



SANYO Semiconductors

DATA SHEET

LA6517

LA6517M

LA6518M

Monolithic Linear IC

— 2-Output Power Operational Amplifier

Overview

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

Features

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

Specifications

Maximum Ratings at $T_a = 25^\circ C$

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

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LA6517, 6517M, 6518M

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

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

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

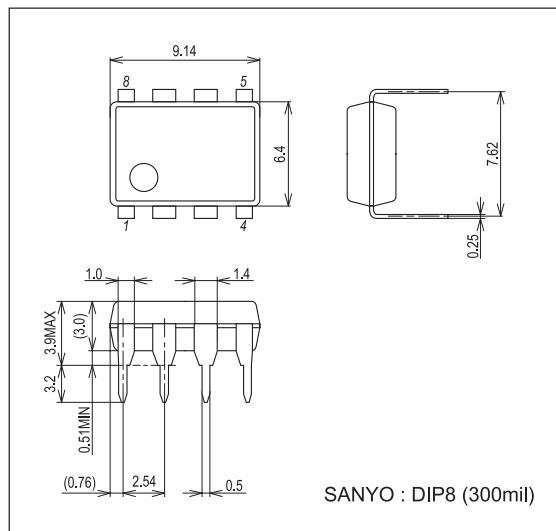
| Parameter | Symbol | Conditions | min | typ | max | Unit |
|------------------------------------|-----------|--|----------|----------|-----|------------------------|
| No-load current drain | I_{CC} | | | 8 | 20 | mA |
| Input offset voltage | V_{IO} | $R_S \leq 10\text{k}\Omega$ | | 2 | 7 | mV |
| 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 | $R_L = 33\Omega$ | ± 11 | ± 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/ μs |
| Supply voltage rejection ratio | SVR | | | 30 | 300 | $\mu\text{V}/\text{V}$ |
| Limiting current (built in) | I_{SC} | | | 0.5 | | A |

Package Dimensions

unit : mm (typ)

3001D

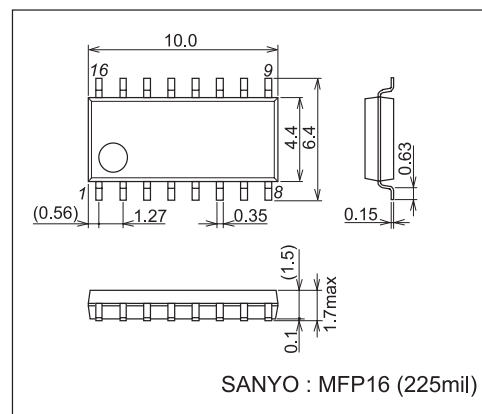
[LA6517]



unit : mm (typ)

3035B

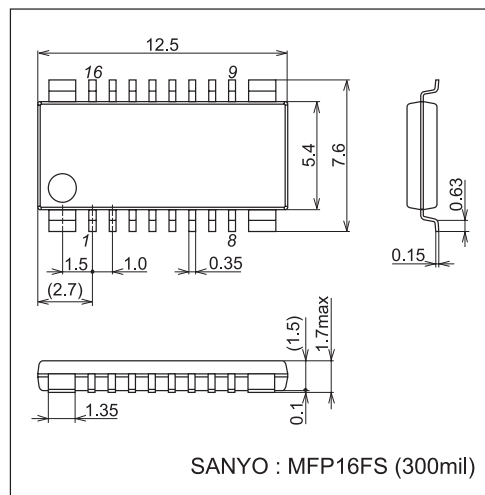
[LA6517M]



unit : mm (typ)

