

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

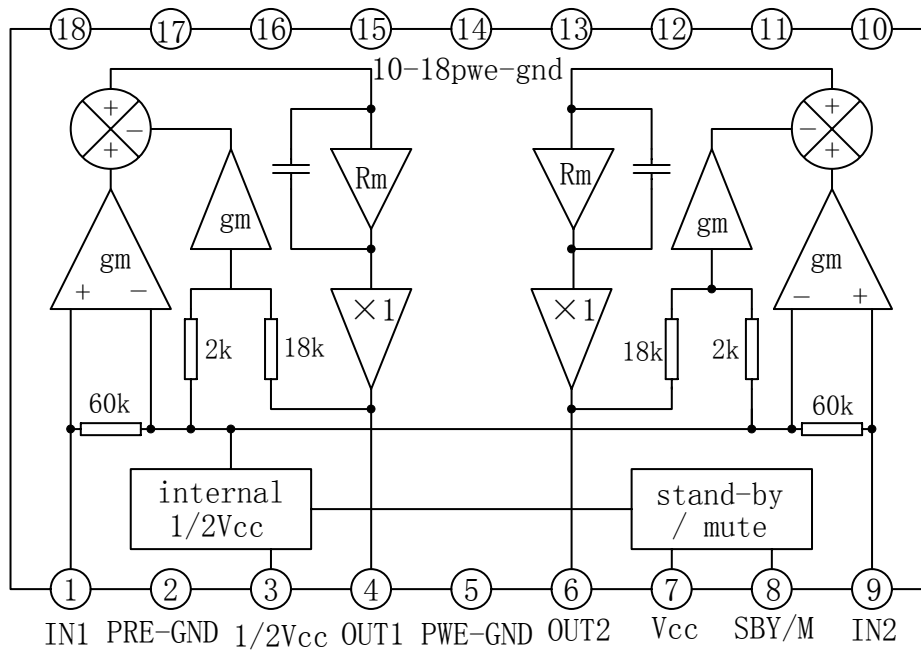
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BLOCK DIAGRAM



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 _{OSM}		4	A
Repetitive Peak Output Current	I _{ORM}		2.5	A
Total Power Dissipation	P _D	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_{cc}=14.4V, T_{amb}=25°C, stereo, unless otherwise specified)

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

AC CHARACTERISTICS

V_{cc}=14.4V, R_L=8 Ω, f=1KHz; T_{amb}=25°C, unless otherwise specified

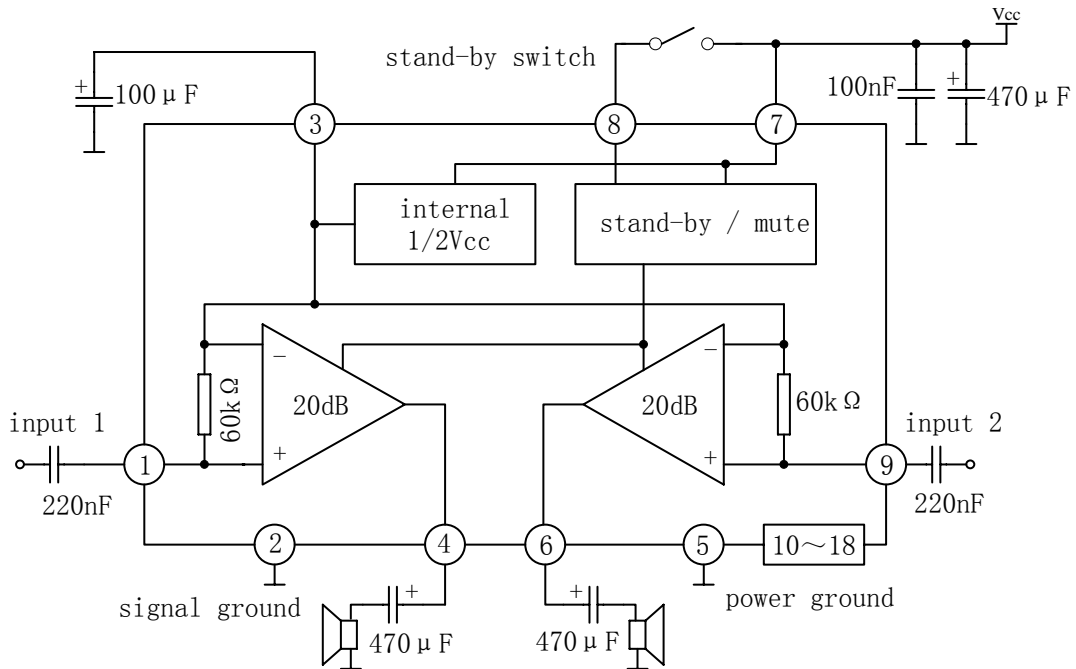
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Power	Po1	THD=1.0%	2.4	2.6		W
		THD=10%	2.8	3.0		W
Output Power	Po2	THD=1% R _L =4 Ω T _c =25°C	4.0	5.0		W
		THD=10%	5.5	6.0		W
Closed Loop Voltage Gain	G _v		19	20	21	dB
Total Harmonic Distortion	THD	P _o =1W		0.1		%
Output Signal In Mute Position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

