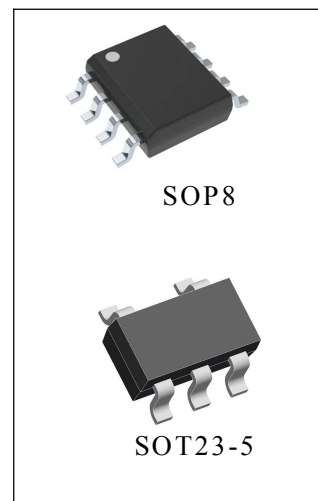


### General Description

D2107 is a single operational amplifier of ultra miniature surface mount package.

D2107 has features of low operating supply voltage and low saturation output voltage. The D2107 is suitable for small electronic equipments and hybrid circuits.

The D2107 is available in SOP8 and SOT23-5 package.



### 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
- Mounted in Ultra Miniature 2.9×1.5mm(1/5 of SOP8 package)
- Bipolar Technology

### Package Information

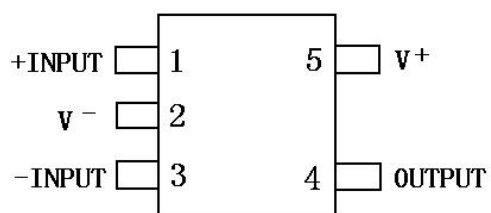
| Part NO. | Package Description | Package Marking         | Package Option        |
|----------|---------------------|-------------------------|-----------------------|
| D2107F   | SOP8                | CHMC<br>D2107F<br>SXXXX | 100/Tube<br>4000/Reel |
| D2107    | SOT23-5             | D2107<br>SXXXX          | 3000/Reel             |

CHMC:Trademark

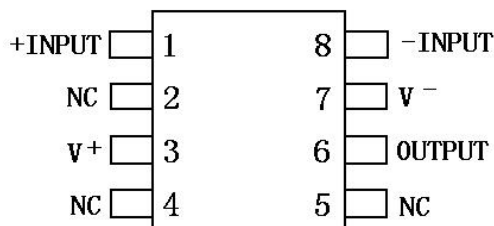
D2107:Part NO.

SXXXX:Lot NO.

### Pin Configuration

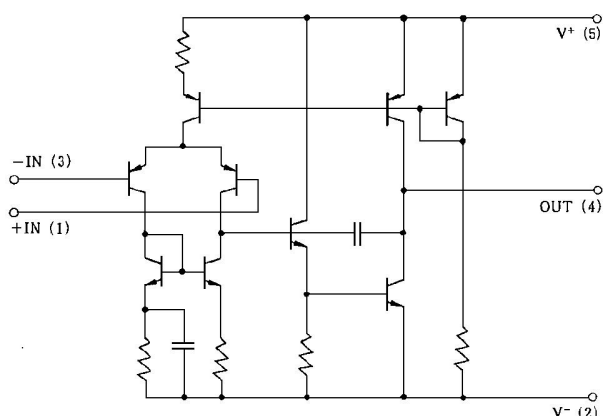


D2107(SOT23-5)



D2107F(SOP8)

