



# LA6516

## Two-Output Power Amplifier

### Overview

The LA6516 is a two-output power amplifier developed for use in both consumer and industrial equipment.

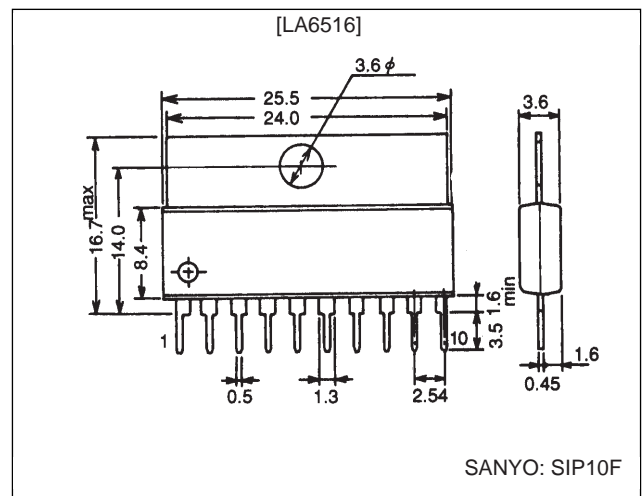
### Functions

- High slew rate (1.0 V/μs)
- High output current (I<sub>O</sub> max = 1.0 A)
- Current limiter function
- Wide operating voltage range (±2 to 18 V)
- Supports single-voltage power supply operation (4 to 36 V)
- Thermal shutdown function
- Muting circuit (Functions for both channels; when the mute input is high the output will be on.)

### Package Dimensions

unit: mm

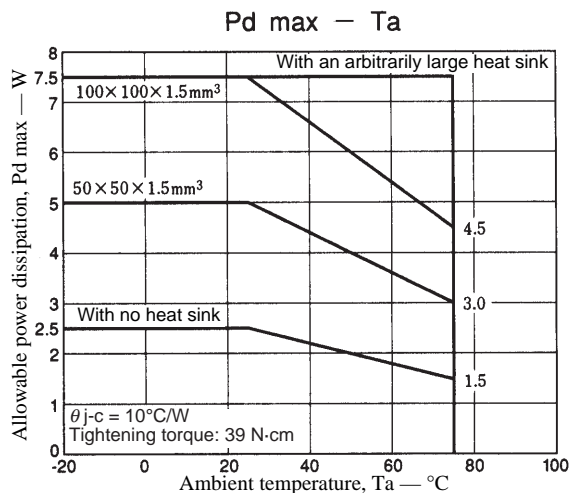
3046B-SIP10F



### Specifications

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V <sub>CC</sub> /V <sub>EE</sub>		±18	V
Input voltage	V <sub>IN</sub>		±17	V
Allowable power dissipation	P <sub>d</sub> max		2.5	W
Operating temperature	T <sub>opr</sub>		-20 to +75	°C
Storage temperature	T <sub>stg</sub>		-40 to +150	°C

