

## **STEREO POWER AMPLIFIER—YD1517P**

### **DESCRIPTION**

The YD1517P is an integrated class-B dual output amplifier in a 18-lead dual in-line (DIP18) plastic medium power package. The device is primarily developed for multi-media applications.

### **FEATURES**

- \*Requires very few external components
- \*High output power
- \*Fixed gain
- \*Good ripple rejection
- \*Mute/stand-by switch
- \*Load dump protection
- \*AC and DC short-circuit-safe to ground and Vcc
- \*Thermally protected
- \*Reverse polarity safe
- \*Capability to handle high energy on outputs (Vcc=0V)
- \*No switch-on/switch-off plop
- \*Protected against electrostatic discharge

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### **WuXi YouDa Electronics Co., Ltd**

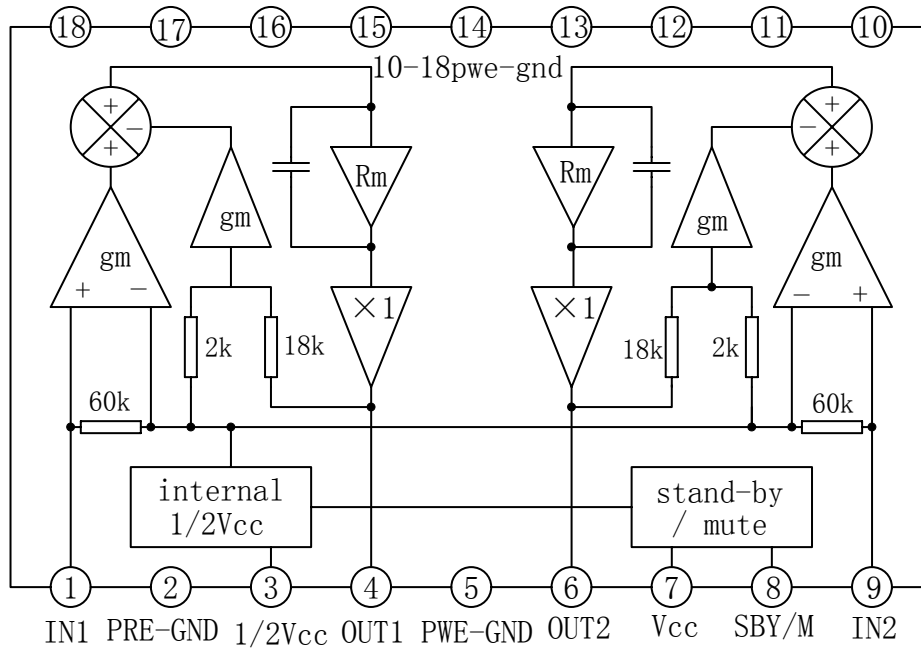
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**BLOCK DIAGRAM**



**ABSOLUTE MAXIMUM RATINGS** (Tamb=25°C)

PARAMETER	SYMBOL	TEST CONDITIONS	VALUE	UNIT
Supply Voltage Operating	Vcc		18	V
Non-operating	Vcc		20	V
AC And DC Shot-circuit-safe Voltage	Vccsc		18	V
Reverse Polarity	Vccr		6	V
Non-repetitive Peak Output Current	I <sub>OSM</sub>		4	A
Repetitive Peak Output Current	I <sub>ORM</sub>		2.5	A
Total Power Dissipation	P <sub>D</sub>	Infinite Heat Sink	8.0	W
		No Heat Sink	2.5	
Operating Temperature	Topr		-20~+75	°C
Storage Temperature	Tstg		-55~+150	°C

**ELECTRICAL CHARACTERISTICS**

**DC CHARACTERISTICS**

(V<sub>cc</sub>=14.4V, T<sub>amb</sub>=25°C, stereo, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage Range	V <sub>cc</sub>		6.0	14.4	18.0	V
Total Quiescent Current	I <sub>ccq</sub>			40	80	mA
DC Output Voltage	V <sub>o</sub>			7.0		V
DC Output Offset Voltage	\Delta V4-6	Operating/Mute			250	mV
Switch-on Voltage Level	V <sub>ON</sub>	Operating	8.5		V <sub>cc</sub>	V
Mute Condition	V <sub>mute</sub>	Mute	3.3		6.4	V
Stand-by Condition	V <sub>st-by</sub>	Stand-by	0		2.0	V
DC Current in Stand-by	I <sub>ccstb</sub>	V <sub>8</sub> ≤ 2.0V			100	μ A
Control Current in Stand-by	I <sub>8stb</sub>	V <sub>8</sub> ≤ 2.0V		12	40	μ A