## Equivalent Circuit



## Absolute Maximum Ratings (Ta=25°C)

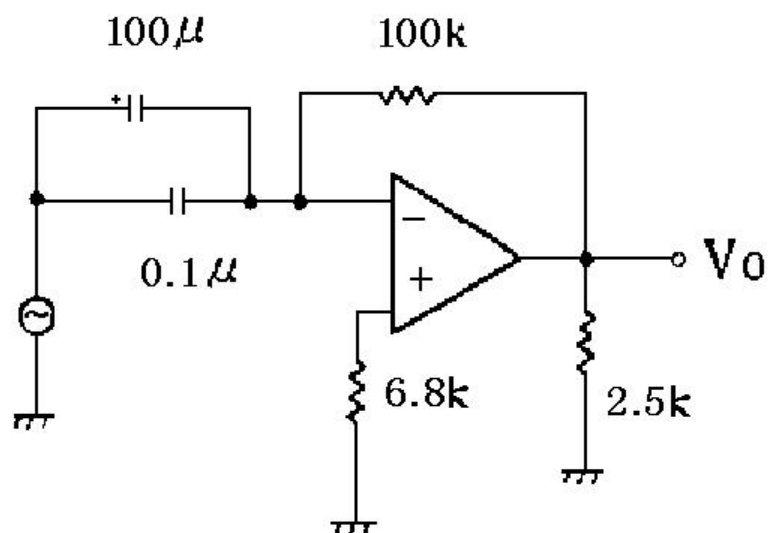
| Characteristic             | Symbol    | Value           | Unit |
|----------------------------|-----------|-----------------|------|
| Supply Voltage             | $V^+/V^-$ | $\pm 3.5$       | V    |
| Differential Input Voltage | $V_{ID}$  | $\pm 7$         | V    |
| Input Voltage              | $V_{IC}$  | $\pm 3.5$       | V    |
| Power Dissipation          | $P_D$     | 200             | mW   |
| Operating Temperature      | $T_{opr}$ | $-40 \sim +85$  | °C   |
| Storage Temperature        | $T_{stg}$ | $-40 \sim +125$ | °C   |

## Electrical Characteristics

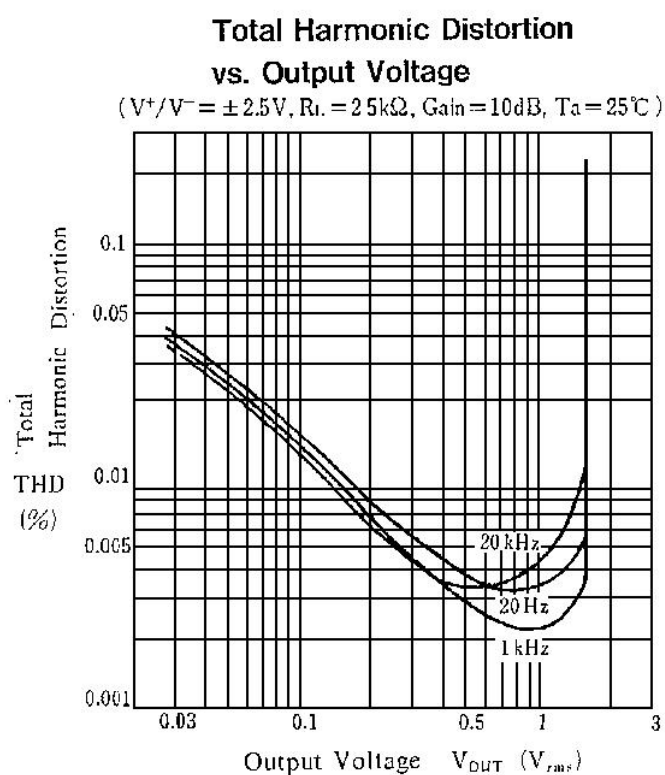
(unless otherwise specified: Ta=25°C,  $V^+/V^- = 2.5V$ )

