



M2107

LINEAR INTEGRATED CIRCUIT

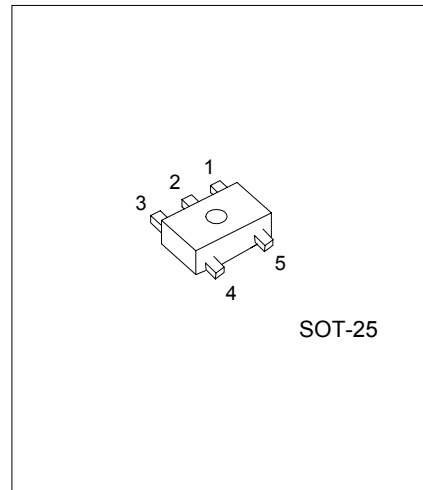
SINGLE OPERATIONAL AMPLIFIER

■ DESCRIPTION

The UTC M2107 is the single operational amplifier of ultra miniature surface mount package. It has features of low operating supply voltage and low saturation output voltage. It is suitable for small electronic equipments and hybrid circuits.

■ FEATURES

- *Operating Voltage ($V^+/V^- = \pm 1.0V$ to $\pm 3.5V$)
- *Low Output Saturation: (4Vp-p at single 5V supply)
- *V Shield Plate Between +Input and -Input
- *Suitable Pin Arrangement for Application
- *Bipolar Technology



*Pb-free plating product number: M2107L

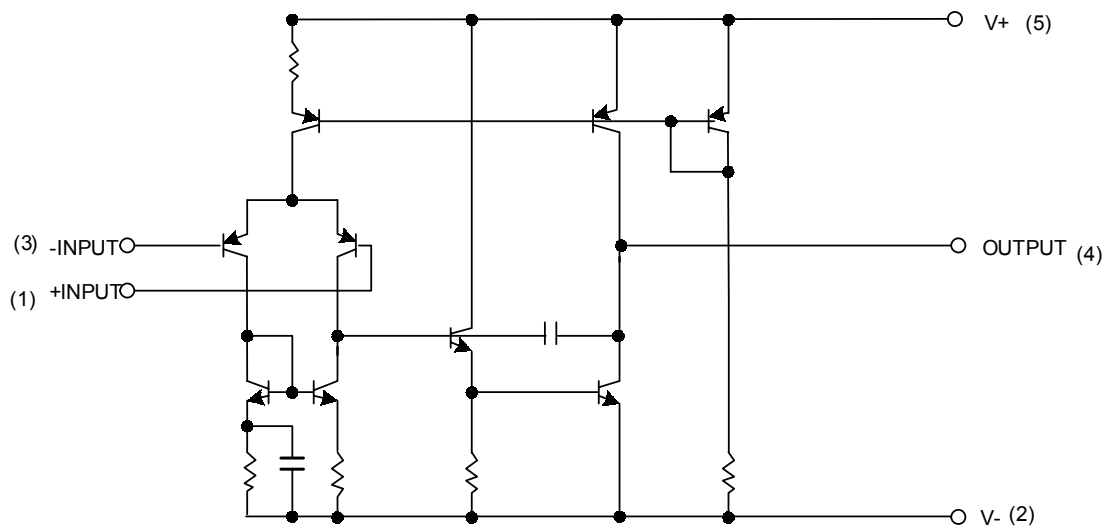
■ PIN CONFIGURATION

| PIN NO. | PIN NAME |
|---------|----------------|
| 1 | +INPUT |
| 2 | V ⁻ |
| 3 | -INPUT |
| 4 | OUTPUT |
| 5 | V ⁺ |

■ ORDERING INFORMATION

| Order Number | | Package | Packing |
|--------------|--------------|---------|-----------|
| Normal | Lead Free | | |
| M2107-AF5-R | M2107L-AF5-R | SOT-25 | Tape Reel |

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS (Ta=25 , unless otherwise specified.)

| PARAMETER | SYMBOL | RATINGS | UNIT |
|-----------------------------|---------------------|-------------|------|
| Supply Voltage | V+(V+/-) | 7(or ± 3.5) | V |
| Differential Input Voltage | V _(DIFF) | ± 7 | V |
| Input Voltage | V _{IN} | ± 3.5 | V |
| Power Dissipation | P _D | 200 | mW |
| Operating Temperature Range | T _{OPR} | 0 ~ +70 | °C |
| Storage Temperature Range | T _{STG} | -40 ~ +150 | °C |

Note:1.Absolute maximum ratings are those values beyond which the device could be permanently damaged.