**AC CHARACTERISTICS**

V<sub>cc</sub>=14.4V, R<sub>L</sub>=8 Ω, f=1KHz; T<sub>amb</sub>=25°C, unless otherwise specified

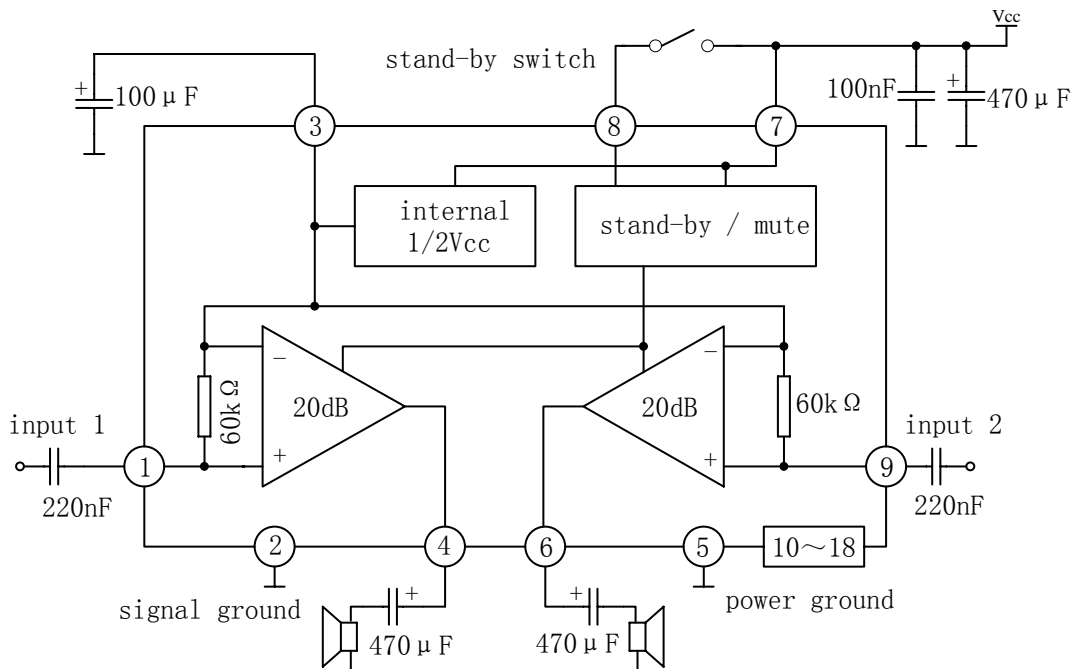
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Power	Po1	THD=1.0%	2.4	2.6		W
		THD=10%	2.8	3.0		W
Output Power	Po2	THD=1% R <sub>L</sub> =4 Ω T <sub>c</sub> =25°C	4.0	5.0		W
		THD=10%	5.5	6.0		W
Closed Loop Voltage Gain	G <sub>v</sub>		19	20	21	dB
Total Harmonic Distortion	THD	P <sub>o</sub> =1W		0.1		%
Output Signal In Mute Position	V <sub>o</sub>	V <sub>in</sub> =1V(max.); f=20 Hz to 15 kHz			20	mV
Low Frequency Roll-off	f <sub>L</sub>	-3dB		45		Hz
High Frequency Roll-off	f <sub>H</sub>	-3dB	20			kHz