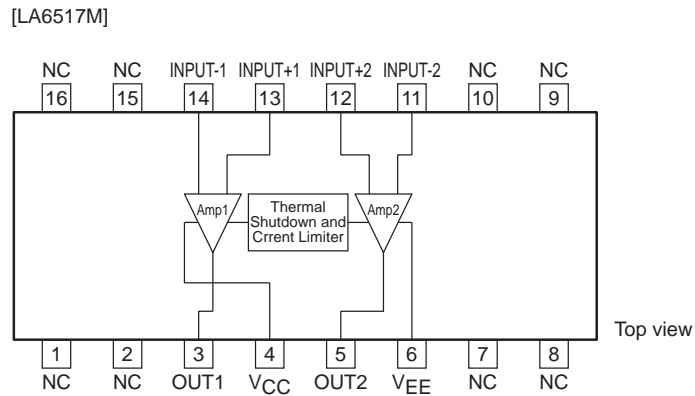
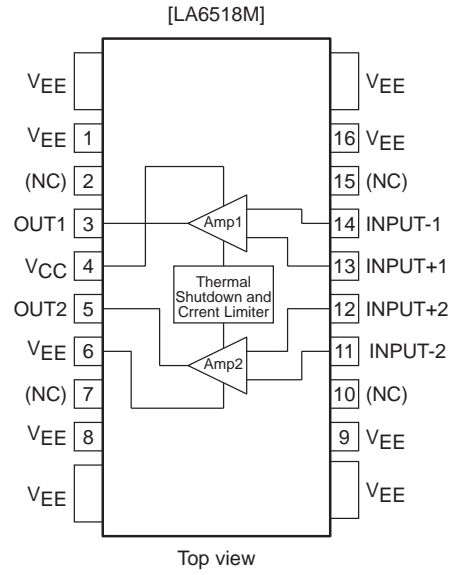
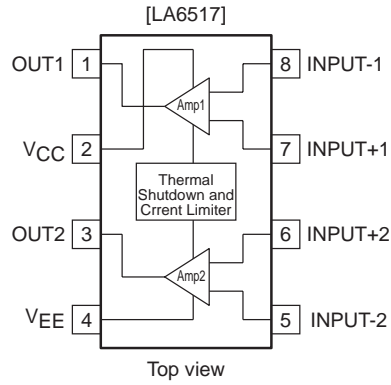
3097B

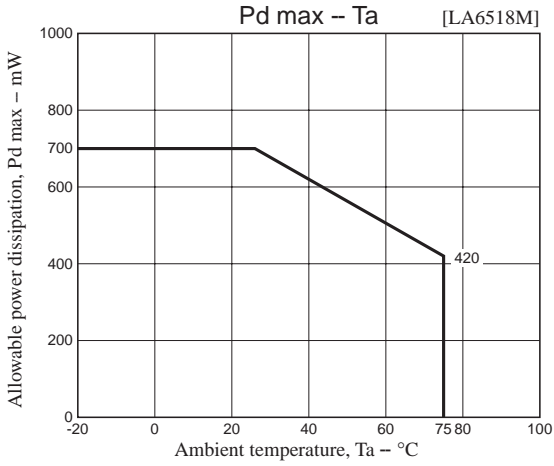
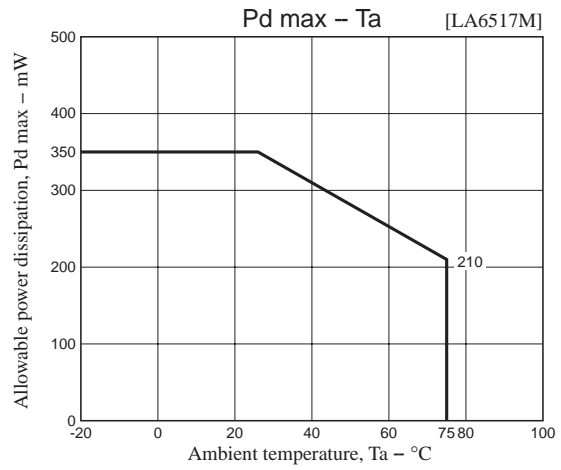
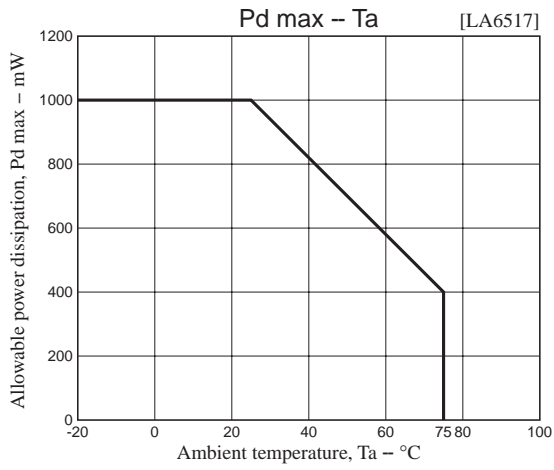
[LA6518M]



