

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 ($V_{cc}=0V$)
- *No switch-on/switch-off plop
- *Protected against electrostatic discharge

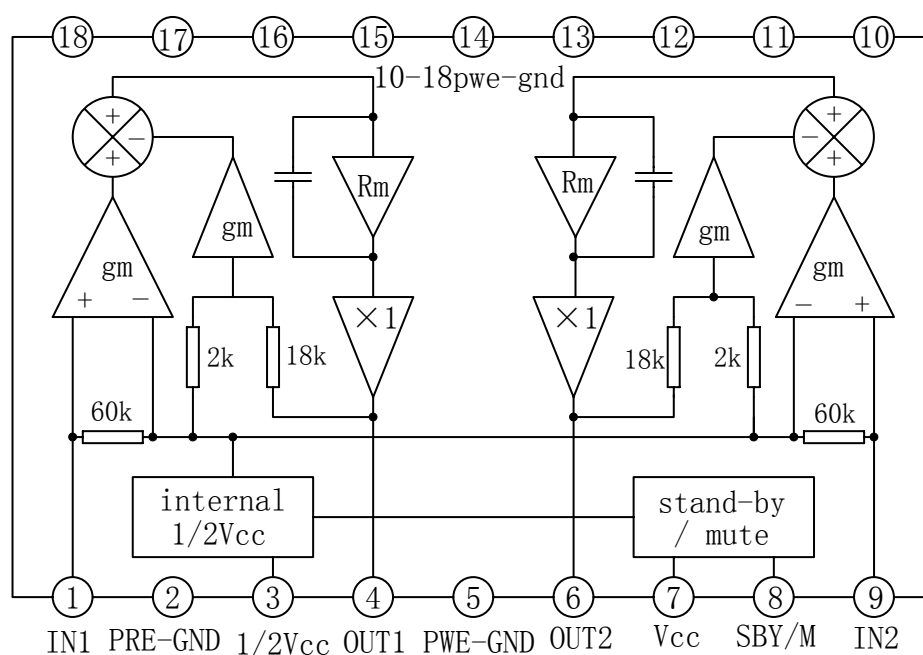
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BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS (Tamb=25℃)

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	℃
Storage Temperature	Tstg		-55~+150	℃

ELECTRICAL CHARACTERISTICS

DC CHARACTERISTICS

(V_{CC}=14.4V, T_{amb}=25℃, 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	ΔV_{4-6}	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	μA
Control Current in Stand-by	I _{8STB}	V ₈ ≤ 2.0V		12	40	μA

AC CHARACTERISTICS

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

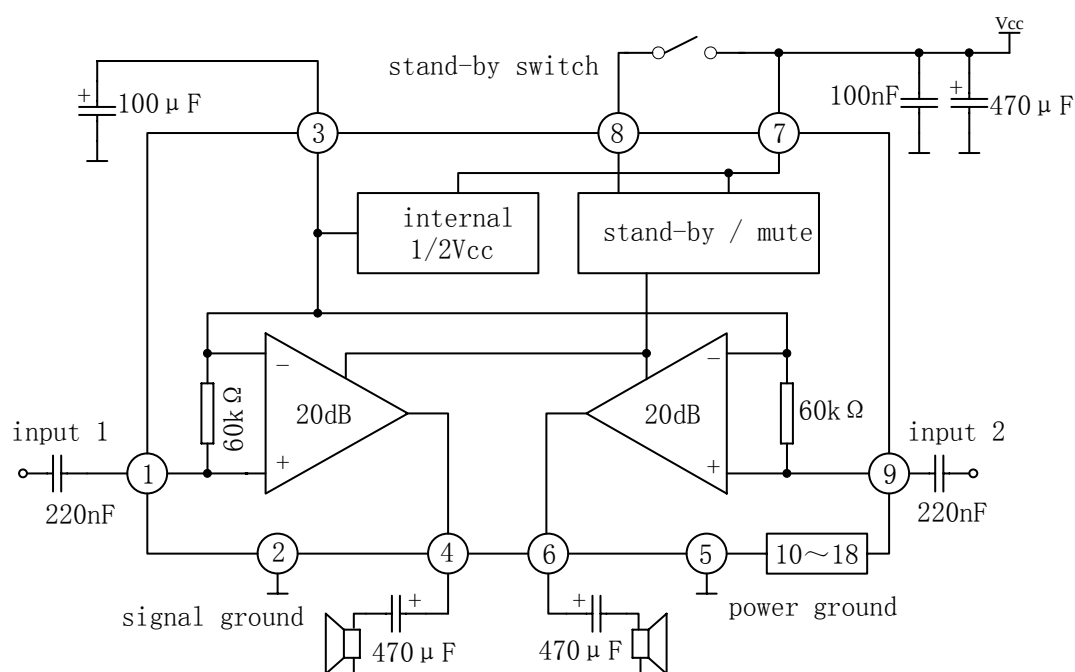
PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Output Power	Po1	THD=1.0%		2.4	2.6		W
		THD=10%		2.8	3.0		W
Output Power	Po2	THD=1%	R _L =4 Ω T _c =25℃	4.0	5.0		W
		THD=10%		5.5	6.0		W
Closed Loop Voltage Gain	G _v			19	20	21	dB
Total Harmonic Distortion	THD	Po =1W			0.1		%
Output Signal In Mute Position	V _o	Vin=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

