

**SANYO****LA6518M****2-Channel Power Operational Amplifier****Applications**

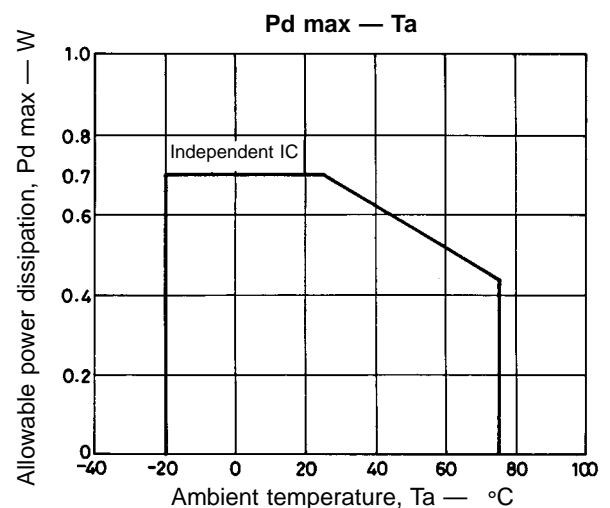
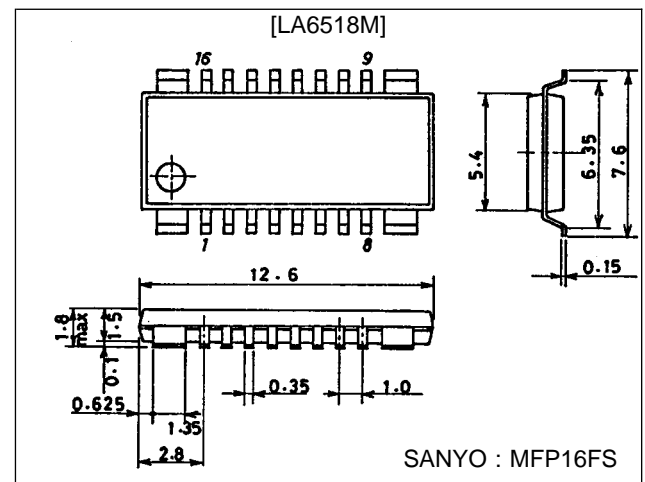
The LA6518M is a 2-output power operational amplifier developed for use in consumer and industrial equipment.

**Features and Functions**

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

**Package Dimensions**

unit : mm

**3097-MFP16FS****Specifications****Maximum Ratings at Ta = 25 °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 | $P_d$ max       |            | 0.7         | W    |
| Operating temperature       | $T_{opr}$       |            | -20 to +75  | °C   |
| Storage temperature         | $T_{stg}$       |            | -55 to +150 | °C   |

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92995HA(II) No.5162-1/4

# LA6518M

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

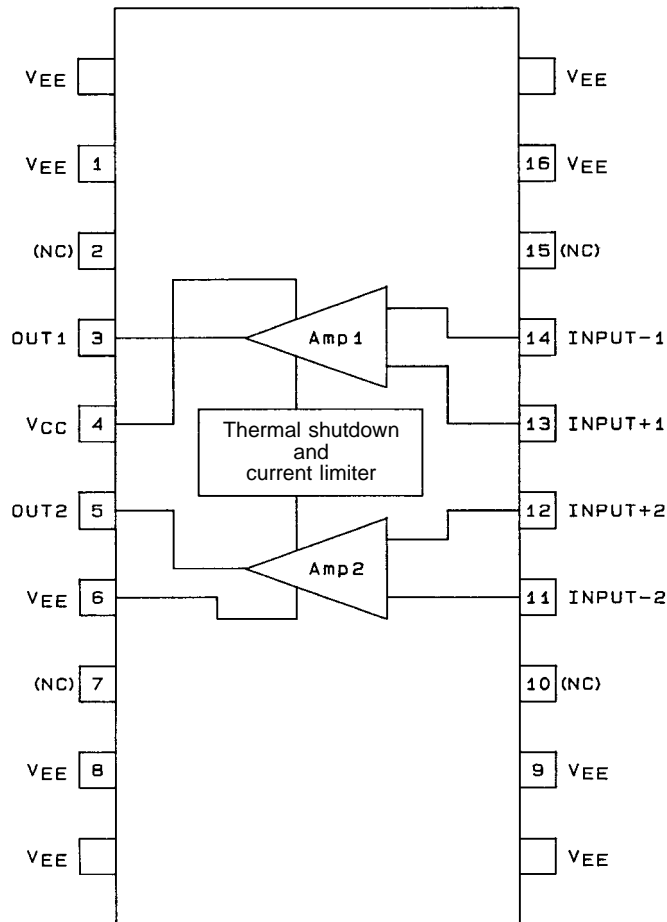
| Parameter                  | Symbol          | Conditions | Ratings             | Unit |
|----------------------------|-----------------|------------|---------------------|------|
| Recommended supply voltage | $V_{CC}/V_{EE}$ |            | $\pm 2$ to $\pm 16$ | V    |

## 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    | $V_{ICM}$ |   | -14      |          | +13 | V                      |
| Common-mode signal rejection ratio | CMR       |   | 65       | 80       |     | dB                     |
| Maximum output voltage             | $V_O$     | $R_L = 33\ \Omega$  | $\pm 11$ | $\pm 12$ |     | V                      |
| Voltage gain                       | $V_{GO}$  |   |          | 85       |     | dB                     |
| Slew rate                          | SR        | $G_V = 0, R_L = 33\ \Omega, R = 10\ \Omega, L = 0.1\ \mu\text{F}$ |          | 0.15     |     | V/ $\mu\text{s}$       |
| Supply voltage rejection ratio     | SVR       |   |          | 30       | 300 | $\mu\text{V}/\text{V}$ |
| Limit current (built-in type)      | $I_{SC}$  |   |          | 0.5      |     | A                      |

- Thermal shutdown function built in.

