

# AN7077Z

## Power supply and boost IC for class-H power amplifier

### ■ Overview

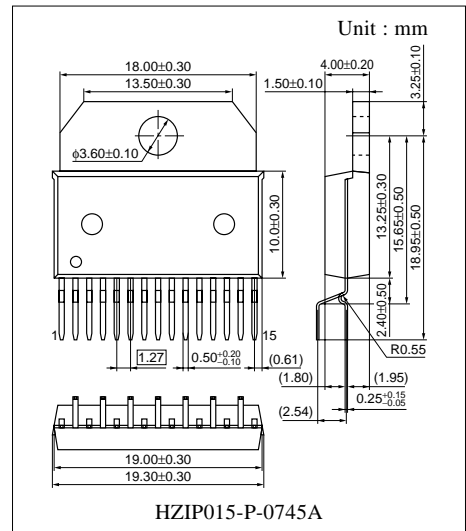
A BTL 50 W × 2-channel (maximum. 75 W × 2-channel) class-H power amplifier can be made up by combining the power supply boost amplifier AN7077Z and the single power supply BTL audio power amplifier AN7194Z, and it is possible to make a low consumption power system.

### ■ Features

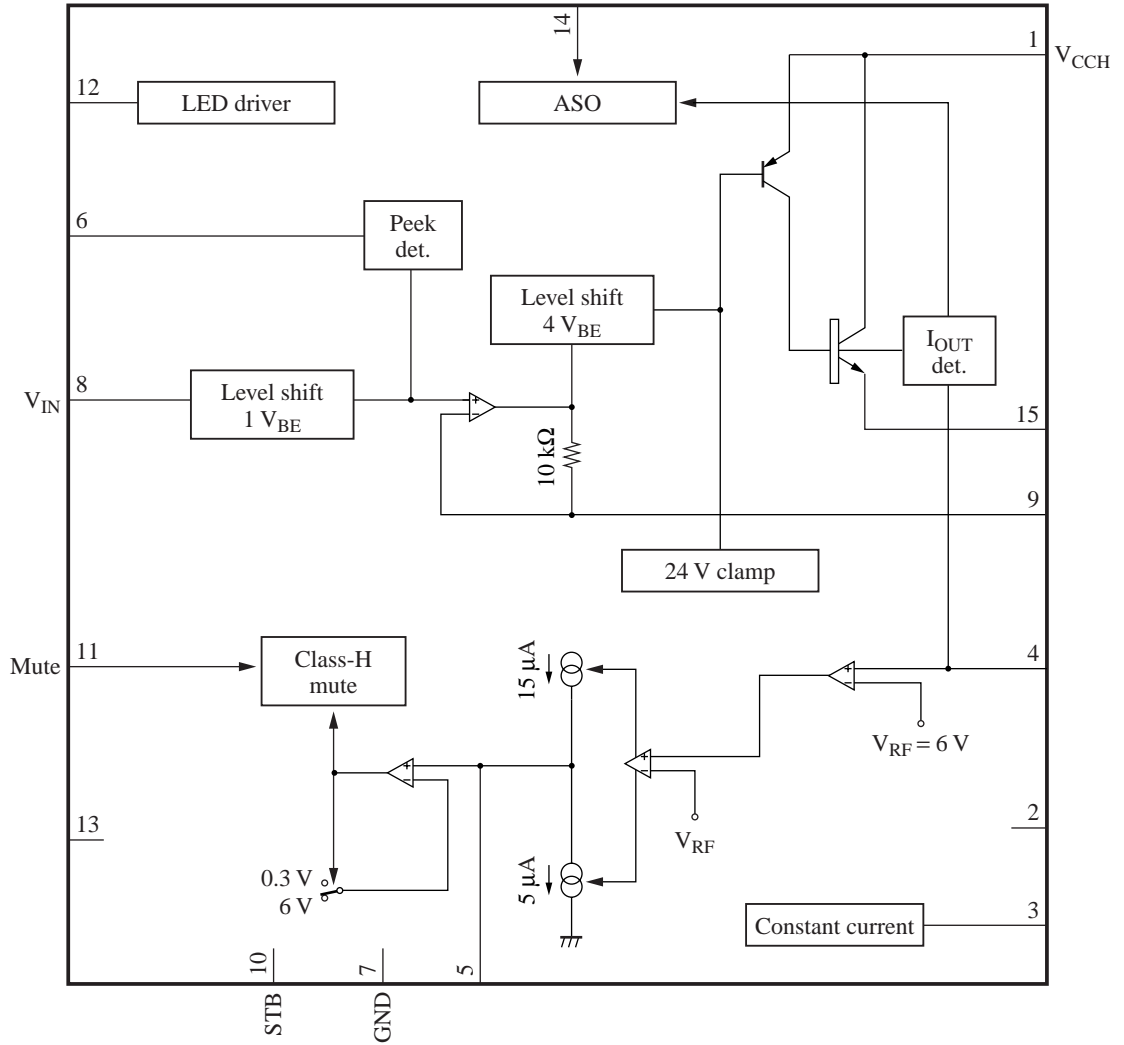
- Incorporating various protection circuits
- Built-in standby circuit
- Peak detection circuit : Limits class-H operation at high frequency
- Built-in timer circuit  
If a current larger than allowable value continues to flow into the power supply transformer, this circuit stops the class-H operation to prevent the transformer from damage by a fire.
- Built-in mute function
- Built-in LED driver

