



No. 5162A

LA6517, 6517M, 6518M

2-Output Power Operational Amplifier

Applications

The LA6517, LA6517M, and LA6518M are 2-output power operational amplifiers developed for use in consumer and industrial equipment.

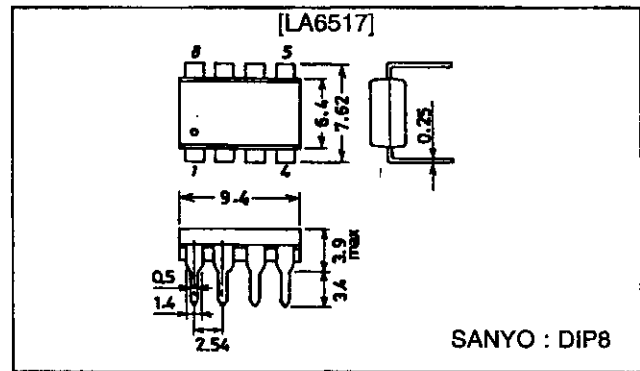
Features and Functions

- High output current ( $I_O \text{ max} = 0.5 \text{ A}$ ).
- High gain.
- Includes a current limiter.
- Wide operating voltage range ( $\pm 2$  to  $\pm 18 \text{ V}$ ).
- Single-supply operation possible (4 to 36 V).
- Thermal shutdown built in.

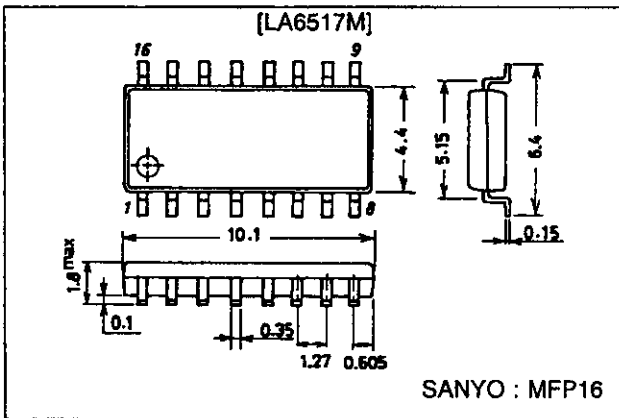
Package Dimensions

unit : mm

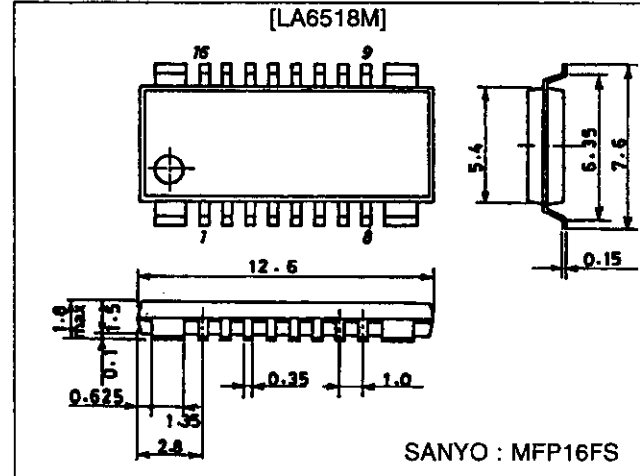
3001-DIP8



3035A-MFP16



3097-MFP16FS



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## Specifications

### Maximum Ratings at $T_a = 25\text{ }^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	$V_{CC}/V_{EE}$		$\pm 18$	V
Differential input voltage	$V_{ID}$		30	V
Common-mode input voltage	$V_{IN}$		$\pm 15$	V
Allowable power dissipation	Pd max	LA6517	1000	mW
		LA6517M	350	mW
		LA6518M	700	mW
Operating temperature	Topr		-20 to +75	$^\circ\text{C}$
Storage temperature	Tstg		-55 to +150	$^\circ\text{C}$

