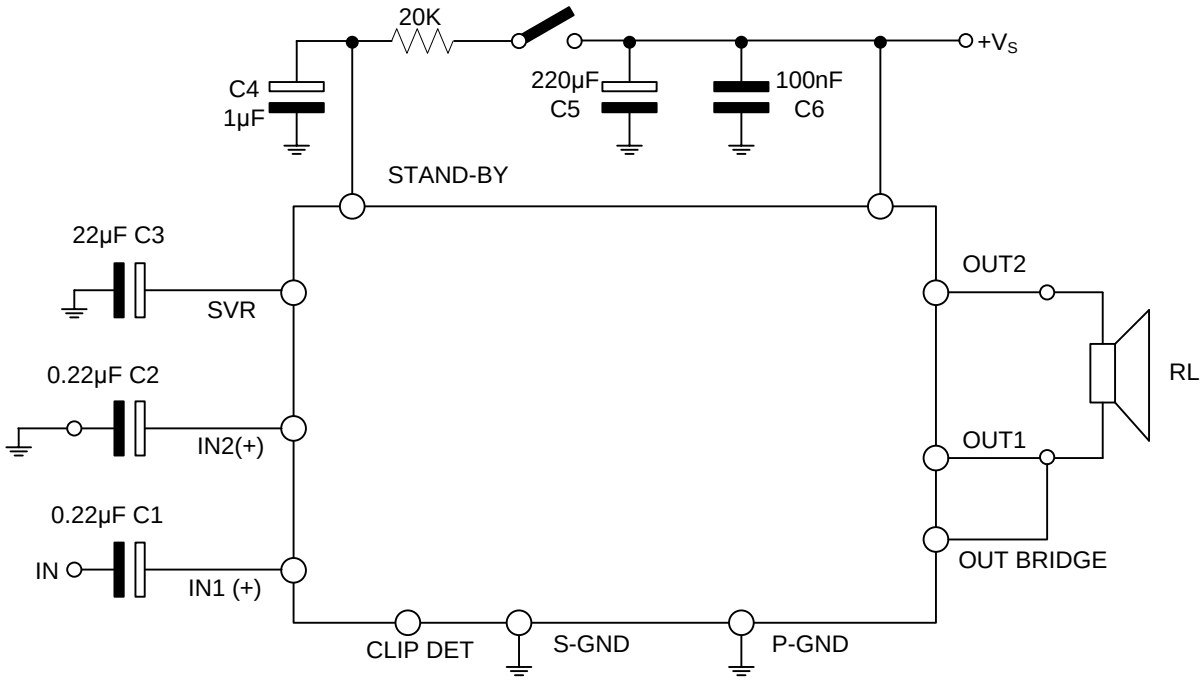
PARAMETER	SYMBOL	RATINGS	UNIT
Thermal Resistance Junction-case Max	$R_{THJ-CASE}$	1.8	°C/W

■ ELECTRICAL CHARACTERISTICS

(Refer to the test circuits, T_{AMB}=25°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%			70		µA
		with 10KW d=5%			130		
STEREO							
Output Power (each channel) THD=10%	P_O	R_L=2Ω			11		W
		R_L=3.2Ω		7	8		
		V_{CC}=12V, R_L=4Ω			4.5		
		R_L=4Ω			6.5		
Distortion	D	Po=0.1~2.5W, R_L=4Ω			0.05	0.5	%
		Po=0.1~4W, R_L=3.2Ω			0.05	0.5	
Supply Voltage Rejection	SVR	Rg=10KΩ, C3=22µF		45			dB
		f=100Hz, C3=100µF			62		
Crosstalk	CT	f=1KHz		45			dB
		f=10KHz			55		
Input Resistance	R_I				50		KΩ
Voltage Gain	G_V			19	20	21	dB
Voltage Gain Match	G_V					1	dB
Input Noise Voltage	E_{IN}	22Hz~22KHz	Rg=50Ω		2.5	5	µV
			Rg=10KΩ		3	7	
			Rg=∞		3.5		
BRIDGE							
Output Offset Voltage	V_{OS}					250	mV
Output Power THD=10%	Po	V_{CC}=12V, R_L=4Ω			15		W
		V_{CC}=14.4V, R_L=4Ω		16	20		
Distortion	d	Po=0.1~7W, R_L=4Ω			0.05	0.5	%
Supply Voltage Rejection	SVR	Rg=10KΩ, C3=22µF		45			dB
		f=100Hz, C3=100µF			62		
Input Resistance	R_I				50		KΩ
Voltage Gain	G_V				26		dB
Input Noise Voltage	EIN	22Hz~22KHz	Rg=50Ω		3.5		µV
			Rg=10KΩ		4		µV

■ BRIDGE APPLICATION CIRCUIT



■ STEREO APPLICATION CIRCUIT