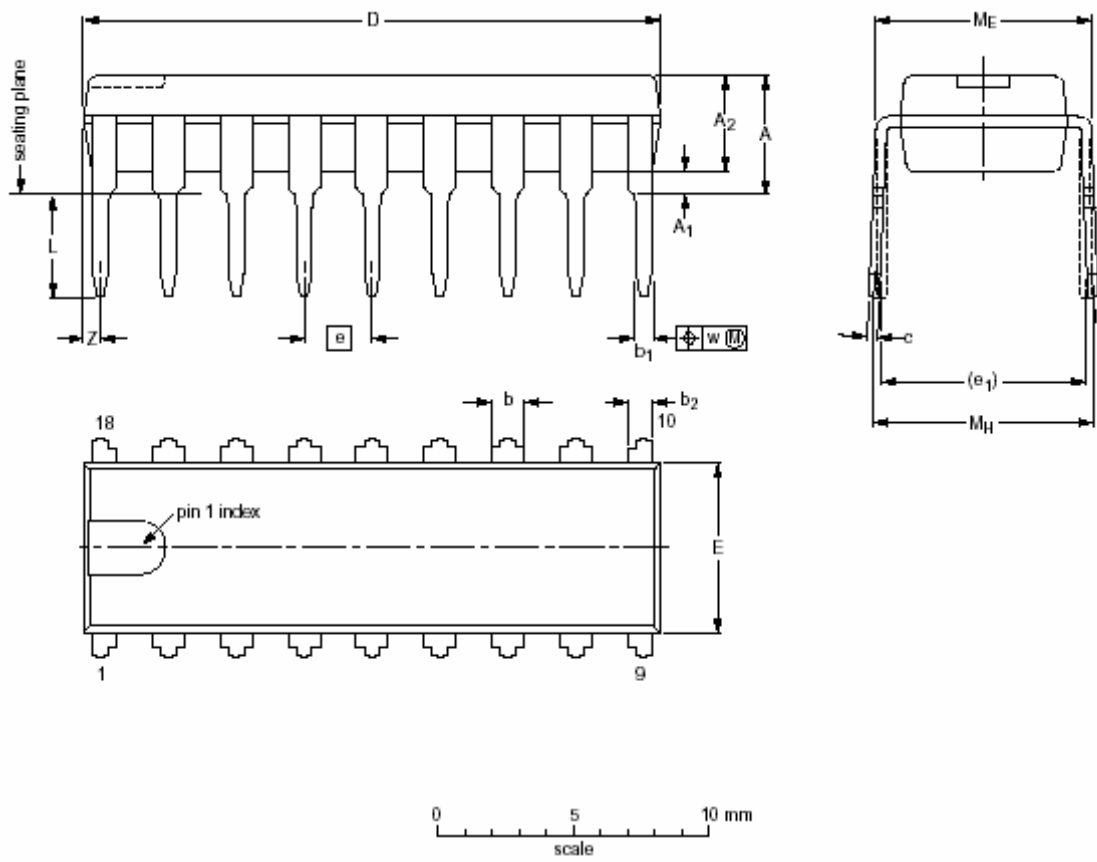
$V_{CC}=14.4V$, $R_L=8\ \Omega$, $f=1kHz$; $T_{amb}=25^{\circ}C$, unless otherwise specified

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage Ripple Rejection	RR	ON	48			dB
		Mute				
		Stand-by				
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