

| | | |
|--------------|----------|---|
| SANYO | No.1959A | LA6083M |
| | | J-FET Input Dual Operational Amplifier |

The LA6083M is a J-FET input dual operational amplifier. Application areas include general-purpose control equipment, measuring equipment (very low current measurement, long-integrating circuit, sample & hold circuit, impedance converter, etc.).

Features

- . High slew rate
- . High input impedance
- . Low input bias current
- . Low input offset current
- . No phase compensation required
- . With offset null pins

Maximum Ratings at Ta=25°C

| | | | unit |
|-----------------------------|-----------------|-------------|------|
| Maximum Supply Voltage | V_{CC}/V_{EE} | ± 18 | V |
| Differential Input Voltage | V_{ID} | ± 30 | V |
| Common-Mode Input Voltage | V_{IN} (Note) | ± 15 | V |
| Allowable Power Dissipation | P_d max | 330 | mW |
| Operating Temperature | T_{opr} | -30 to +85 | °C |
| Storage Temperature | T_{stg} | -55 to +125 | °C |

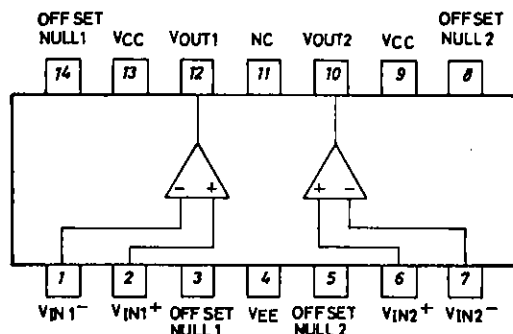
(Note) Allowable in the range of supply voltage. The above value is for $V_{CC}=+15V$, $V_{EE}=-15V$.

Operating Characteristics at Ta=25°C, $V_{CC}=+15V$, $V_{EE}=-15V$

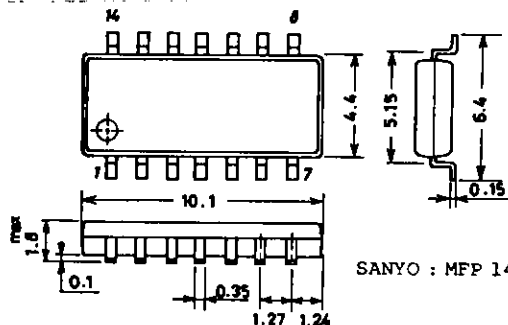
| | | min | typ | max | unit |
|---------------------------------|--|----------|------------|------|------|
| Input Offset Voltage | V_{IO} $R_S=50\text{ohms}$ | | 5.0 | 15.0 | mV |
| Input Offset Current | I_{IO} | | 5 | 200 | pA |
| Input Bias Current | I_B | | 30 | 400 | pA |
| Common-Mode Input Voltage Range | V_{ICM} | ± 10 | | | V |
| Common-Mode Rejection Ratio | CMR | 70 | 76 | | dB |
| Large Amplitude Voltage Gain | VG $R_L \geq 2\text{kohms}, V_o = \pm 10V$ | 25 | 200 | | V/mV |
| Maximum Output Voltage | V_{opp1} $R_L \geq 10\text{kohms}$ | ± 12 | ± 13.5 | | V |
| | V_{opp2} $R_L \geq 2\text{kohms}$ | ± 10 | ± 12 | | V |

Continued on next page.

Pin Assignment



Package Dimensions 3034A-M14IC (unit : mm)

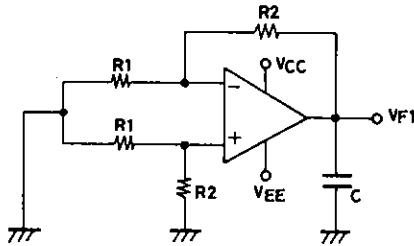


Continued from preceding page.

