2 x 12 W Hi-Fi Audio Power Amplifiers with Mute

GENERAL DESCRIPTION

The KKA2616 are dual power amplifiers. The KKA2616 is supplied in a 9-lead single-in-line (SIL9) plastic power package (SOT131). They have been especially designed for mains fed applications, such as stereo radio and stereo TV.

FEATURES

- Requires very few external components
- No switch-on/switch-off clicks
- Input mute during switch-on and switch-off
- Low offset voltage between output and ground
- Excellent gain balance of both amplifiers
- Hi-fi in accordance with IEC 268 and DIN 45500
- Short-circuit proof and thermal protected
- Mute possibility.

QUICK REFERENCE DATA *Stereo application*

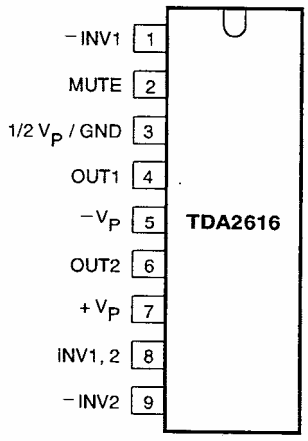
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
±Vp	supply voltage range		7.5	-	21	V
PO	output power	Vp = ±16 V; THD = 0.5%	-	12	-	W
GV	internal voltage gain		-	30	-	dB
lGyl	channel unbalance		-	0.2	-	dB
a	channel separation		-	70	-	dB
SVRR	supply voltage ripple rejection		-	60	-	dB
Vno	noise output voltage		-	70	- •	nV

ORDERING INFORMATION

EXTENDED TYPE NUMBER	PACKAGE			
	PINS	PIN POSITION	MATERIAL	CODE
KKA2616	9	SIL	plastic	SOT131^

PINING

SYMBOL	PIN	DESCRIPTION
-INV1	1	non-inverting input 1
MUTE	2	mute input
1/2Vp/GND	3	1/2 supply voltage or ground
OUT1	4	output 1
-Vp	5	supply voltage (negative)
OUT2	6	output 2
+Vp	7	supply voltage (positive)
INV1,2	8	inverting inputs 1 and 2
-INV2	9	non-inverting input 2



CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Supply						
±Vp	supply voltage range		-	16	21	V
I_{ORM}	repetitive peak output current		-	2.2	-	A
Operating position; *note 1*						
±Vp	supply voltage range		7.5	16	21	V
IP	total quiescent current	$R_L = \infty$	18	40	70	mA
PO	output power	THD = 0.5% THD = 10%	10 12	12 15	- -.	W W
THD	total harmonic distortion	Po=6W	-	0.15	0.2	%
B	power bandwidth	THD = 0.5%; note 2	-	20 to 20000	-	Hz
Gv	voltage gain.		29	30	31	dB

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
lGvl	gain unbalance		-	0.2	1	dB
Vno	noise output voltage	note3	-	70	140	nV
IZil	input impedance		14	20	26	kl2
SVRR	supply voltage ripple rejection	note 4	40	60	-	dB
a	channel separation	Rs=o	46	70	-	dB
Ibias	input bias current		-	0.3	-	nA
lAVeNol	DC output offset voltage		-	30	200	mV
lAV^l	DC output offset voltage	between two channels	-	4	150	mV
MUTE POSITION (AT $I_{MUTE} \geq 300$ mA)						
VQ	output voltage	V_I = 600 mV	-	0.3	1.0	mV
22-7	mute input impedance	note 7	6.7	9	11.3	k^
IP	total quiescent current	$R_L = \infty$	18	40	70	mA
Vno	noise output voltage	note3	-	70	140	uV
SVRR	supply voltage ripple rejection	note 4	40	55	-	dB
$l\Delta V_{GND}l$	DC output offset voltage		-	40	200	mV
$l\Delta V_{off}l$	offset voltage with respect to operating position		-	4	150	mV
I_2	current if pin 2 is connected to pin 5		-	-	8.2	mA
Mute position; *note 5*						
±Vp	supply voltage range		2	-	5.8	V
IP	total quiescent current.	$R_L = \infty$	9	30	40	mA
VQ	output voltage	V_I = 600 mV	-	0.3	1.0	mV
Vno	noise output voltage	note 3	-	70	140	uV
SVRR	supply voltage ripple rejection	note 4	40	55	-	dB
$lV_{GND}l$	DC output offset voltage		-	40	200	mV
Operating position; note 6						
IP	total quiescent current		18	40	70	mA
PO	output power	THD = 0.5% THD = 10% THD = 0.5%; RL = 4 Q THD = 10%; RL = 4 1.2	5 6.5 - -	6 8 10 14	- - - -	W W W W
THD	total harmonic distortion	Po=4W	-	0.13	0.2	%
B	power bandwidth	THD = 0.5%; note 2	-	40 to 20000	-	Hz
Gv	voltage gain		29	30	31	dB
lGvl	gain unbalance		-	0.2	1	dB
Vno	noise output voltage	note3	-	70	140	HV
IZil	input impedance		14	20	26	kQ
SVRR	supply voltage ripple rejection		35	44	-	dB
a	channel separation		-	45	-	dB
MUTE POSITION (IMUTE≥300)mA)						
VQ	output voltage	V_I = 600 mV	-	0.3	1.0	mV
Z_{2-7}	mute input impedance	note?	6.7	9	11.3	kΩ
IP	total quiescent current		18	40	70	mA
Vno	noise output voltage	note 3	-	70	140	mV
SVRR	supply voltage ripple rejection .	note 4	35	44	-	dB
lΔVoffl	offset voltage with respect to operating position		-	4	150	mV
I_2	current if pin 2 is connected to pin 5		-	-	8.2	mA

Notes to the characteristics

1. Vp = ±16 V; RI. = 8 Q; Tamb = 25 °C; f =1 kHz; symmetrical power supply IMUTE < 30 [LIA. SEE Fig.4
2. The power bandwidth is measured at an output power of PQ max -3 dB
3. The noise output voltage (RMS value) is measured at Rg = 2 kl2, unweighted (20 Hz to 20 kHz)
4. The ripple rejection is measured at Rs = 0 and f = 100 Hz to 20 kHz. The ripple voltage (200 mV) is applied in phase to the positive and the negative supply rails'. With asymmetrical power supplies, the ripple rejection is'measured at f=1 kHz
5. ±Vp = 4 V; RL =• 8 Q; Tamb = 25 °C; f =1 kHz; symmetrical power supply. See Fig.4
6. Vp = 24 V; R)_ = 8 Q; Tamb = 25 °C; f =1 kHz; asymmetrical power supply IMUTE < 30)LIA. see Fig.5
7. The internal network at pin 2 is a resistor devider of typical 4 kQ and 5 kiltothe positive supply rail. At the connection of the 4 ki2 and 5 kQ resistor a zener diode of typical 6.6 V is also connected to the positive supply rail. The spread of the zener voltage is 6.1 to 7.1 V.

- **9-Pin Plastic Power Single-in-Line (SIL-9MPF, SOT 131-2)**