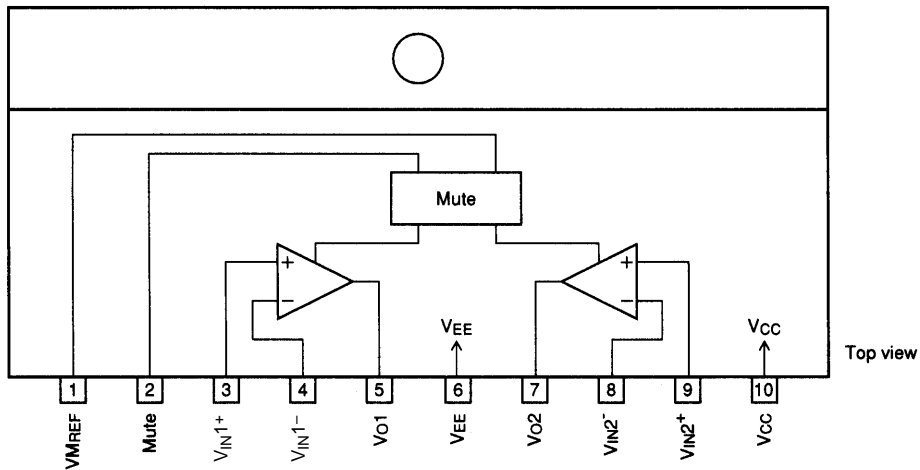


## LA6516

### Electrical Characteristics at $T_a = 25^\circ\text{C}$ , $V_{CC} = 10\text{ V}$ , $V_{EE} = -10\text{ V}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Quiescent current	$I_{CC}$	Mute off		10	30	mA
Input offset voltage	$V_{IO}$	$V_{CC}/V_{EE} = \pm 15\text{ V}$		2	7	mV
Input offset current	$I_{IO}$			10	100	nA
Input bias current	$I_B$			50	300	nA
Common-mode input voltage range	$V_{ICM}$		-9		+8	V
Common-mode rejection ratio	CMRR	$V_{IN} = 15\text{ Vp-p}$		75		dB
Supply voltage rejection ratio	SVRR	$V_{CC}/V_{EE} = \pm 5\text{ V}, 15\text{ V}$		30		$\mu\text{V/V}$
Voltage gain	$V_{GO}$			80		dB
Maximum output voltage	$V_{O1}$	$R_L = 33\ \Omega$		$\pm 8$		V
	$V_{O2}$	$R_L = 8\ \Omega$	$\pm 5.6$	$\pm 6$		V
Slew rate	SR	$R_L = 2\ \text{k}\Omega$		1		$\text{V}/\mu\text{S}$
Limit current	$I_{LIMIT}$			1		A
Muting on voltage	$V_{MUTE\ ON}$	$V_{MREF} = 0.0\text{ V}$	0.5	1.0		V
Muting off voltage	$V_{MUTE\ OFF}$	$V_{MREF} = 0.0\text{ V}$		1.0	2.0	V
Offset voltage temperature coefficient	$\Delta V_{IO}/\Delta T$	$T_a = -20\text{ to }+75^\circ\text{C}$		25		$\mu\text{V}/^\circ\text{C}$

### Pin Assignment

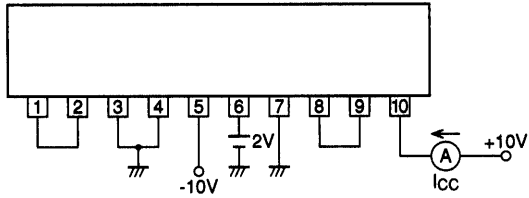


### Pin Functions

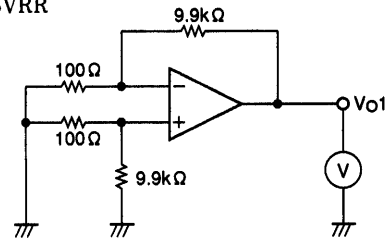
Pin No.	Pin	Item	Function
1	$V_{MREF}$	MUTE	Muting on/off reference voltage input
2	MUTE		Muting on/off signal input. Muting is activated when the MUTE pin voltage is less than the $V_{MREF}$ pin voltage plus 1.2 V (typ).
3	$V_{IN1}^+$	AMP1	Amplifier 1 noninverting input
4	$V_{IN1}^-$		Amplifier 1 inverting input
5	$V_{O1}$		Amplifier 1 output
6	$V_{EE}$	Negative power supply	Negative power supply ( $-2.0$ to $-18.0\text{ V}$ )
7	$V_{O2}$	AMP2	Amplifier 2 output
8	$V_{IN2}^-$		Amplifier 2 inverting input
9	$V_{IN2}^+$		Amplifier 2 noninverting input
10	$V_{CC}$	Positive power supply	Positive power supply ( $+2.0$ to $+18.0\text{ V}$ )

Test Circuits

• I<sub>CC</sub>



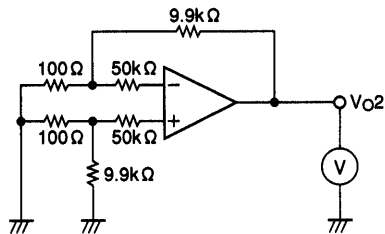
• V<sub>IO</sub> SVRR



• For V<sub>IO</sub>  
V<sub>CC</sub>/V<sub>EE</sub> = ±15V  
V<sub>IO</sub> = V<sub>O1</sub>/100