| | | | min | typ | max | unit |
|--------------------------------|----------|--|-----|--------|-----|------------------|
| Supply Voltage Rejection Ratio | SVR | | 70 | 76 | | dB |
| Supply Current | I_{CC} | $R_L = \infty$ | | 4 | 5.6 | mA |
| Gain-Bandwidth Product | f_T | $A_V = 1$ | | 3 | | MHz |
| Equivalent Input Noise Voltage | V_{NI} | $R_S = 100\text{ohms},$ $f = 10\text{Hz to } 10\text{kHz}$ | | 4 | | μVrms |
| Input Resistance | r_i | | | 10^2 | | ohm |
| Channel Separation | ch sep | | | 120 | | dB |
| Slew Rate | S·R | $R_L = 2\text{kohms}, C_L = 100\text{pF},$ $A_V = 1, V_{IN} = 10\text{V}$ | | 13 | | V/ μs |

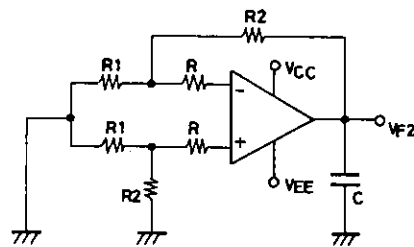
Test Circuits

1. Input Offset Voltage V_{IO}



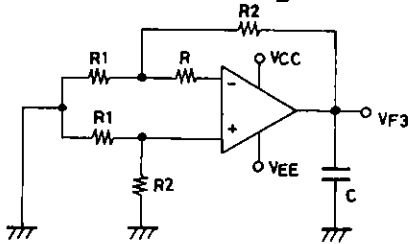
$$V_{IO} = \frac{V_{F1}}{1 + R2/R1}$$

2. Input Offset Current I_{IO}

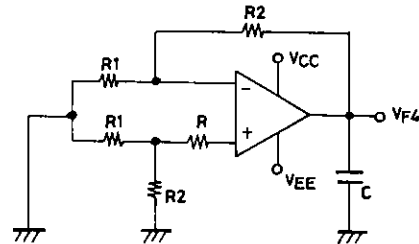


$$I_{IO} = \frac{V_{F2} - V_{F1}}{R(1 + R2/R1)}$$

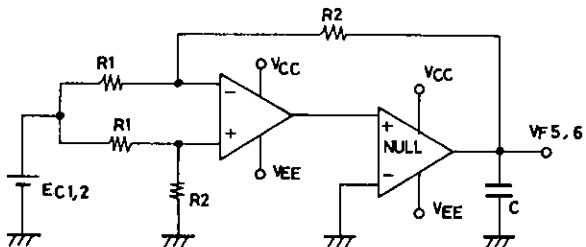
3. Input Bias Current I_B



$$I_B = \frac{V_{F4} - V_{F3}}{2R(1 + R2/R1)}$$

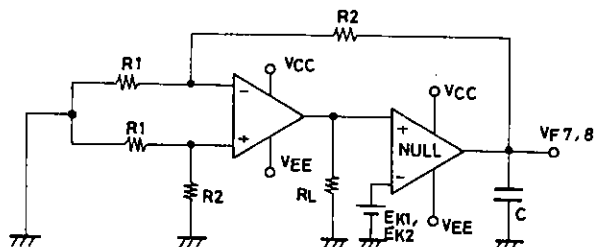


4. Common-Mode Rejection Ratio CMR
Common-Mode Input Voltage Range V_{ICM}



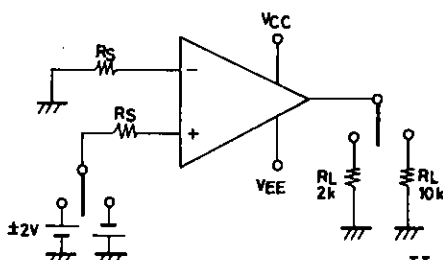
$$CMR = 20 \log \left| \frac{(E_{C1} - E_{C2})(1 + R2/R1)}{V_{F5} - V_{F6}} \right|$$

5. Voltage Gain V_G



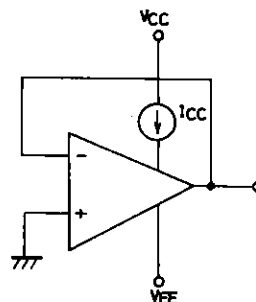
$$V_G = \frac{(E_{K1} - E_{K2})(1 + R2/R1)}{V_{F7} - V_{F8}}$$