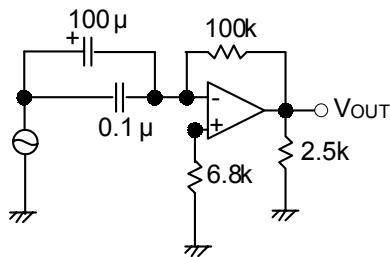
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2.The device is guaranteed to meet performance specification within 0 ~70 operating temperature range and assured by design from -40 ~85 .

■ ELECTRICAL CHARACTERISTICS (Ta=25□, V⁺/V⁻= ± 2.5V , unless otherwise specified.)

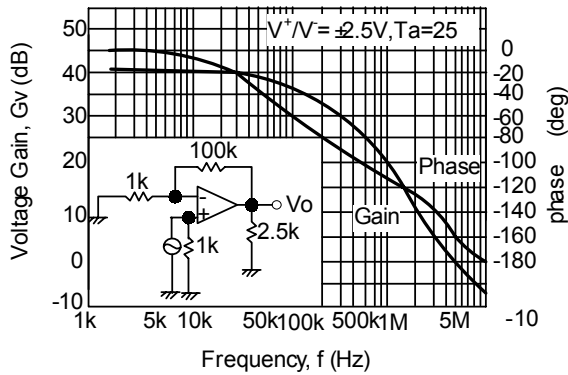
| PARAMETER | SYMBOL | TEST CONDITION | MIN | TYP | MAX | UNIT |
|---------------------------------|-----------------------|---|-------|-------|-----|------|
| Input Offset Voltage | V _{IN(OFF)} | R _S =10kΩ | | 1 | 6 | mV |
| Input Offset Current | I _{IN(OFF)} | I ⁺ -I ⁻ | | 5 | 200 | nA |
| Input Bias Current | I _{IN(BIAS)} | | | 100 | 500 | nA |
| Large Signal Voltage Gain | G _V | V _{OUT} = ± 2.0V, R _L =10kΩ | 60 | 80 | | dB |
| Supply Voltage Rejection Ratio | SVR | R _S ≤10kΩ | 60 | 70 | | dB |
| Input Common Mode Voltage Range | V _{IN(CM)} | | ± 1.5 | | | V |
| Rejection Ratio | RR | R _S ≤10kΩ | 60 | 80 | | dB |
| Output Voltage Swing | V _{OM} | R _L =2.5kΩ | ± 2.0 | ± 2.2 | | V |
| Slew Rate | SR | V _{IN} = ± 1Vp-p, ACL=+1 | | 3 | | V/μs |
| Operating Current | I _{OPR} | | 1 | 2 | 3 | mA |