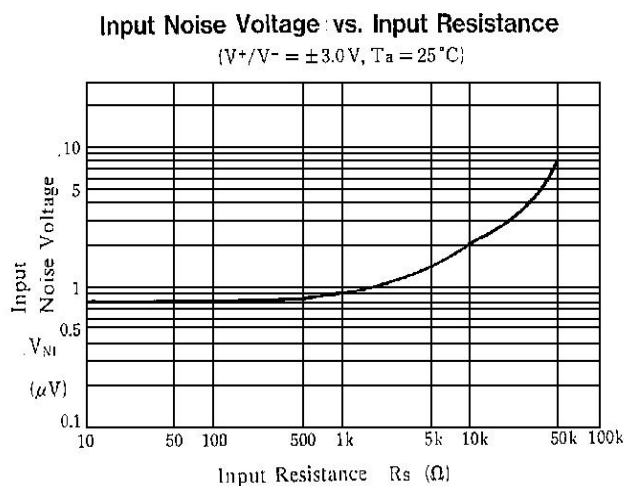
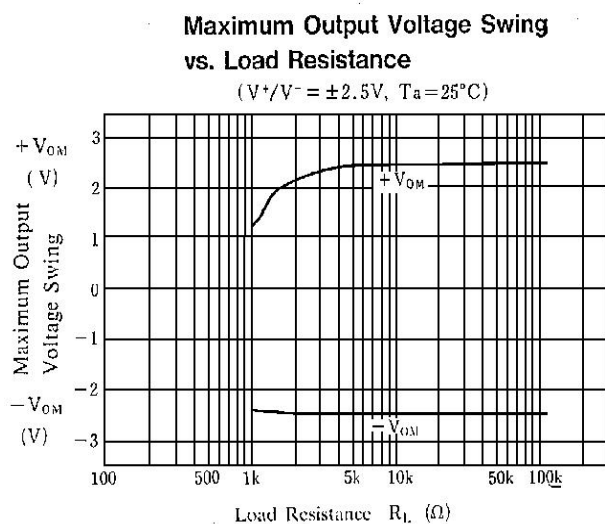
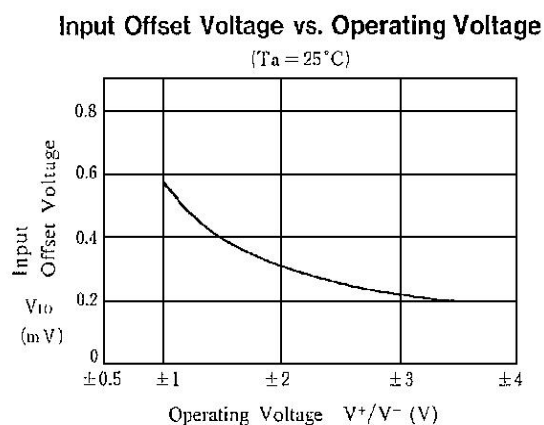
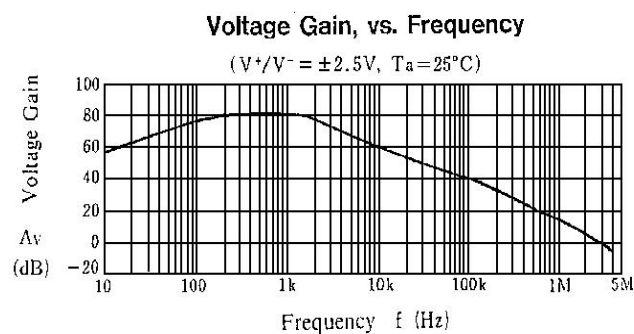
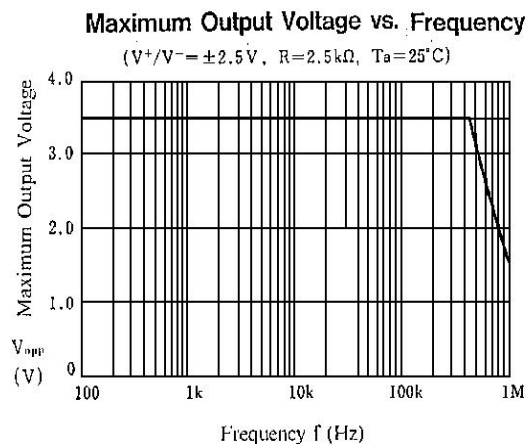
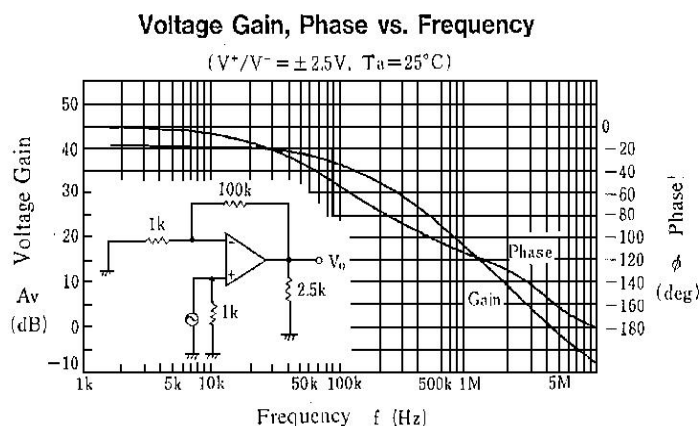
| Characteristics                 | Symbol    | Test conditions                | Min       | Typ       | Max | Unit       |
|---------------------------------|-----------|--------------------------------|-----------|-----------|-----|------------|
| Input Offset Voltage            | $V_{IO}$  | $R_S=10k\Omega$                |           | 1         | 6   | mV         |
| Input Offset Current            | $I_{IO}$  | $I^+ - I^-$                    |           | 5         | 200 | nA         |
| Input Bias Current              | $I_B$     |                                |           | 100       | 500 | nA         |
| Input Common Mode Voltage Range | $V_{ICM}$ |                                | $\pm 1.5$ |           |     | V          |
| Large Signal Voltage Gain       | $A_V$     | $R_L=10k\Omega, V_O=\pm 2V$    | 60        | 80        |     | dB         |
| Output Voltage Swing            | $V_{OM}$  | $R_L=2.5k\Omega$               | $\pm 2.0$ | $\pm 2.2$ |     | V          |
| Common Mode Rejection Ratio     | CMR       | $R_S \leq 10k\Omega$           | 60        | 80        |     | dB         |
| Supply Voltage Rejection Ratio  | SVR       | $R_S \leq 10k\Omega$           | 60        | 70        |     | dB         |
| Slew Rate                       | SR        | $V_{IN}=\pm 1V_p-p, A_{CL}=+1$ |           | 3         |     | V/ $\mu s$ |
| Operating Current               | $I_{cc}$  |                                | 1         | 2         | 3   | mA         |

