

PRELIMINARY
 Notice: This is not a final specification.
 Some parametric limits are subject to change.

M6255X Series

GENERAL PURPOSE C-MOS OP AMP(SINGLE/DUAL/QUAD)

DESCRIPTION

The M6255X is a single power supply system semiconductor integrated circuit designed to be used for general-purpose arithmetic amplifier of general electronic equipment for consumer appliances.

This IC adopts C-MOS structure to achieve low power consumption and is therefore optimum for the recent boom in portable electronic equipment. The IC is also available for various applications for its full swing in both input and output, though the IC has a single power supply.

FEATURES

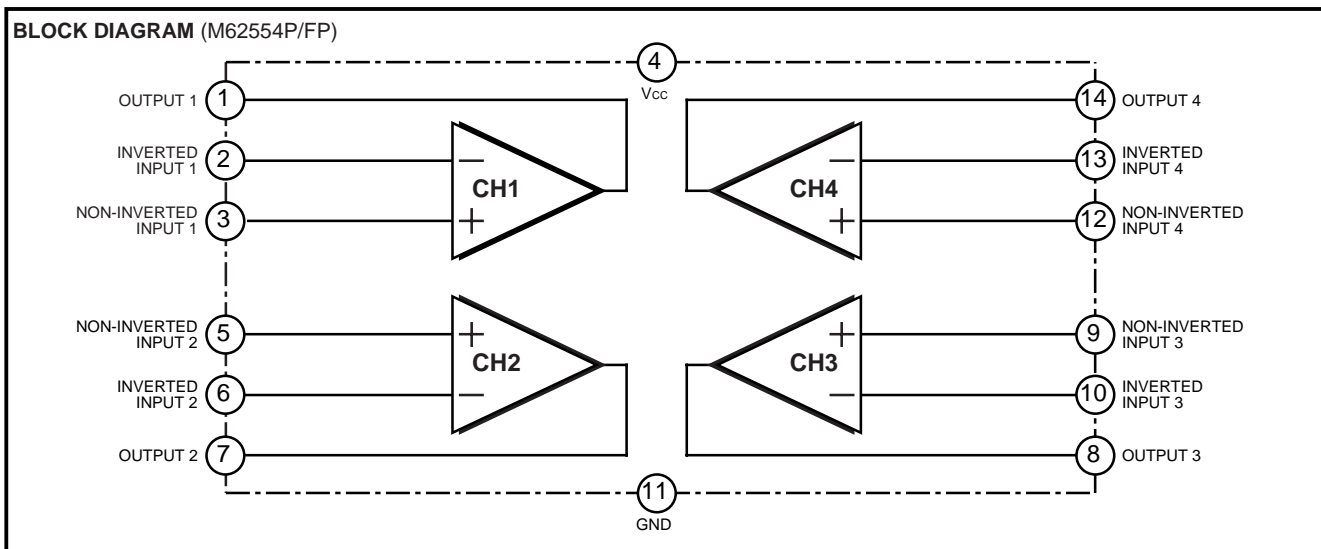
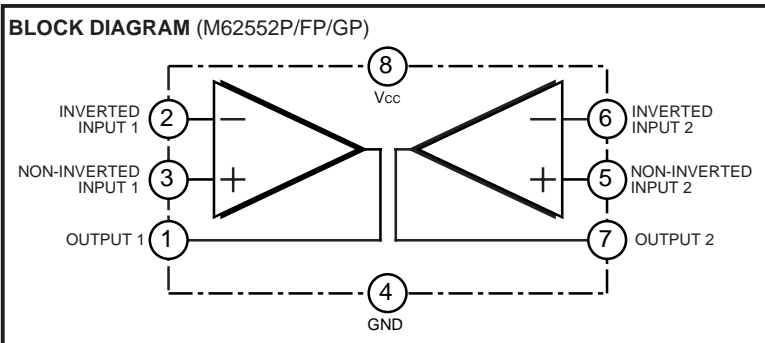
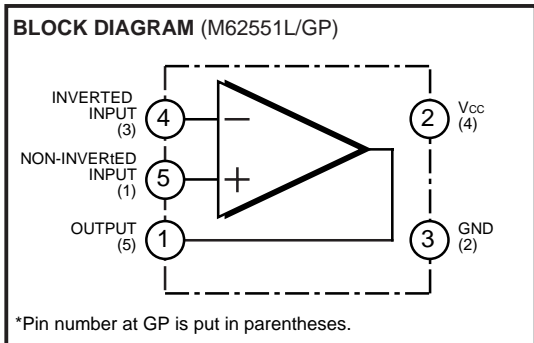
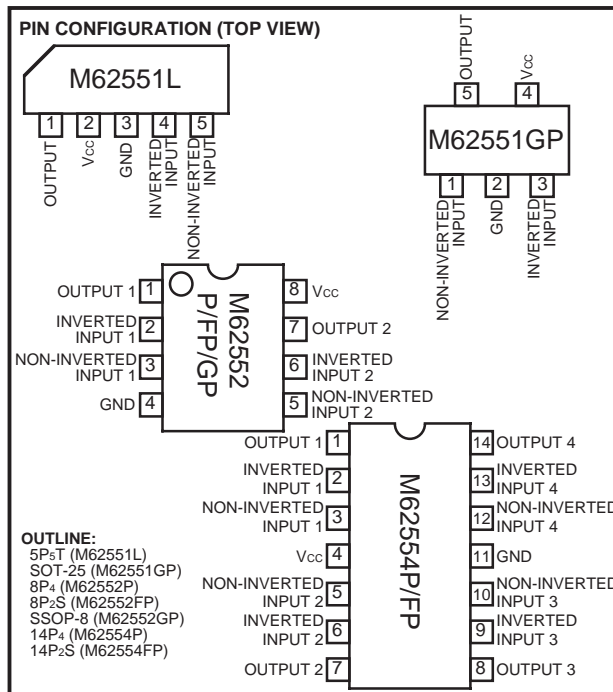
- Dissipation current.....0.19/0.38/0.76mA<551/552/554> (TYP)
- Output wide..... $V_o = GND$ to V_{cc} ($V_{in} = GND$ to V_{cc})
- Slew rate.....SR=1.2V/ μ S (TYP)
- Small size SSOP package. (551GP/ 552GP)

