

### 30W BTL DUAL AUDIO POWER AMPLIFIER

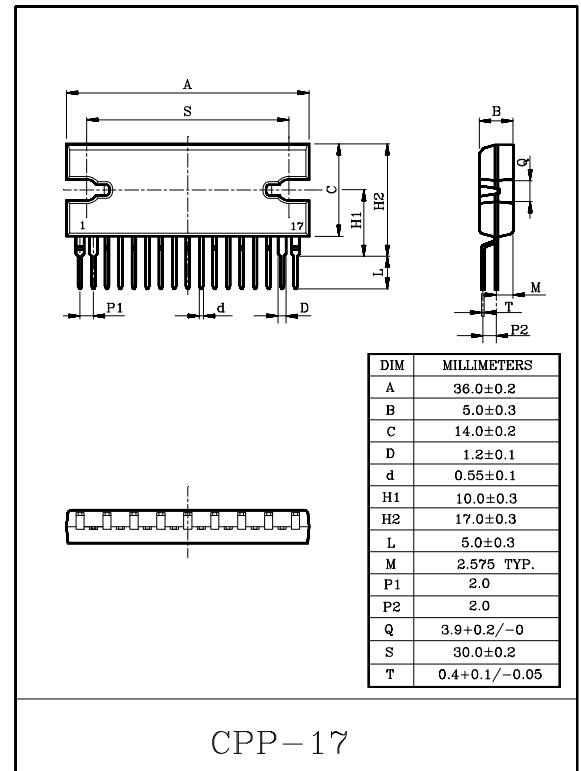
The thermal resistance  $\theta_{j-c}$  of KIA6221AH package CPP-17 (Compact Power Package 17pin), designed for low thermal resistance, has high efficiency of heat radiation.

The temperature rise of chip can be reduced, and the influence from the degradation of the features due to the temperature rise at the high output can also be reduced.

This stereo audio power IC, designed for car audio use, has two built-in channels to reduce the characteristic difference between L and R channels.

#### FEATURES

- Low Thermal Resistance  
:  $\theta_{j-c}=1.5^{\circ}\text{C}/\text{W}$  (Infinite heat sink)
- High Power  
:  $P_{\text{OUT}}(1)=30\text{W}(\text{Typ.})/\text{Channel}$   
( $V_{\text{CC}}=14.4\text{V}$ ,  $f=1\text{kHz}$ ,  $\text{THD}=10\%$ ,  $R_{\text{L}}=2\Omega$ )  
:  $P_{\text{OUT}}(2)=26\text{W}(\text{Typ.})/\text{Channel}$   
( $V_{\text{CC}}=13.2\text{V}$ ,  $f=1\text{kHz}$ ,  $\text{THD}=10\%$ ,  $R_{\text{L}}=2\Omega$ )  
:  $P_{\text{OUT}}(3)=19\text{W}(\text{Typ.})/\text{Channel}$   
( $V_{\text{CC}}=13.2\text{V}$ ,  $f=1\text{kHz}$ ,  $\text{THD}=10\%$ ,  $R_{\text{L}}=4\Omega$ )
- Low Distortion  
:  $\text{THD}=0.04\%(\text{Typ.})$  ( $V_{\text{CC}}=13.2\text{V}$ ,  $f=1\text{kHz}$ ,  $P_{\text{OUT}}=1\text{W}$ ,  $R_{\text{L}}=4\Omega$ ,  $G_{\text{V}}=50\text{dB}$ )
- Low Noise  
:  $V_{\text{NO}}=0.3\text{mV}_{\text{rms}}(\text{Typ.})$   
( $V_{\text{CC}}=13.2\text{V}$ ,  $R_{\text{L}}=4\Omega$ ,  $G_{\text{V}}=50\text{dB}$ ,  $R_{\text{g}}=0\Omega$ ,  $\text{BW}=20\text{Hz}\sim 20\text{kHz}$ )
- Built-in stand-by function (With ④ pin set at LOW, Power is turned OFF.)  
:  $I_{\text{SB}}=1\mu\text{A}(\text{Typ.})$
- Built-in various protection circuits  
Protection circuits : thermal shut down. over voltage, Out $\rightarrow$ V $_{\text{CC}}$  short.  
Out $\rightarrow$ GND short and OUT-OUT short.
- Operating supply voltage :  $V_{\text{CC}}=9\sim 18\text{V}$



# KIA6221AH

## MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Peak Supply Voltage (0.2sec)	V <sub>CC</sub> surge	50	V
DC Supply Voltage	V <sub>CC</sub> DC	25	V
Operating Supply Voltage	V <sub>CC</sub> opr	18	V
Output Current (Peak)	I <sub>O(peak)</sub>	9	A
Power Dissipation	P <sub>D</sub>	50	W
Operating Temperature	T <sub>opr</sub>	-30~85	°C
Storage Temperature	T <sub>stg</sub>	-55~150	°C

## ELECTRICAL CHARACTERISTICS

(Unless otherwise specified, V<sub>CC</sub>=13.2V, R<sub>L</sub>=4Ω, f=1kHz, Ta=25°C)

CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Supply Current	I <sub>CCQ</sub>	-	V <sub>IN</sub> =0	-	120	250	mA
Output Power	P <sub>OUT</sub> (1)	-	V <sub>CC</sub> =14.4V, THD=10%, R <sub>L</sub> =2Ω	-	30	-	W
	P <sub>OUT</sub> (2)	-	THD=10%, R <sub>L</sub> =2Ω	17	26	-	
	P <sub>OUT</sub> (3)	-	THD=10%	16	19	-	
Total Harmonic Distortion	THD	-	P <sub>OUT</sub> =1W	-	0.04	0.4	%
Voltage Gain	G <sub>V</sub>	-	V <sub>OUT</sub> =0dB	48	50	52	dB
Output Noise Voltage	V <sub>NO</sub>	-	R <sub>g</sub> =0Ω, BW=20Hz~20kHz	-	0.30	0.70	mV <sub>rms</sub>
Ripple Rejection Ratio	R.R	-	f <sub>RIP</sub> =100Hz, R <sub>g</sub> =600Ω, V <sub>RIP</sub> =0dBm	40	54	-	dB
Input Resistance	R <sub>IN</sub>	-	-	-	30	-	kΩ
Output Offset Voltage	V <sub>offset</sub>	-	V <sub>IN</sub> =0	-100	0	100	mV
Current at Stand-by State	I <sub>SB</sub>	-	-	-	100	150	μA
Cross Talk	C.T	-	R <sub>g</sub> =600Ω, V <sub>OUT</sub> =0dBm	-	60	-	dB
① Pin Control Voltage	V <sub>MUTE</sub>	-	Mute→ON (Power→OFF)	-	1.0	2.0	V
④ Pin Control Voltage	V <sub>SB</sub>	-	Stand-by→OFF (Power→ON)	2.5	-	V <sub>CC</sub>	V
Channel Voltage Gain Ratio	ΔG <sub>V</sub>	-	-	-1.0	0	1.0	dB

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BLOCK DIAGRAM AND TEST CIRCUIT (Gv=50dB)

