



### 14W Hi-Fi AUDIO AMPLIFIER TDA2030

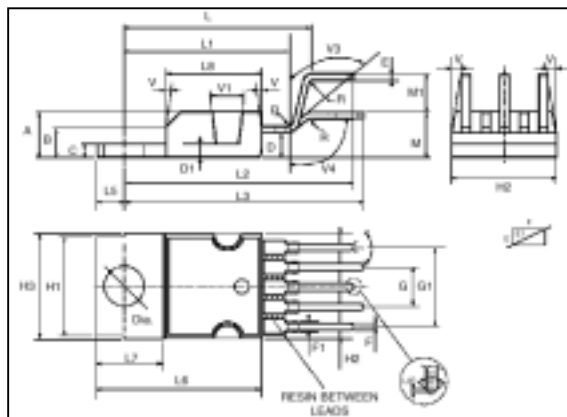
#### GENERAL DESCRIPTION

The TDA2030 is a monolithic integrated circuit in Pentawatt package, intended for use as a low frequency class AB amplifier. Typically it provides 14W output power ( $d = 0.5\%$ ) at  $14V/4\Omega$ ; at  $\pm 14V$  or  $28V$ , the guaranteed output power is 12W on a  $4\Omega$  load and 8W on a  $8\Omega$  (DIN45500).

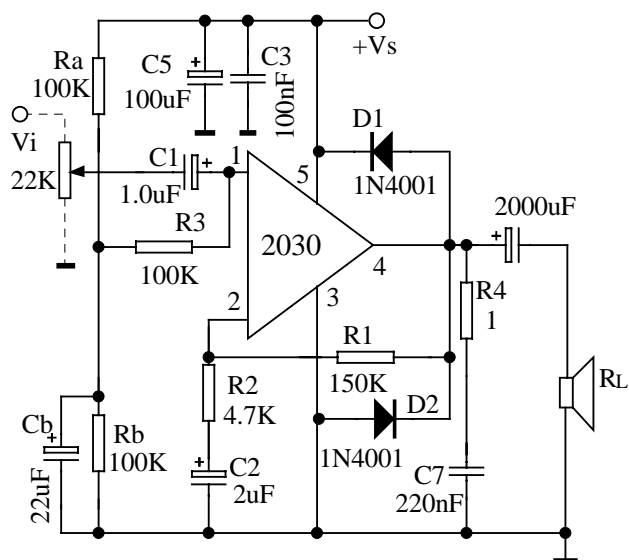
The TDA2030 provides high output current and has very low harmonic and cross-over distortion.

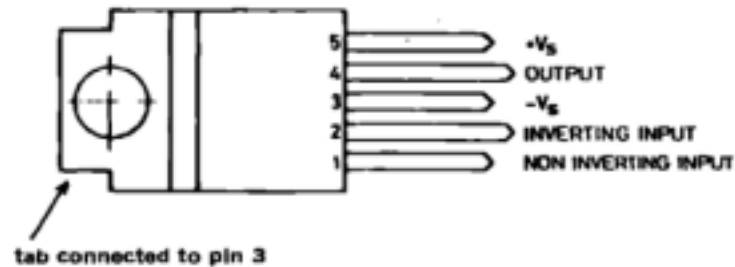
Further the device incorporates an original (and patented) short circuit protection system comprising an arrangement for automatically limiting the dissipated power so as to keep the working point of the output transistors within their safe operating area. A conventional thermal shut-down system is also included.