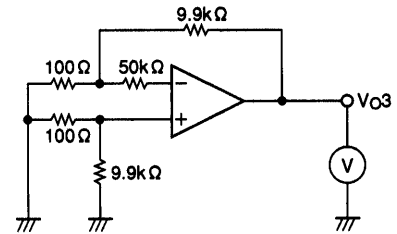
• For SVRR  
V<sub>CC</sub>/V<sub>EE</sub> = ±5V, ±15V  
SVRR =  $\frac{|\Delta V_{O1}|}{100 \times 10V}$

• I<sub>IO</sub>



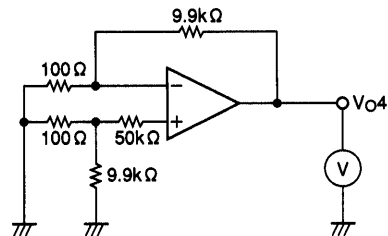
$$I_{IO} = \frac{|V_{O2} - V_{O1}|}{50k \times 100}$$

• I<sub>B</sub><sup>-</sup>



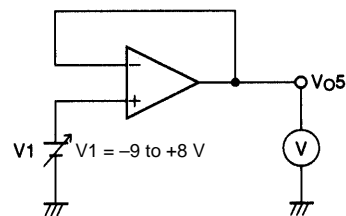
$$I_{B^-} = \frac{|V_{O3} - V_{O1}|}{50k \times 100}$$

• I<sub>B</sub><sup>+</sup>

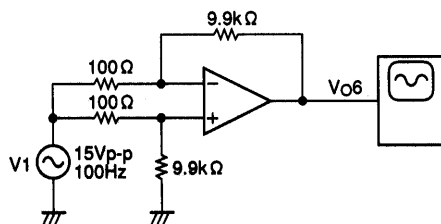


$$I_{B^+} = \frac{|V_{O4} - V_{O1}|}{50k \times 100}$$

• V<sub>ICM</sub>

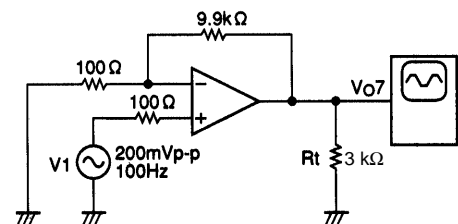


• CMRR



$$CMRR = 20 \log \frac{15 \times 100}{|\Delta V_{O6}|}$$

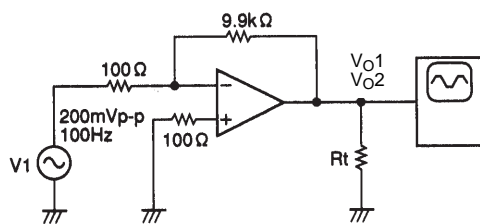
• I<sub>SC</sub>



• V<sub>CC</sub>/V<sub>EE</sub> = ±14V  
• I<sub>SC</sub> = V<sub>O7</sub>/10

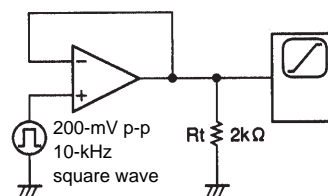
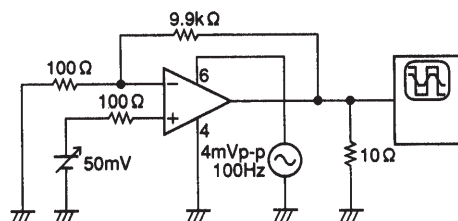
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•  $V_O$ 

- For  $V_{O1}$ :  $R_L = 33 \Omega$
- For  $V_{O2}$ :  $R_L = 8 \Omega$

## • SR

•  $V_{th ON}$ ,  $V_{th OFF}$ 

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