

# ILA2616

## 2 X 12 W HI-FI AUDIO POWER AMPLIFIERS WITH MUTE

### GENERAL DESCRIPTION

The ILA2616 are dual power amplifiers. The ILA2616 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

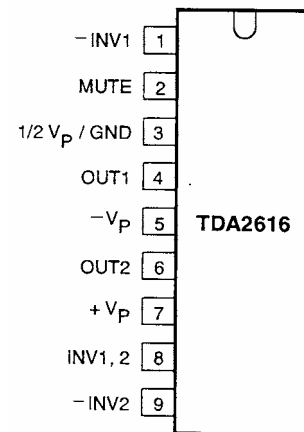
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$\pm V_p$	supply voltage range		7.5	-	21	V
PO	output power	$V_p = \pm 16$ V; THD = 0.5%	-	12	-	W
GV	internal voltage gain		-	30	-	dB
IGyl	channel unbalance		-	0.2	-	dB
a	channel separation		-	70	-	dB
SVRR	supply voltage ripple rejection		-	60	-	dB
Vno	noise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

### ORDERING INFORMATION

EXTENDED TYPE	PACKAGE			
NUMBER	PINS	PIN POSITION	MATERIAL	CODE
ILA2616	9	SIL	plastic	SOT131 <sup>^</sup>

### PINING

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



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## CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
<b>Supply</b>						
$\pm V_p$	supply voltage range		-	16	21	V
$I_{ORM}$	repetitive peak output current		-	2.2	-	A
<b>Operating position; note 1</b>						
$\pm V_p$	supply voltage range		7.5	16	21	V
$I_P$	total quiescent current	$R_L = \infty$	18	40	70	mA
$P_O$	output power	THD = 0.5% THD = 10%	10 12	12 15	- -	W W
THD	total harmonic distortion	$P_o=6W$	-	0.15	0.2	%
B	power bandwidth	THD = 0.5%; note 2	-	20 to 20000	-	Hz
$G_v$	voltage gain.		29	30	31	dB
$I_{Gv}$	gain unbalance		-	0.2	1	dB
$V_{no}$	noise output voltage	note3	-	70	140	nV
$I_{Zil}$	input impedance		14	20	26	k $\Omega$
SVRR	supply voltage ripple rejection	note 4	40	60	-	dB
a	channel separation	$R_s=0$	46	70	-	dB
$I_{bias}$	input bias current		-	0.3	-	nA
$I_{AVeNol}$	DC output offset voltage		-	30	200	mV
$I_{AV}^I$	DC output offset voltage	between two channels	-	4	150	mV
<b>MUTE POSITION (AT <math>I_{MUTE} \geq 300</math> mA)</b>						
$V_Q$	output voltage	$V_I = 600$ mV	-	0.3	1.0	mV
22-7	mute input impedance	note 7	6.7	9	11.3	k $\Omega$
$I_P$	total quiescent current	$R_L = \infty$	18	40	70	mA
$V_{no}$	noise output voltage	note3	-	70	140	$\mu$ V
SVRR	supply voltage ripple rejection	note 4	40	55	-	dB
$I_{\Delta V_{GND}}$	DC output offset voltage		-	40	200	mV
$I_{\Delta V_{off}}$	offset voltage with respect to operating position		-	4	150	mV
$I_2$	current if pin 2 is connected to pin 5		-	-	8.2	mA
<b>Mute position; note 5</b>						
$\pm V_p$	supply voltage range		2	-	5.8	V
$I_P$	total quiescent current.	$R_L = \infty$	9	30	40	mA
$V_Q$	output voltage	$V_I = 600$ mV	-	0.3	1.0	mV
$V_{no}$	noise output voltage	note 3	-	70	140	$\mu$ V
SVRR	supply voltage ripple rejection	note 4	40	55	-	dB

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SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$ V_{GND} $	DC output offset voltage		-	40	200	mV
<b>Operating position; note 6</b>						
$I_P$	total quiescent current		18	40	70	mA
$P_O$	output power	THD = 0.5%	5	6	-	W
		THD = 10%	6.5	8	-	W
		THD = 0.5%; $R_L = 4 \Omega$	-	10	-	W
		THD = 10%; $R_L = 4 \Omega$	-	14	-	W
THD	total harmonic distortion	$P_o=4W$	-	0.13	0.2	%
B	power bandwidth	THD = 0.5%; note 2	-	40 to 20000	-	Hz
Gv	voltage gain		29	30	31	dB
$ G_{v1} $	gain unbalance		-	0.2	1	dB
$V_{no}$	noise output voltage	note3	-	70	140	HV
$ Z_{il} $	input impedance		14	20	26	k $\Omega$
SVRR	supply voltage ripple rejection		35	44	-	dB
a	channel separation		-	45	-	dB

## MUTE POSITION ( $I_{MUTE} \geq 300$ mA)

$V_Q$	output voltage	$V_1 = 600$ mV	-	0.3	1.0	mV
$Z_{2-7}$	mute input impedance	note?	6.7	9	11.3	k $\Omega$
$I_P$	total quiescent current		18	40	70	mA
$V_{no}$	noise output voltage	note 3	-	70	140	mV
SVRR	supply voltage ripple rejection .	note 4	35	44	-	dB
$  \Delta V_{off1}  $	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

- $V_p = \pm 16$  V;  $R_L = 8 \Omega$ ;  $T_{amb} = 25$  °C;  $f = 1$  kHz; symmetrical power supply  $I_{MUTE} < 30$  [LIA. SEE Fig.4
- The power bandwidth is measured at an output power of  $P_Q$  max -3 dB
- The noise output voltage (RMS value) is measured at  $R_g = 2$  k $\Omega$ , unweighted (20 Hz to 20 kHz)
- The ripple rejection is measured at  $R_s = 0$  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
- $\pm V_p = 4$  V;  $R_L = 8 \Omega$ ;  $T_{amb} = 25$  °C;  $f = 1$  kHz; symmetrical power supply. See Fig.4
- $V_p = 24$  V;  $R_L = 8 \Omega$ ;  $T_{amb} = 25$  °C;  $f = 1$  kHz; asymmetrical power supply  $I_{MUTE} < 30$  [LIA. see Fig.5
- The internal network at pin 2 is a resistor divider of typical 4 k $\Omega$  and 5 k $\Omega$  to the positive supply rail. At the connection of the 4 k $\Omega$  and 5 k $\Omega$  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.