■ TEST CIRCUIT

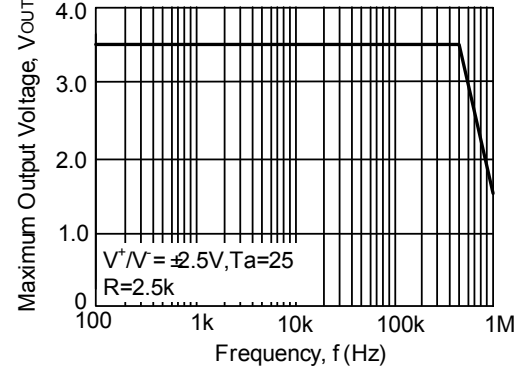


TYPICAL CHARACTERISTICS

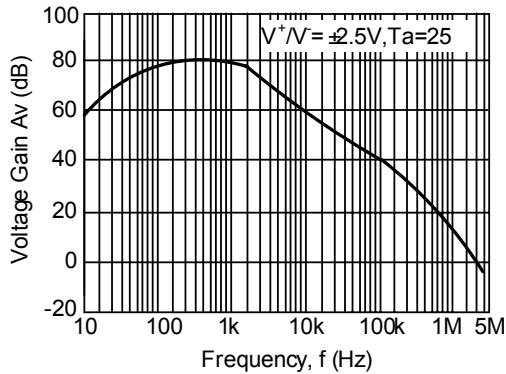
Voltage Gain, Phase vs. Frequency



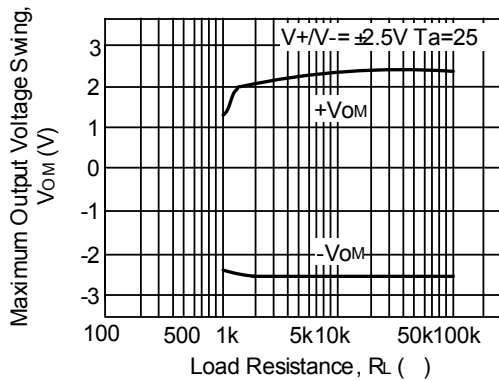
Maximum Output Voltage vs. Frequency



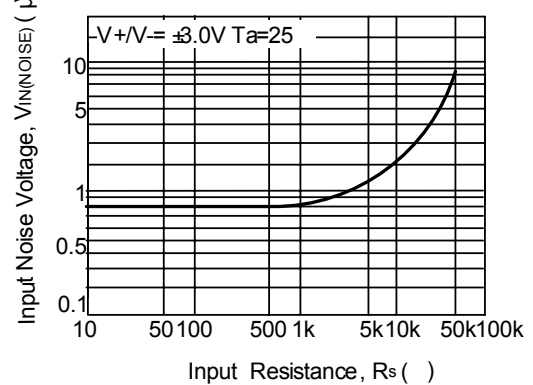
Voltage Gain vs. Frequency



Maximum Output Voltage Swing vs. Load Resistance

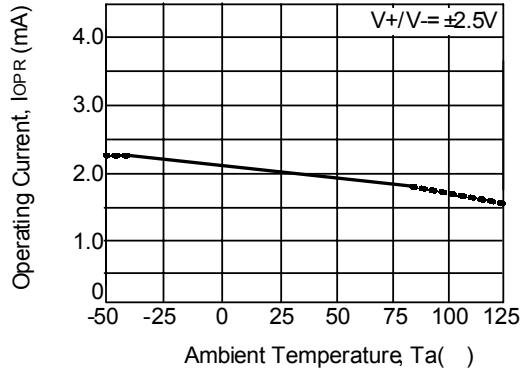


Input Noise Voltage vs. Input Resistance

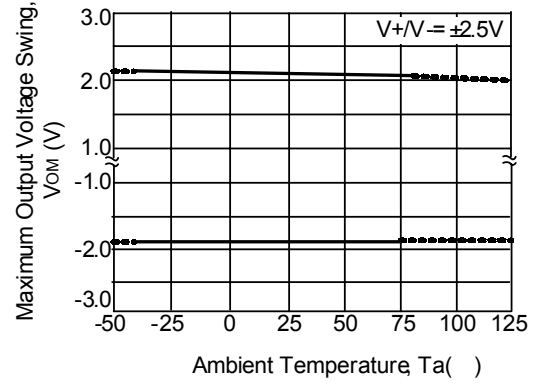


■ TYPICAL CHARACTERISTICS (Cont.)

