



LA6516

Two-Output Power Amplifier

Overview

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

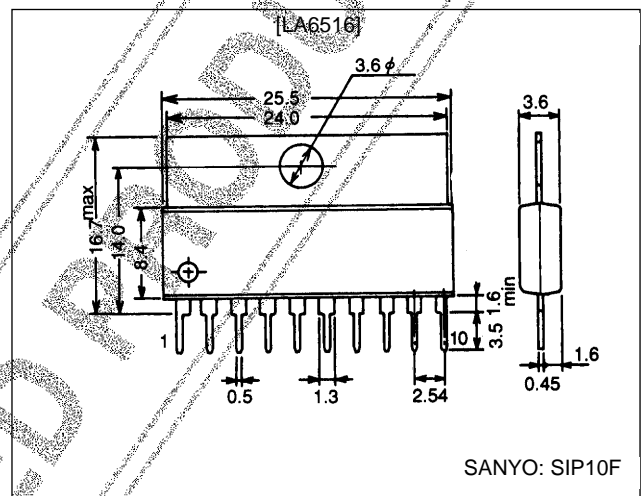
Functions

- High slew rate (1.0 V/μs)
- High output current (I_O 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

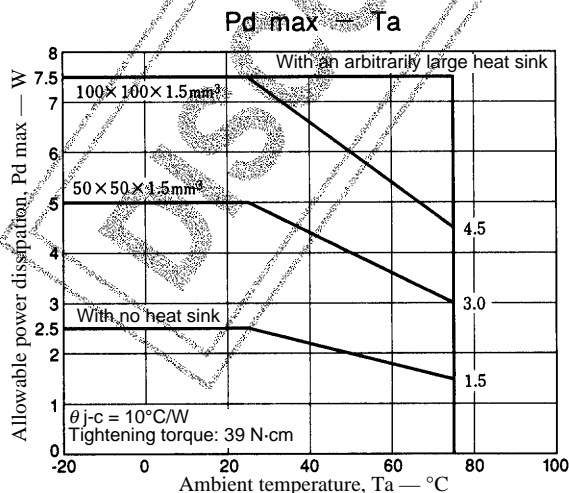
3046B-SIP10F



Specifications

Absolute Maximum Ratings at T_a = 25°C

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

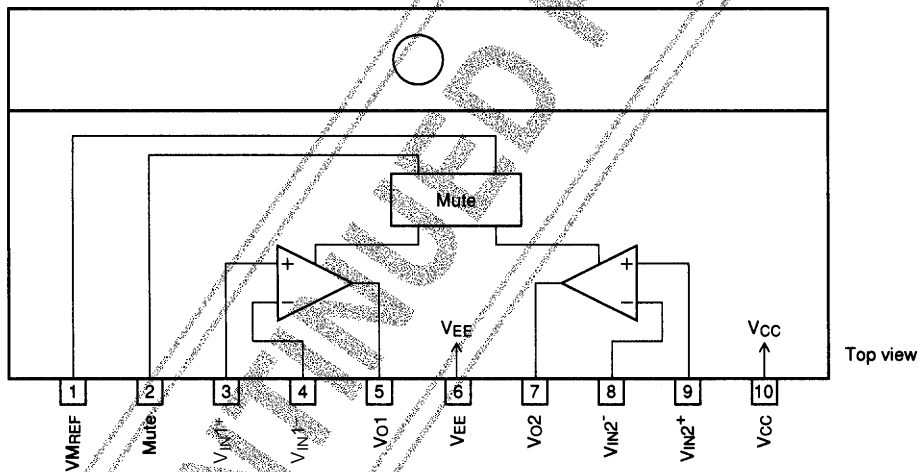


LA6516

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	$V_{IN} = 15\text{ V}_{p-p}$		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}	$R_L = 33\ \Omega$		± 8		V
	V_{O2}	$R_L = 8\ \Omega$	± 5.6	± 6		V
Slew rate	SR	$R_L = 2\ \text{k}\Omega$		7		$\text{V}/\mu\text{S}$
Limit current	I_{LIMIT}			7		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

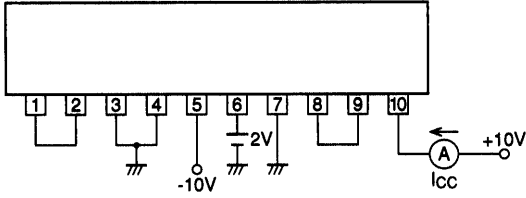


Pin Functions

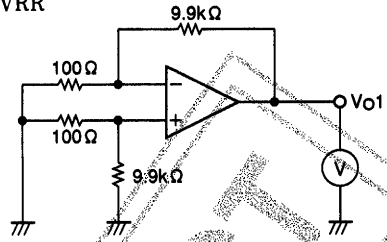
Pin No.	Pin	Item	Function
1	V_{MREF}		Muting on/off reference voltage input
2	MUTE	MUTE	Muting on/off signal input. Muting is activated when the MUTE pin voltage is less than the V_{MREF} pin voltage plus 1.2 V (typ).
3	V_{IN1+}	AMP1	Amplifier 1 noninverting input
4	V_{IN1-}		Amplifier 1 inverting input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