Outline Drawing



#### TYPICAL APPLICATION



**PIN CONNECTION****ABSOLUTE MAXIMUM RATINGS** ( $T_a=25^\circ\text{C}$ )

Characteristics	Symbol	Value	Units
Supply Voltage	$V_s$	$\pm 18$	V
Input Voltage	$V_i$	$V_s$	V
Differential input Voltage	$V_{di}$	$\pm 15$	V
Peak output Current (Internally limited)	$I_o$	3.5	A
Power Dissipation at $T_{case}=90^\circ\text{C}$	$P_{tot}$	20	W
Storage Temperature	$T_{stg}$	$-40\sim+150$	$^\circ\text{C}$
Junction Temperature	$T_j$	$-40\sim+150$	$^\circ\text{C}$

**THERMAL DATA**

Characteristics	Symbol	Value	Units
Thermal Resistance Junction-case Max	$R_{th(j-case)}$	3	$^\circ\text{C}/\text{W}$

**ELECTRICAL CHARACTERISTICS**

(Refer to the test circuit,  $V_s=\pm 14\text{V}$ ,  $T_a=25^\circ\text{C}$ , unless otherwise specified)

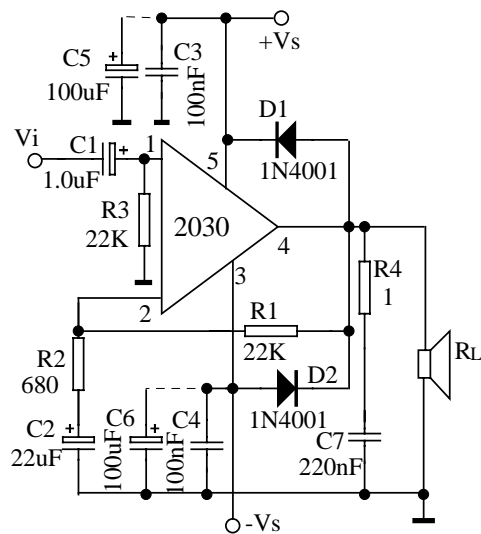
Characteristics	Test conditions	Symbol	Min	Typ	Max	Unit
Supply Voltage		$V_s$	$\pm 6$		$\pm 18$	V
			12		36	
Quiescent Drain Current	$V_s=\pm 18\text{V}(V_s=36\text{V})$	$I_d$		40	60	mA
Input Bias Current		$I_b$		0.2	2	$\mu\text{A}$
Input Offset Voltage		$V_{os}$		$\pm 2$	$\pm 20$	mA
Input Offset Current		$I_{os}$		$\pm 20$	$\pm 200$	nA

**ELECTRICAL CHARACTERISTICS**

Continue

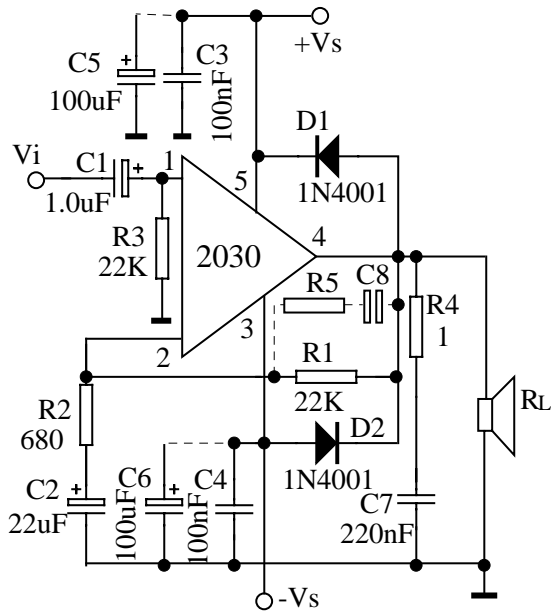
Characteristics	Test conditions	Symbol	Min	Typ	Max	Unit	
Output Power	THD=0.5%, $G_v=30\text{dB}$ , $f=40$ to $15000\text{Hz}$	$P_o$	$R_L=4\Omega$	12	14		W
			$R_L=8\Omega$	8	9		
	THD=10%, $G_v=30\text{dB}$ , $f=1\text{kHz}$	$R_L=4\Omega$		18			
		$R_L=8\Omega$		11			
Power Bandwidth (-3dB)	$P_o=12\text{W}$ , $R_L=4\Omega$ , $G_v=30\text{dB}$	BW	10~140000			kHz	
Open Loop Voltage Gain		$G_v$		90		dB	
Closed Loop Voltage Gain	$f=1\text{kHz}$	$G_v$	29.5	30	30.5	dB	
Total Harmonic Distortion	$P_o=0.1$ to $12\text{W}$ , $R_L=4\Omega$ , $G_v=30\text{dB}$ , $f=40$ to $15000\text{kHz}$	THD		0.2	0.5	%	
	$P_o=0.1$ to $8\text{W}$ $R_L=8\Omega$ $G_v=30\text{dB}$ , $f=40$ to $15000\text{kHz}$			0.1	0.5		
Input Noise Voltage	$B=22\text{Hz}$ to $22\text{kHz}$	$e_N$		3	10	$\mu\text{V}$	
Input Noise Current		$i_N$		80	200	pA	
Input Resistance (pin1)		$R_i$	0.5	5		M $\Omega$	
Supply Voltage Rejection	$R_L=4\Omega$ , $R_g=22\text{k}\Omega$ , $G_v=30\text{dB}$ , $V_{\text{ripple}}=0.5V_{\text{eff}}$ , $f_{\text{ripple}}=100\text{Hz}$	SVR	40	50		dB	
Drain current	$P_o=14\text{W}$ , $R_L=4\Omega$	$I_d$		900		mA	
	$P_o=8\text{W}$ , $R_L=8\Omega$			500			