## Block Diagram and Pin Assignment



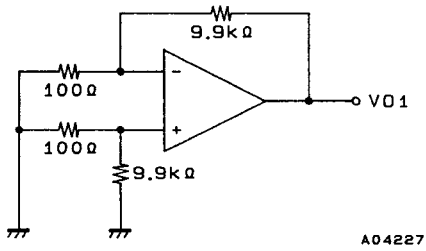
Do not use the NC pin.

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Top view

Test Circuit

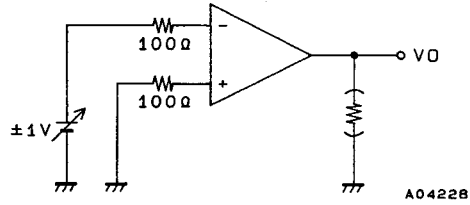
1.  $V_{I0}, SVRR$



$$V_{I0} V_{CC}/V_{EE} = \pm 15V$$

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

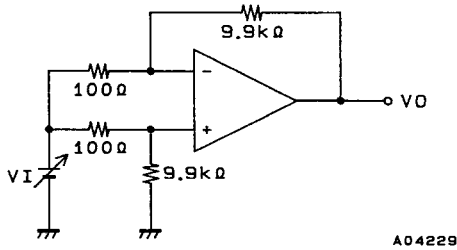
2.  $V_O$



$$V_{I0} = V_{O1}/100$$

$$\begin{aligned} SVR(+) &= \left| \frac{\Delta V_{O1}}{100k\Omega \times 10V} \right| \\ SVR(-) &= \left| \frac{\Delta V_{O1}}{100k\Omega \times 10V} \right| \end{aligned}$$

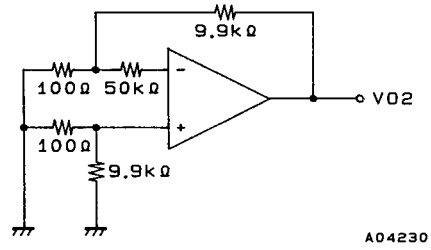
3. CMRR,  $V_{ICM}$



$$CMRR V_I = \pm 7.5V$$

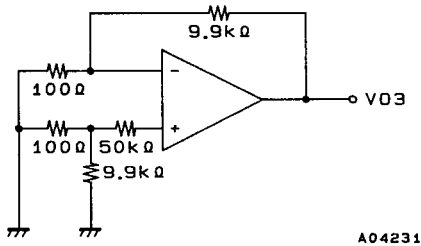
$$CMR = 20 \log \frac{15 \times 100}{|\Delta V_O|}$$

4.  $IB(-)$



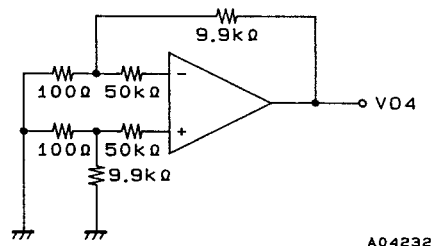
$$IB(-) = \frac{|\Delta V_{O2} - V_{O1}|}{50k\Omega \times 100}$$

5.  $IB(+)$



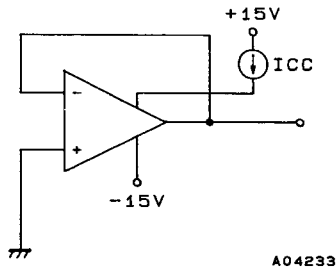
$$IB(+) = \frac{|\Delta V_{O3} - V_{O1}|}{50k\Omega \times 100}$$

6.  $I_{I0}$

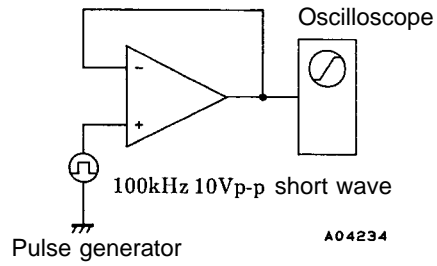


$$I_{I0} = \frac{|V_{O4} - V_{O1}|}{50k\Omega \times 100}$$

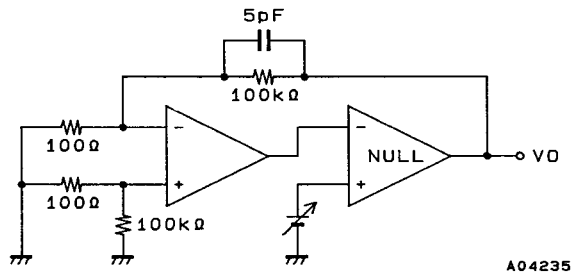
7. I<sub>CC</sub>



8. SR



9. V<sub>GO</sub>



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

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