### ■ Applications

- Miniature audio component, CD player radio cassette, karaoke and other audio equipment



■ Block Diagram



■ Pin Descriptions

Pin No.	Description	Pin No.	Description
1	Power supply	9	NF
2	N.C.	10	Standby
3	Timer current setting	11	Muting
4	Current detection	12	LED
5	Timer	13	Ripple filter
6	Peak detection	14	ASO
7	GND	15	Output
8	Input		

### ■ Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Supply voltage *2	$V_{CC}$	34	V
Supply current	$I_{CC}$	9.0	A
Power dissipation *3	$P_D$	68.2	W
Operating ambient temperature *1	$T_{opr}$	-25 to +75	°C
Storage temperature *1	$T_{stg}$	-55 to +150	°C

Note) \*1 :  $T_a = 25^\circ\text{C}$  except operating ambient temperature and storage temperature.

\*2 : Without input signals (output current 0 mA).

\*3 : The value when  $R_{th(j-c)} = 1.1^\circ\text{C/W}$ ,  $T_a = 75^\circ\text{C}$ .

### ■ Recommended Operating Range

Parameter	Symbol	Range	Unit
Supply voltage	$V_{CC}$	10.0 to 28.0	V

### ■ Electrical Characteristics at $V_{CCH} = 24.0\text{ V}$ , $V_{CCL} = 12\text{ V}$ , $f_{rep.} = 1\text{ kHz}$ , $T_a = 25^\circ\text{C}$

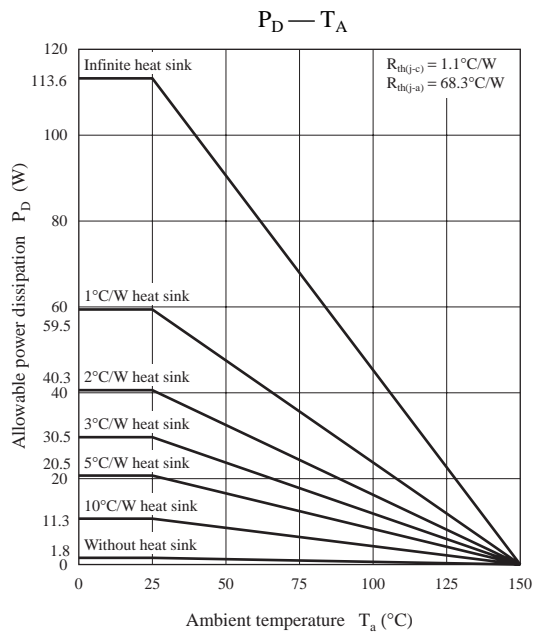
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Quiescent current	$I_{CQ}$	$V_{IN} = \text{open}$	—	25	50	mA
Standby current	$I_{STB}$	$V_{IN} = \text{open}$	—	1	10	$\mu\text{A}$
Output offset voltage 1	$V_{OFF1}$	$V_{IN} = 8\text{ V}$ , $R_L = 4\ \Omega$	2.0	2.5	3.0	V
Output offset voltage 2	$V_{OFF2}$	$V_{IN} = 16\text{ V}$ , $R_L = 4\ \Omega$	2.5	3.0	3.5	V
Output current	$I_{OUT}$	$V_{IN} = 14\text{ V}$ , $R_L = 2\ \Omega$	7.0	8.0	—	A
Voltage gain	$G_V$	$V_{IN} = 3\text{ V}_{rms}$ (DC 15 V), $R_L = 4\ \Omega$	-1.0	0.0	1.0	dB
Pin 4 output current	$I_{DET}$	$I_{OUT} = 2\text{ A}$	150	190	230	$\mu\text{A}$
Pin 5 output current 1	$I_{TI1}$	Pin 4 = high, pin 5 = 3 V	13	15	17	$\mu\text{A}$
Pin 5 output current 2	$I_{TI2}$	Pin 4 = low, pin 5 = 3 V	4.5	5	5.5	$\mu\text{A}$
LED output current	$I_{LED}$	$V_{IN} = 1\text{ V}_{rms}$ (DC 16 V), $V_{LED} = 8\text{ V}$	15	30	—	mA
Standby terminal current	$I_{CQ-STB}$	$V_{IN} = \text{open}$ , $V_{STB} = 5\text{ V}$	500	650	800	$\mu\text{A}$

## ■ Usage Notes

1. Always attach an outside heat sink to use the chip. In addition, the outside heat sink must be fastened onto a chassis for use.
2. Connect the radiation fin to GND potential.
3. Avoid short circuit to  $V_{CC}$  and short circuit to GND, and load short-circuit
4. The thermal protection circuit will be actuated at  $T_J = \text{approx. } 145^\circ\text{C}$ , but it is automatically reset when the chip temperature drops below the above set level.
5. The overvoltage protection circuit starts its operation at  $V_{CC} = \text{approx. } 36\text{ V}$ .
6. The protection circuit between  $V_{CC}$  and the output starts its operation when the  $V_{CC} - \text{output voltage} = \text{approx. } 18\text{ V}$ .
7. For the standby voltage, use a stabilized power supply of 3 V or more.

## ■ Technical Information

- $P_D - T_A$  curves of HZIP015-P-0745A



■ Application Circuit Example