### Operating Conditions at $T_a = 25\text{ }^\circ\text{C}$

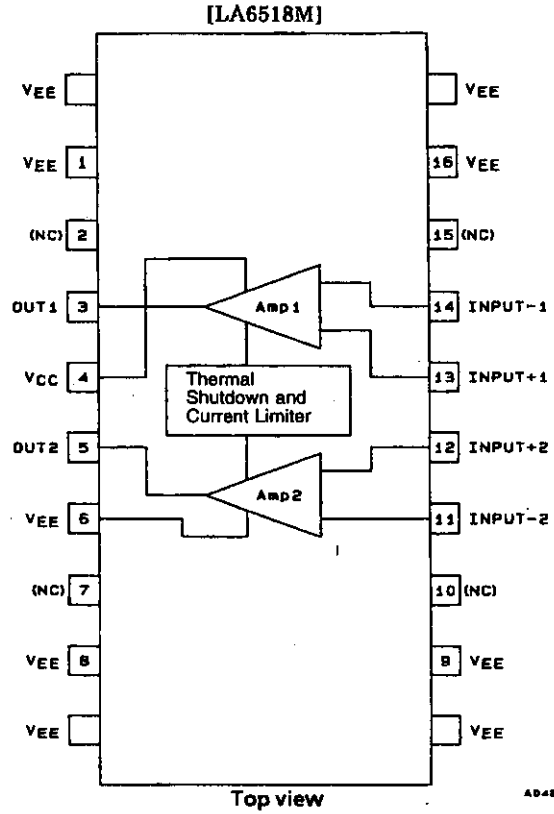
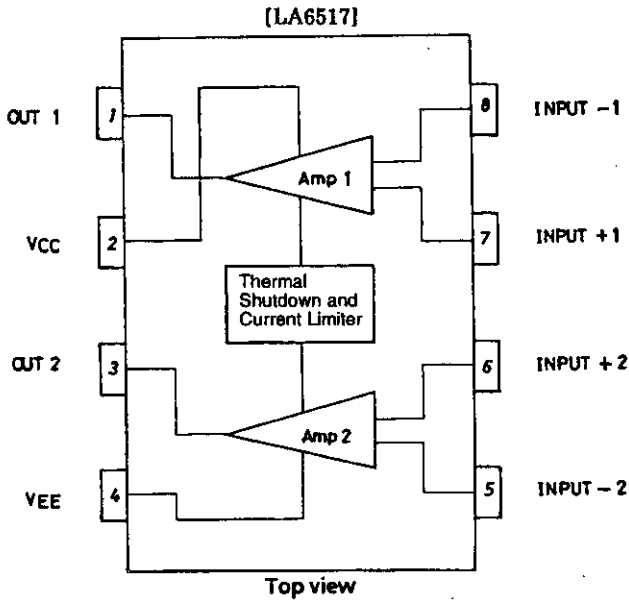
Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	$V_{CC}/V_{EE}$		$\pm 2$ to $\pm 16$	V