LA6517, 6517M, 6518M

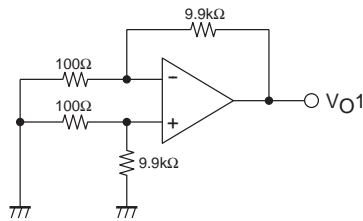
Block Diagram and Pin Assignments





Test Circuits

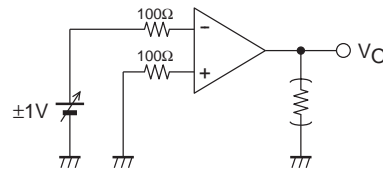
1. V_{IO} , SVRR



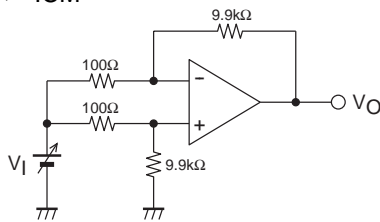
$$V_{IO} : V_{CC} / V_{EE} = \pm 15V \quad V_{IO} = V_{O1} / 100$$

$$SVRR \begin{cases} V_{CC} = 15V, 5V \\ V_{EE} = -5V, -15V \end{cases} \quad SVR (+) = \left| \frac{\Delta V_{O1}}{100 \times 10V} \right|$$

2. V_O



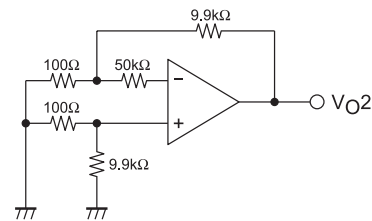
3. CMRR, V_{ICM}



$$CMRR : V_I = \pm 7.5V$$

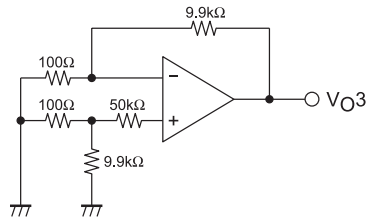
$$CMR = 20 \log \frac{15 \times 100}{|\Delta V_O|}$$

4. $I_B (-)$



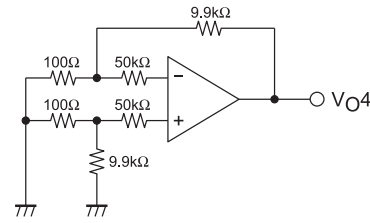
$$I_B (-) = \frac{|V_{O2} - V_{O1}|}{50k\Omega \times 100}$$

5. $I_B (+)$



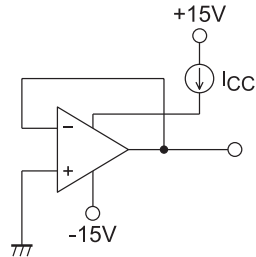
$$I_B (+) = \frac{|V_{O3} - V_{O1}|}{50k\Omega \times 100}$$

6. I_{IO}

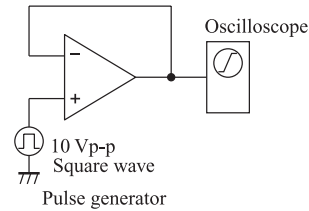


$$I_{IO} = \frac{|V_{O4} - V_{O1}|}{50k\Omega \times 100}$$

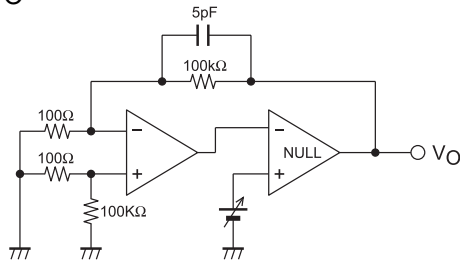
7. I_{CC}



8. SR



9. V_{GO}



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

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