APPLICATION

Various types of arithmetic circuits for ink jet printer and other general electronic equipment

RECOMMENDED OPERATING CONDITIONS

Supply voltage.....5V



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ABSOLUTE MAXIMUM RATINGS (Ta=25°C, unless otherwise noted)

| Symbol | Parameter | Conditions | Ratings | Unit | |
|------------------|----------------------------|------------|-------------|-------------------------|-------|
| VCC | Supply voltage | | 7 | V | |
| Isink Isource | Load current | | ±10 | mA | |
| VIN | Input voltage | VIN ≤ VCC | -0.3 to 7 | V | |
| Vid | Differential Input voltage | | 7 | V | |
| Pd | Power dissipation | Ta=25°C | M62551 | 450(L)/200(GP) | mW |
| | | | M62552 | 625(P)/440(FP)/280(GP) | |
| | | | M62554 | 700(P)/550(FP) | |
| Ktheta | Thermal derating | Ta>25°C | M62551 | 4.5(L)2.0(GP) | mW/°C |
| | | | M62552 | 6.25(P)/4.4(FP)/2.8(GP) | |
| | | | M62554 | 7.0(P)/5.5(FP) | |
| Topr | Ambient temperature | | -20 to +85 | °C | |
| Tstg | Storage temperature | | -40 to +125 | °C | |

ELECTRICAL CHARACTERISTICS (Ta=25°C, VCC=5V unless otherwise noted)

| Symbol | Parameter | Test condition | Limits | | | Unit |
|--------|--------------------------------|----------------------------------|---------|----------|------|-------|
| | | | Min. | Typ | Max | |
| ICC | Circuit current | Gv=0dB, RL=∞ | M62551 | 0.19 | 0.30 | mA |
| | | | M62552 | 0.38 | 0.60 | |
| | | | M62554 | 0.76 | 1.20 | |
| VIO | Input offset voltage | Gv=0dB, RL=∞ | | 4 | 8 | mV |
| IB | Input bias current | | | 1 | 50 | pA |
| VICM | Common mode voltage range | | 0 | | VCC | V |
| GVO | Open loop voltage gain | RL ≥ 20KΩ | 80 | 100 | | dB |
| VOH | Output voltage swing | Gv=0dB, VIN=VCC, Io=+5mA | VCC-0.5 | VCC-0.1 | | V |
| VOL | | Gv=0dB, VIN=VCC, Io=+1mA | VCC-0.1 | VCC-0.02 | | |
| | | Gv=0dB, VIN=VCC, Io=-5mA | | 0.05 | 0.25 | |
| | | Gv=0dB, VIN=VCC, Io=-1mA | | 0.01 | 0.1 | |
| CMRR | Common mode rejection ratio | | 65 | | | dB |
| SVRR | Supply voltage rejection ratio | | 65 | | | dB |
| SR | Slew rate | Gv=0dB, RL=∞ | | 1.2 | | V/μS |
| fT | Gain bandwidth product | | | 1.0 | | MHz |
| VNI | Input conversion noise voltage | VIN=2.5V, Rs=1KΩ, BW:10Hz, 30KHz | | 5 | 10 | μVrms |