### Electrical Characteristics at $T_a = 25\text{ }^\circ\text{C}$ , $V_{CC}/V_{EE} = \pm 15\text{ V}$

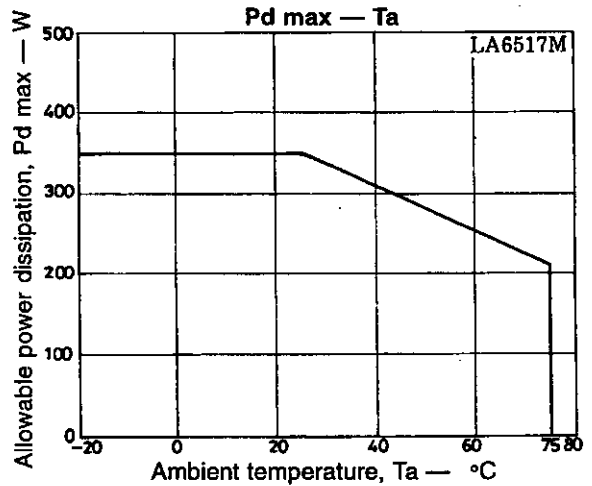
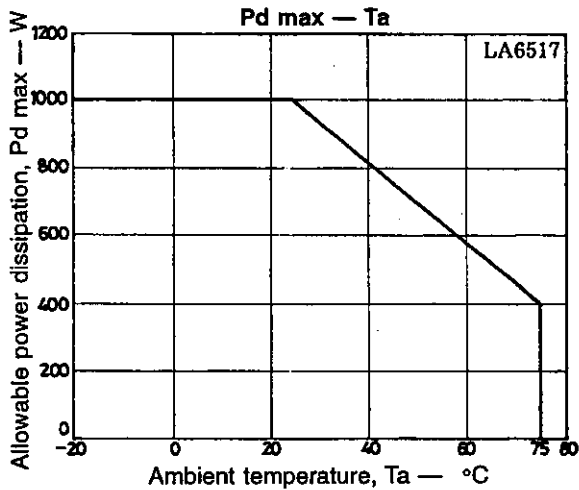
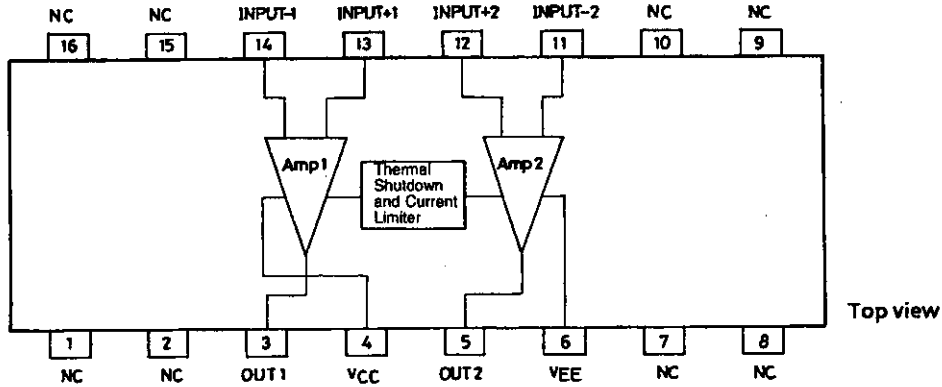
Parameter	Symbol	Conditions	min	typ	max	Unit
No-load current drain	$I_{CC}$			8	20	mA
Input offset voltage	$V_{IO}$	$R_S \leq 10\text{ k}\Omega$		2	7	mV
Input offset current	$I_{IO}$			10	100	nA
Input bias current	$I_B$			100	300	nA
Common-mode input voltage range	$V_{ICM}$	LA6517, 6517M	-15		+13	V
		LA6518M	-14		+13	V
Common-mode signal rejection ratio	CMRR		65	80		dB
Maximum output voltage	$V_O$	$R_L = 33\text{ }\Omega$	$\pm 11$	$\pm 12$		V
Voltage gain	$V_{GO}$			85		dB
Slew rate	SR	$G_V = 0, R_L = 33\text{ }\Omega, R = 10\text{ }\Omega, L = 0.1\text{ }\mu\text{F}$		0.15		V/ $\mu\text{s}$
Supply voltage rejection ratio	SVR			30	300	$\mu\text{V/V}$
Limiting current (built in)	$I_{SC}$			0.5		A

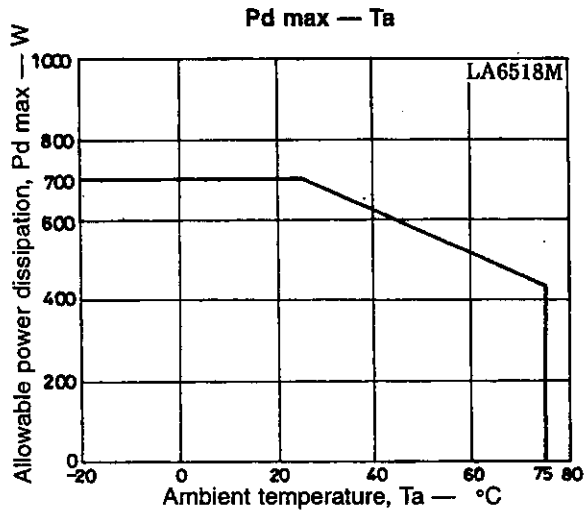
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## Block Diagram and Pin Assignments



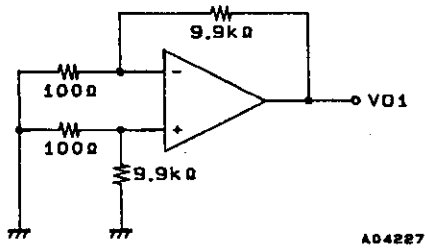
[LA6517M]