## Test Circuit



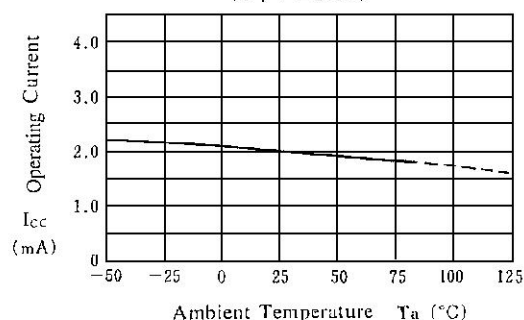
## Typical Characteristics





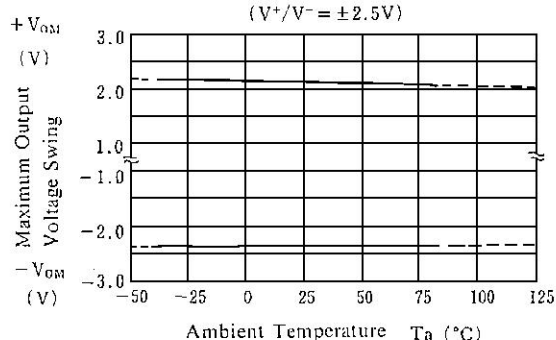
**Operating Current vs. Temperature**

( $V^+/V^- = 2.5V$ )



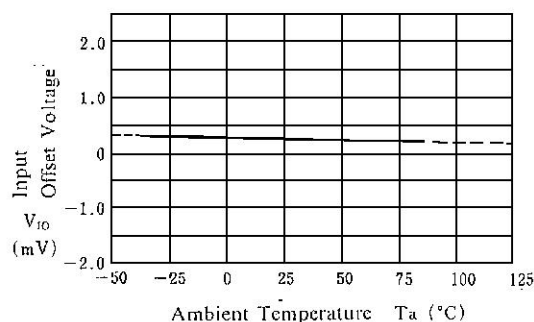
**Maximum Output Voltage Swing vs. Temperature**

( $V^+/V^- = \pm 2.5V$ )



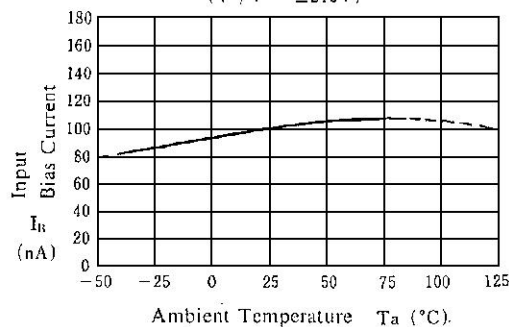
**Input Offset Voltage vs. Temperature**