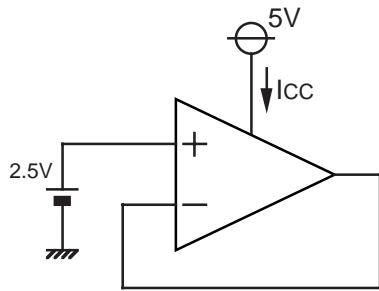
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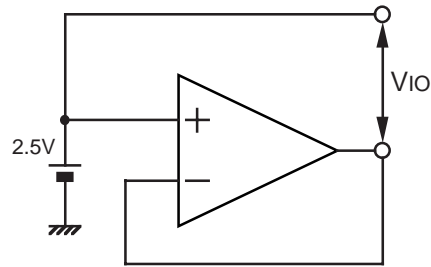
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MEASUREMENT CIRCUIT

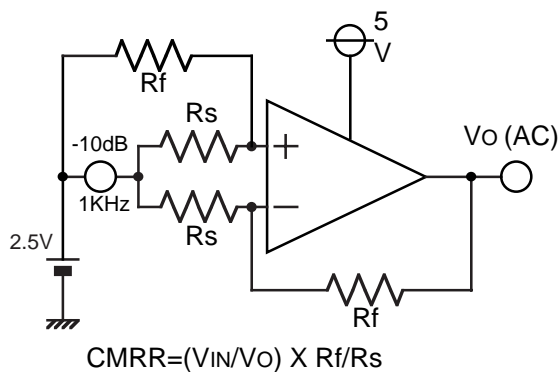
(1) CIRCUIT CURRENT



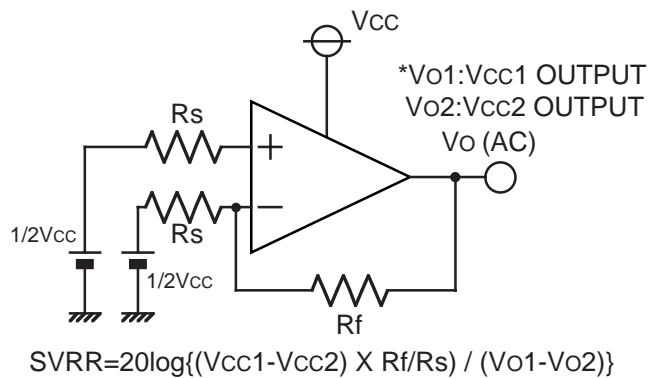
(2) INPUT OFFSET VOLTAGE



(3) COMMON MODE REJECTION RATIO

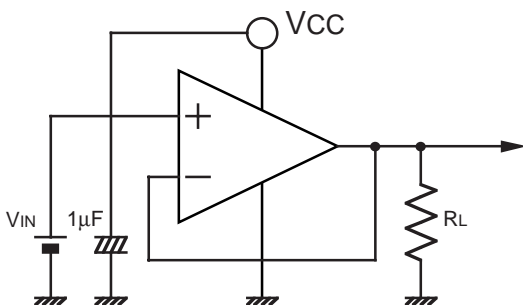


(4) SUPPLY VOLTAGE REJECTION RATIO

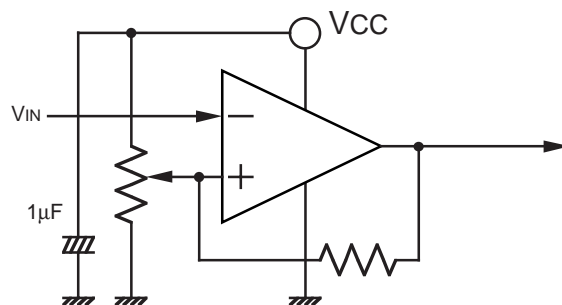


APPLICATION

(1) VOLTAGE FOLLOWER



(2) LEVEL DETECTOR



⚠ Mitsubishi Electric Corporation puts the maximum effort into making semiconductor products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property damage. Remember to give due consideration to safety when making your circuit design, in order to prevent fires from spreading, redundancy, malfunction or other mishap.