**Test Circuits**

1.  $V_{IO}$ , SVRR



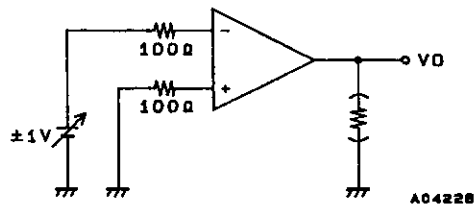
$V_{IO}: V_{CC}/V_{EE} = \pm 15V$

SVRR  $\begin{cases} V_{CC} = 15V, 5V \\ V_{EE} = -5V, -15V \end{cases}$

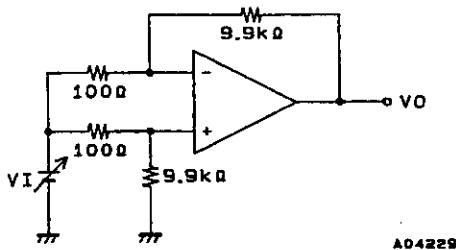
$V_{IO} = V_{O1}/100$

$SVR(+) = \left| \frac{\Delta V_{O1}}{100 \times 10V} \right|$   
 $SVR(-) = \left| \frac{\Delta V_{O1}}{100 \times 10V} \right|$

2.  $V_O$



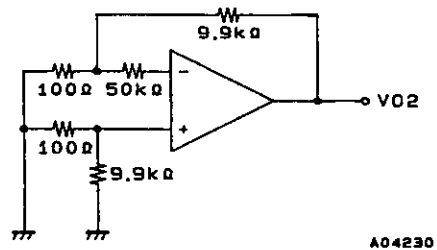
3. CMRR,  $V_{ICM}$



CMRR:  $V_i = \pm 7.5V$

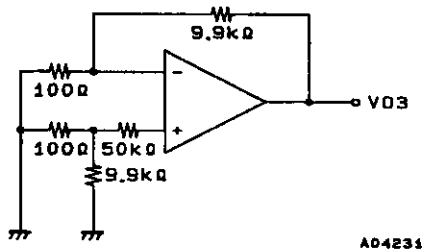
CMR =  $20 \log \frac{15 \times 100}{|\Delta V_O|}$

4.  $I_B(-)$



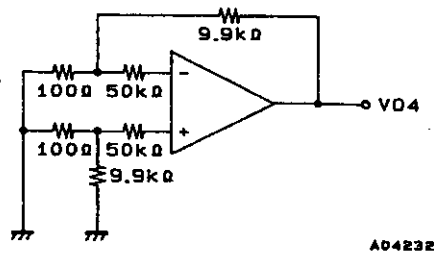
$I_B(-) = \frac{|V_{O2} - V_{O1}|}{50k\Omega \times 100}$

5.  $I_B(+)$



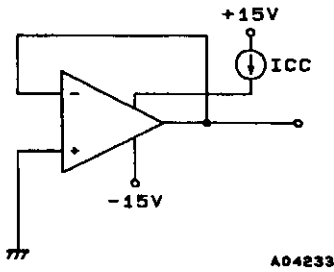
$$I_B(+)=\frac{|V_{O3}-V_{O1}|}{50k\Omega\times 100}$$

6.  $I_{IO}$

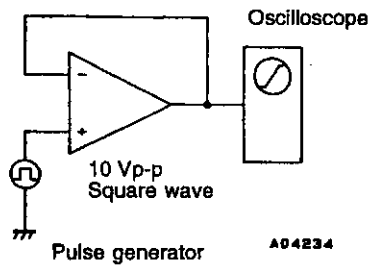


$$I_{IO}=\frac{|V_{O4}-V_{O1}|}{50k\Omega\times 100}$$

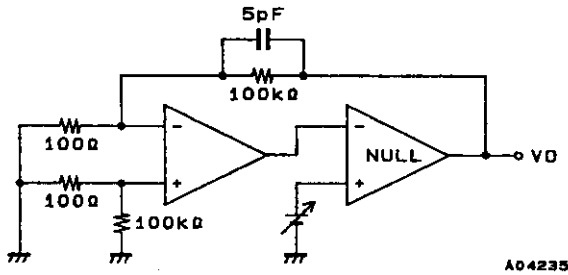
7.  $I_{CC}$



8. SR



9.  $V_{GO}$



$$V_{GO}=20\log\frac{1000\times 20}{\Delta V_O}$$

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