AC CHARACTERISTICS

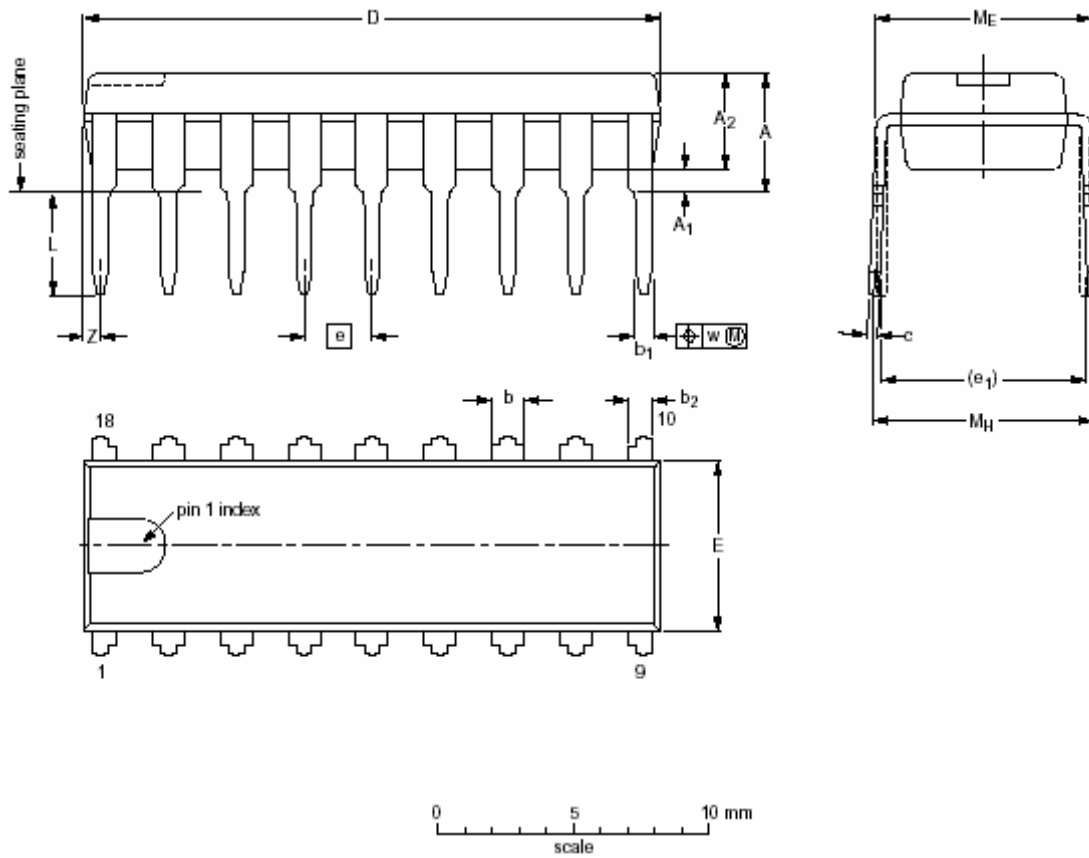
V<sub>cc</sub>=14.4V, R<sub>L</sub>=8 Ω, f=1KHz; Tamb=25°C, unless otherwise specified

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage Ripple Rejection	RR	ON	V <sub>r</sub> =2V <sub>p-p</sub> , R <sub>g</sub> =0, f <sub>r</sub> =100Hz, 1kHz~10kHz	48		
		Mute		48		
		Stand-by		80		
Input Impedance	Z <sub>i</sub>		50	60	75	k Ω
Noise Output Voltage (RMS value)	V <sub>no</sub>	ON, R <sub>g</sub> =0 Ω, BPF=20Hz~20kHz		50		μ V
		ON, R <sub>s</sub> =10k Ω BPF=20Hz~20kHz		70	100	μ V
		Mute, BPF=20Hz~20kHz		50		μ V
Channel Separation	α	R <sub>s</sub> =10k Ω	40			dB
Channel Unbalance	ΔG <sub>v</sub>			0.1	1	dB

APPLICATION CIRCUIT



OUTLINE DRAWING



DIMENSIONS (inch dimensions are derived from the original mm dimensions)

UNIT	A max.	A <sub>1</sub> min.	A <sub>2</sub> max.	b	b <sub>1</sub>	b <sub>2</sub>	c	D <sup>(1)</sup>	E <sup>(1)</sup>	e	e <sub>1</sub>	L	M <sub>E</sub>	M <sub>H</sub>	w	Z <sup>(1)</sup> max.
mm	4.7	0.51	3.7	1.40 1.14	0.67 0.50	1.05 0.75	0.47 0.38	21.85 21.35	6.5 6.2	2.54	7.62	3.9 3.1	8.32 8.02	8.7 7.7	0.25	1
inches	0.19	0.02	0.15	0.06 0.04	0.03 0.02	0.04 0.03	0.02 0.01	0.87 0.84	0.26 0.24	0.1	0.3	0.15 0.12	0.33 0.32	0.34 0.30	0.01	0.04