6. Maximum Output Voltage V_{OPP}

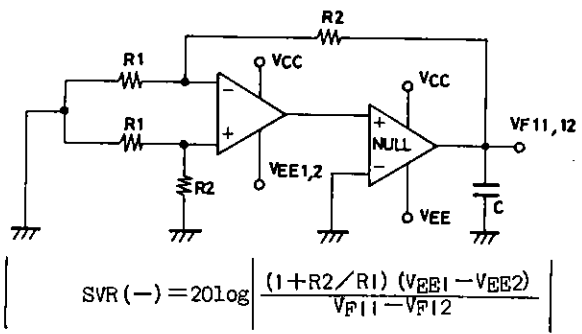
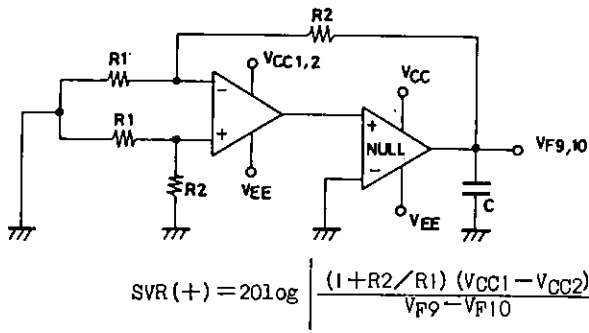


Unit (resistance: Ω)