**TEST CIRCUIT**

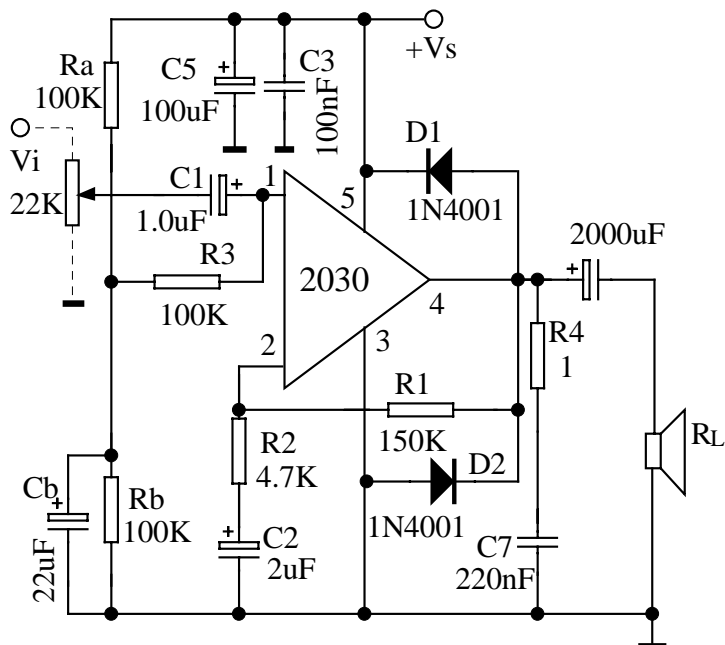


## APPLICATION CIRCUIT

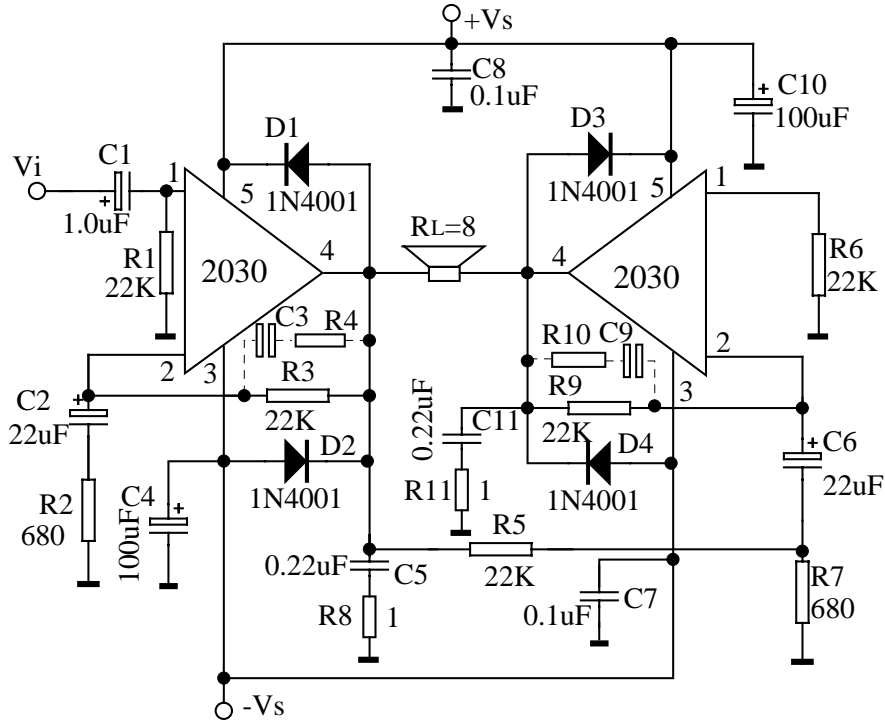
### 1. Typical amplifier with split power supply



### 2. Typical amplifier with single power supply



3. Bridge amplifier configuration with split power supply ( $P_o=28W$ ,  $V_s=\pm 14V$ )



CHARACTERISTICS CURVES

Figure 1. Output power vs. supply voltage