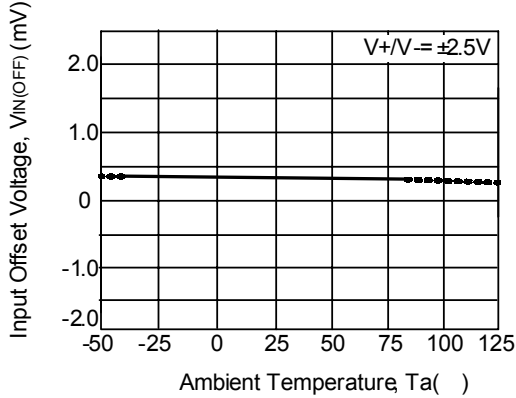
Operating Current vs. Temperature



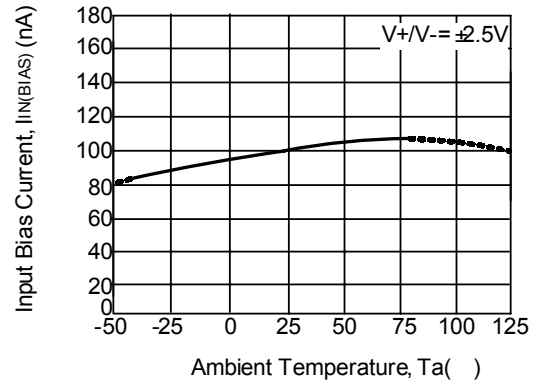
Maximum Output Voltage Swing vs. Temperature



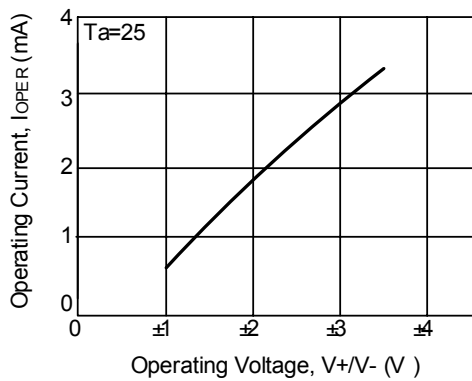
Input Offset Voltage vs. Temperature



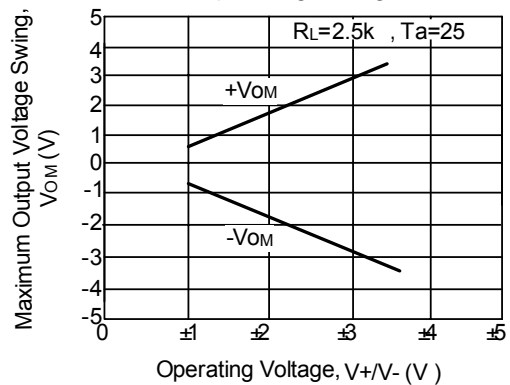
Input Bias Current vs. Temperature



Operating Current vs. Operating Voltage

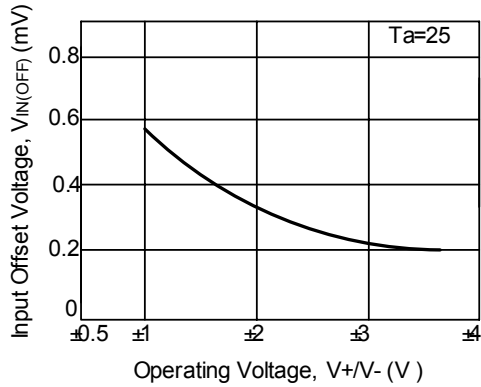


Maximum Output Voltage Swing vs. Operating Voltage

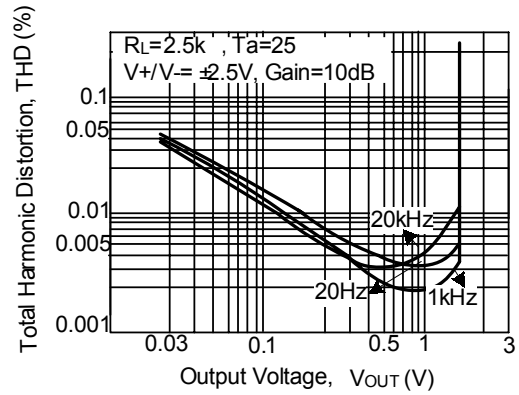


■ TYPICAL CHARACTERISTICS (Cont.)

Input Offset Voltage vs. Operating Voltage



Total Harmonic Distortion vs. Output Voltage



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