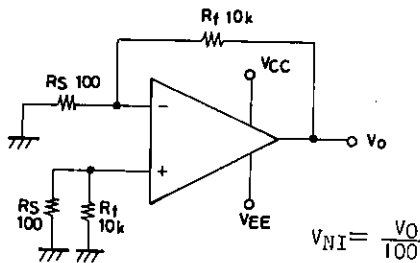
7. Supply Current I_{CC}



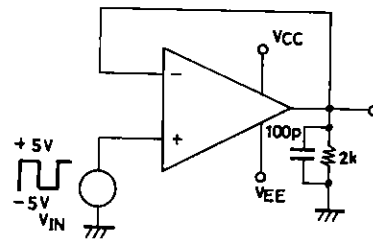
8. Supply Voltage Rejection Ratio SVR



9. Equivalent Input Noise Voltage V_{NI}

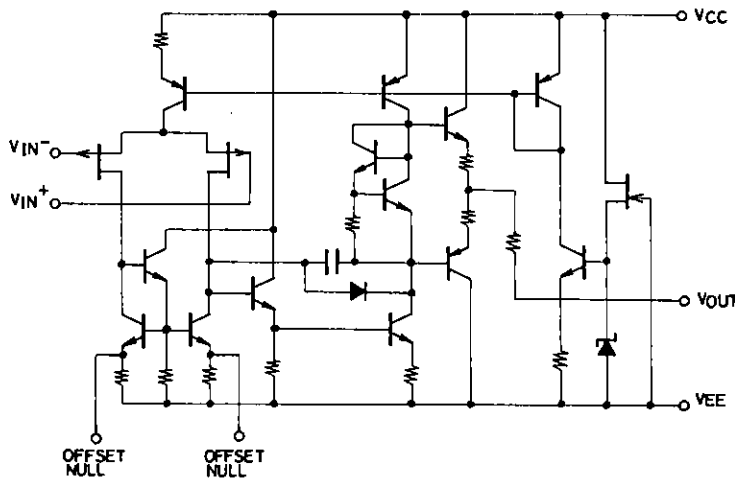


10. Slew Rate SR

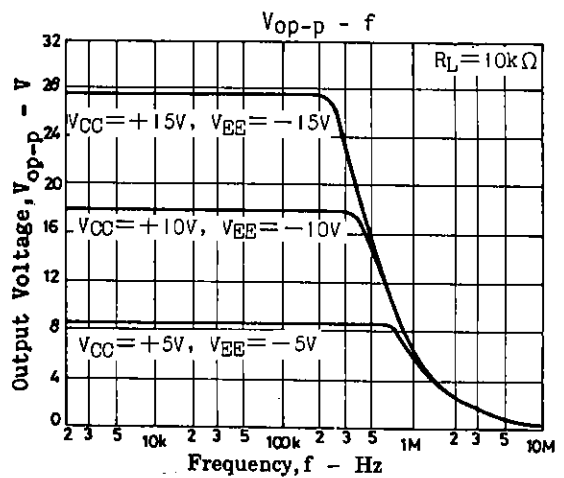
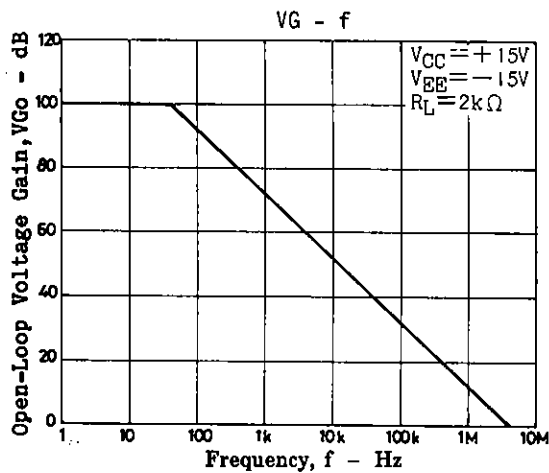
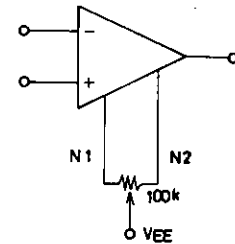


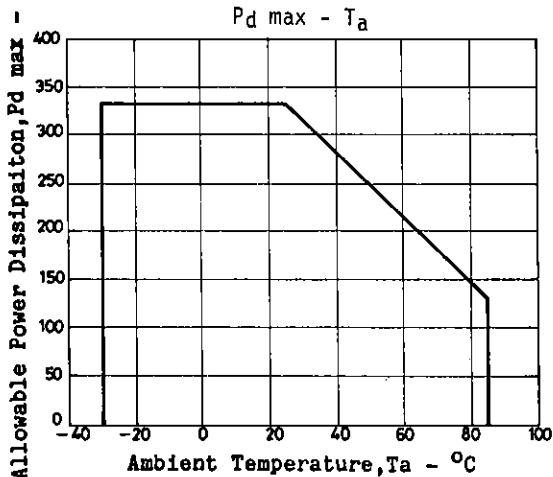
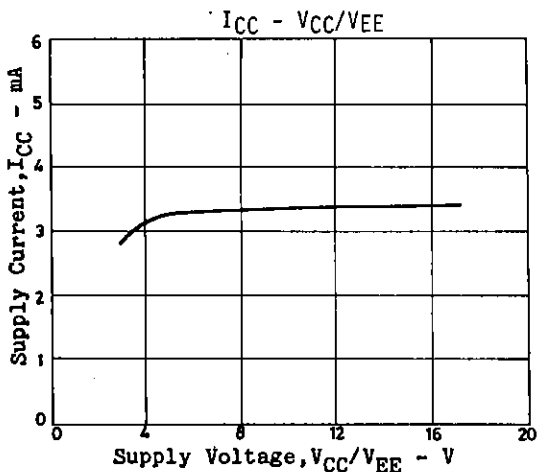
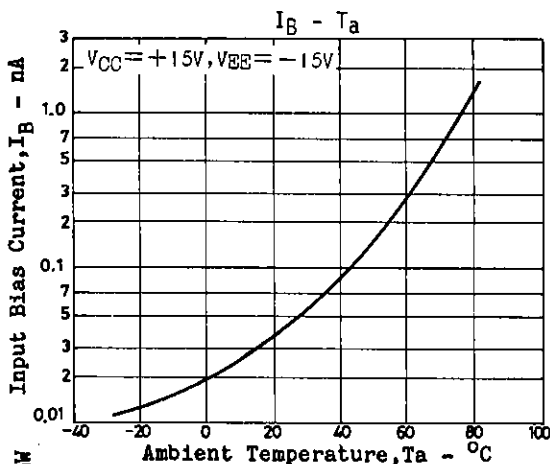
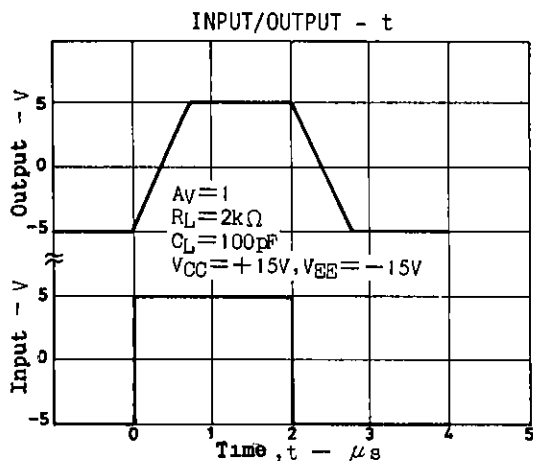
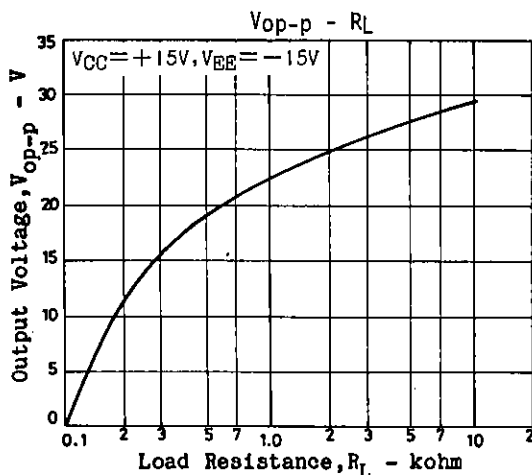
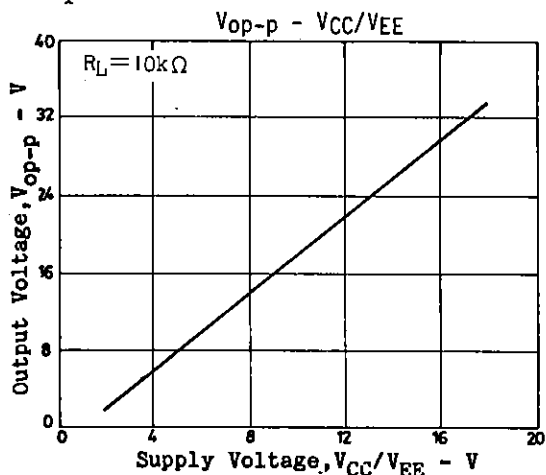
Unit (resistance:Ω capacitance:F)