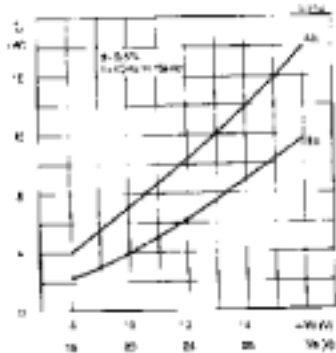


Figure 2. Output power vs. supply voltage

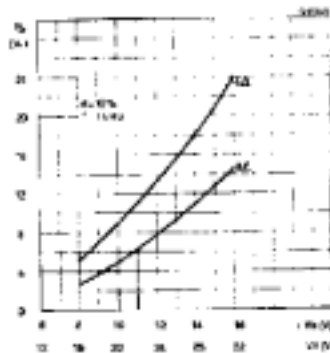


Figure 3. Distortion vs. output power

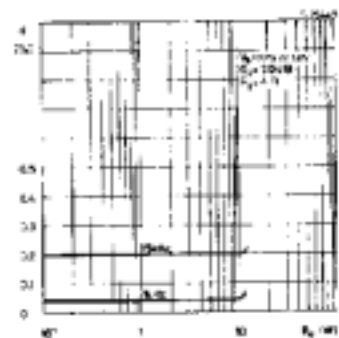


Figure 4. Distortion vs. output power

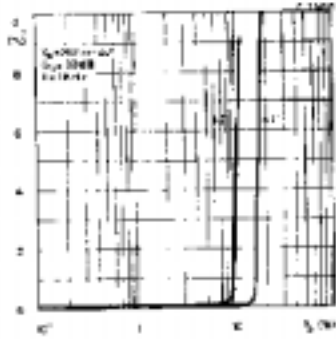


Figure 5. Distortion vs. output power

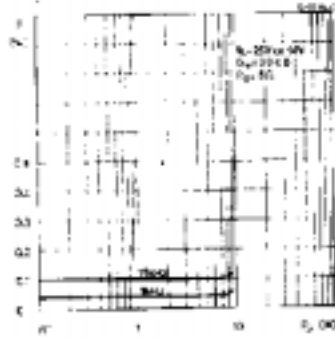


Figure 6. Distortion vs. frequency