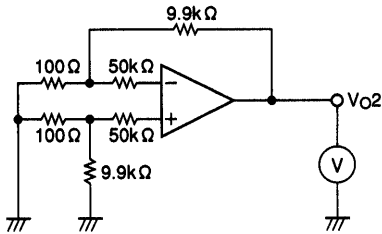
• V_{IO} SVRR



• For V_{IO}
 $V_{CC}/V_{EE} = \pm 15V$
 $V_{IO} = V_{O1}/100$

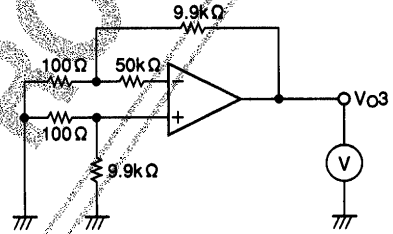
• For SVRR
 $V_{CC}/V_{EE} = \pm 5V, \pm 15V$
 $SVRR = \frac{|\Delta V_{O1}|}{100 \times 10V}$

• I_{IO}



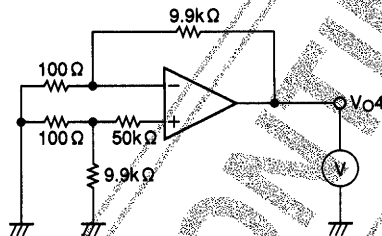
$$I_{IO} = \frac{|V_{O2} - V_{O1}|}{50k \times 100}$$

• I_{B^-}



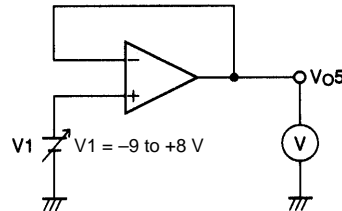
$$I_{B^-} = \frac{|V_{O3} - V_{O1}|}{50k \times 100}$$

• I_{B^+}

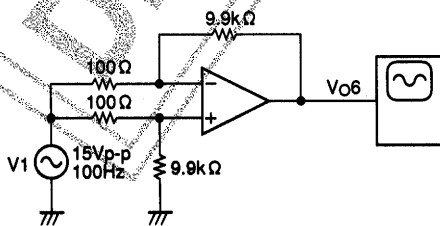


$$I_{B^+} = \frac{|V_{O4} - V_{O1}|}{50k \times 100}$$

• V_{ICM}

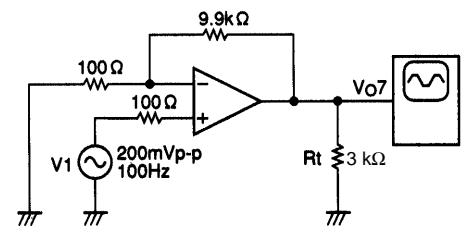


• CMRR



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

• I_{sc}

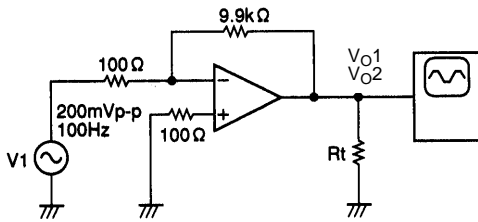


• $V_{CC}/V_{EE} = \pm 14V$
 • $I_{sc} = V_{O7}/10$

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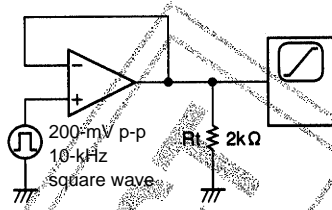
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• V_O

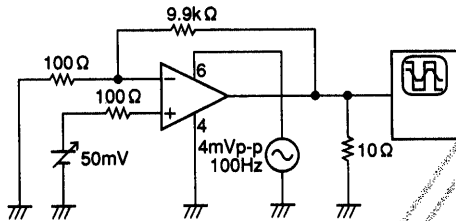


- For V_{O1} : $R_L = 33 \Omega$
- For V_{O2} : $R_L = 8 \Omega$

• SR



• V_{th} ON, V_{th} OFF



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