AC CHARACTERISTICS

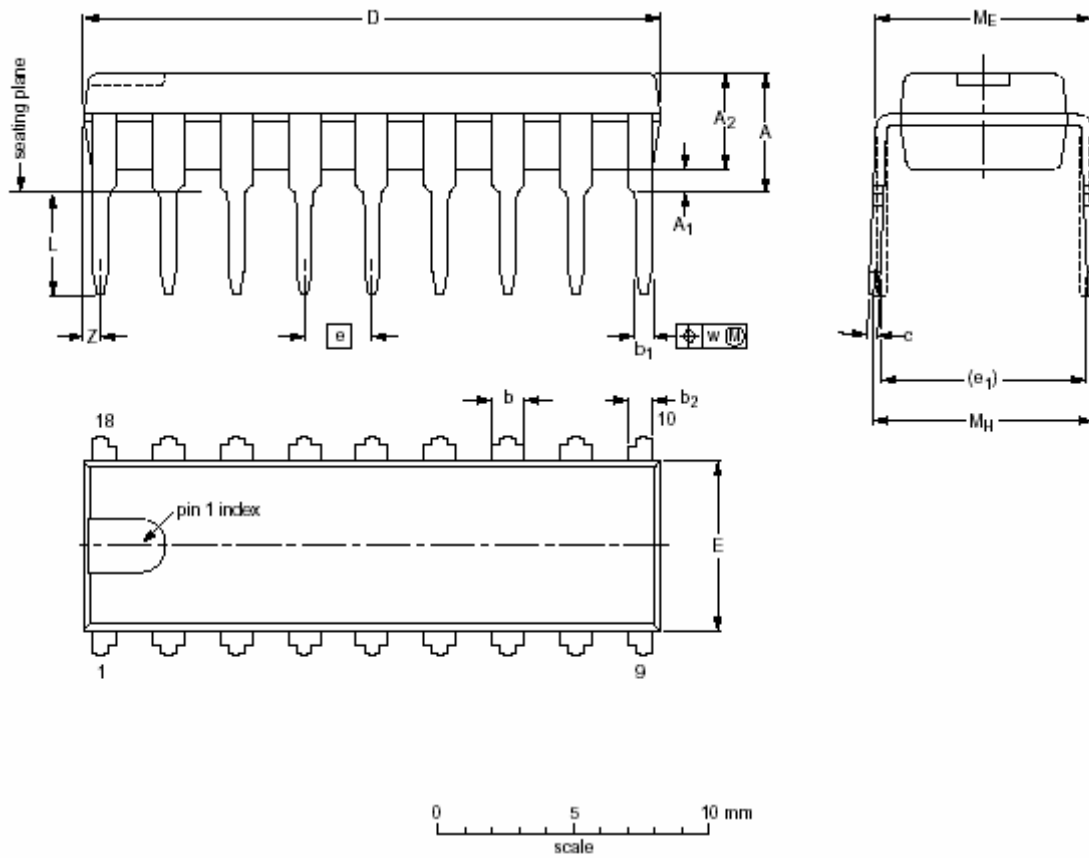
$V_{cc}=14.4V$, $R_L=8\ \Omega$, $f=1KHz$; $T_{amb}=25^\circ C$, unless otherwise specified

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
Supply Voltage Ripple Rejection	RR	ON	$V_r=2V_{p-p}$, $R_g=0$, $f_r=100Hz$, $1kHz\sim 10kHz$	48			dB
		Mute		48			dB
		Stand-by		80			dB
Input Impedance	Z_i		50	60	75	$k\ \Omega$	
Noise Output Voltage (RMS value)	V_{no}	ON, $R_g=0\ \Omega$, BPF=20Hz~20kHz		50			μV
		ON, $R_s=10k\ \Omega$ BPF=20Hz~20kHz		70	100		μV
		Mute, BPF=20Hz~20kHz		50			μV
Channel Separation	α	$R_s=10k\ \Omega$	40			dB	
Channel Unbalance	$ \Delta G_v $			0.1	1	dB	

APPLICATION CIRCUIT



OUTLINE DRAWING



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

UNIT	A max.	A ₁ min.	A ₂ max.	b	b ₁	b ₂	c	D ⁽¹⁾	E ⁽¹⁾	e	e ₁	L	M _E	M _H	w	Z ⁽¹⁾ 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