Equivalent Circuit

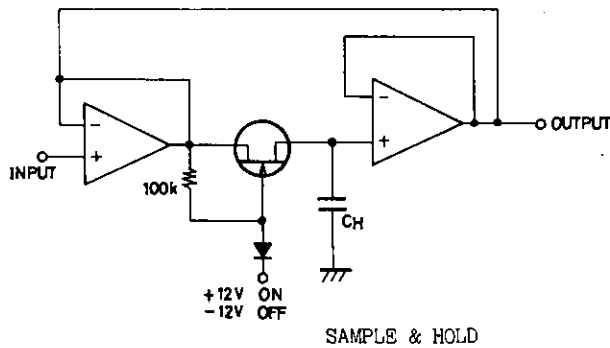
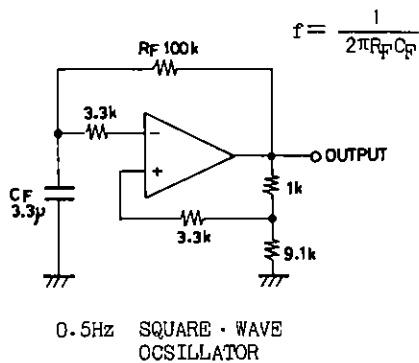


Voltage offset adjust circuit





Sample Application Circuits



Unit (resistance:Ω capacitance:F)

- No products described or contained herein are intended for use in surgical implants, life-support systems, aerospace equipment, nuclear power control systems, vehicles, disaster/crime-prevention equipment and the like, the failure of which may directly or indirectly cause injury, death or property loss.
- Anyone purchasing any products described or contained herein for an above-mentioned use shall:
 - ① Accept full responsibility and indemnify and defend SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors and all their officers and employees, jointly and severally, against any and all claims and litigation and all damages, cost and expenses associated with such use:
 - ② Not impose any responsibility for any fault or negligence which may be cited in any such claim or litigation on SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors or any of their officers and employees jointly or severally.
- Information (including circuit diagrams and circuit parameters) herein is for example only; it is not guaranteed for volume production. SANYO believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.