( $V^+/V^- = \pm 2.5V$ )



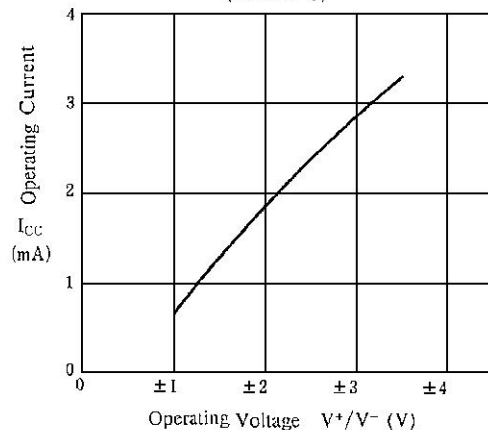
**Input Bias Current vs. Temperature**

( $V^+/V^- = \pm 2.5V$ )



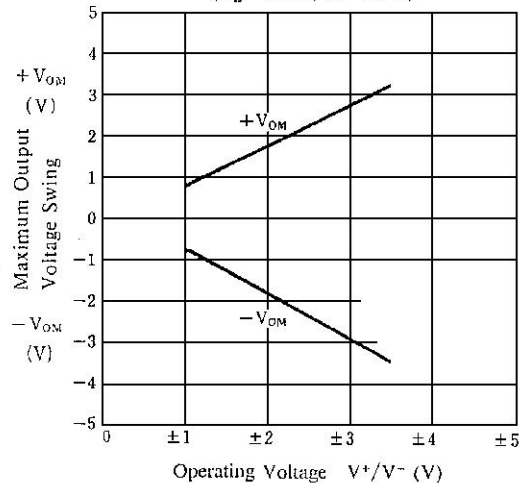
**Operating Current vs. Operating Voltage**

( $T_a = 25^\circ C$ )



**Maximum Output Voltage Swing vs. Operating Voltage**

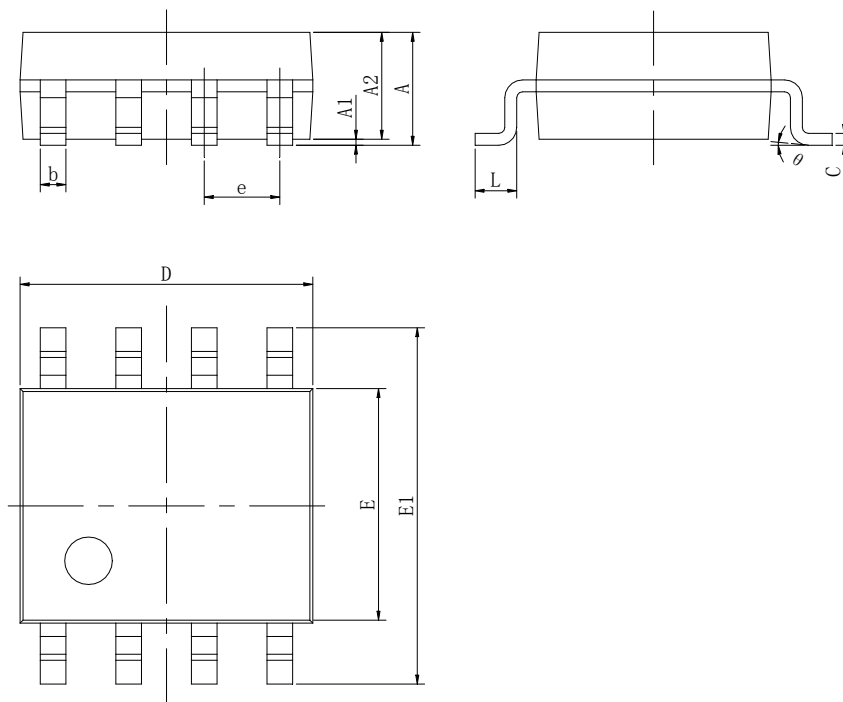
( $R_L = 2.5k\Omega, T_a = 25^\circ C$ )



## Outline Dimensions

SOP8

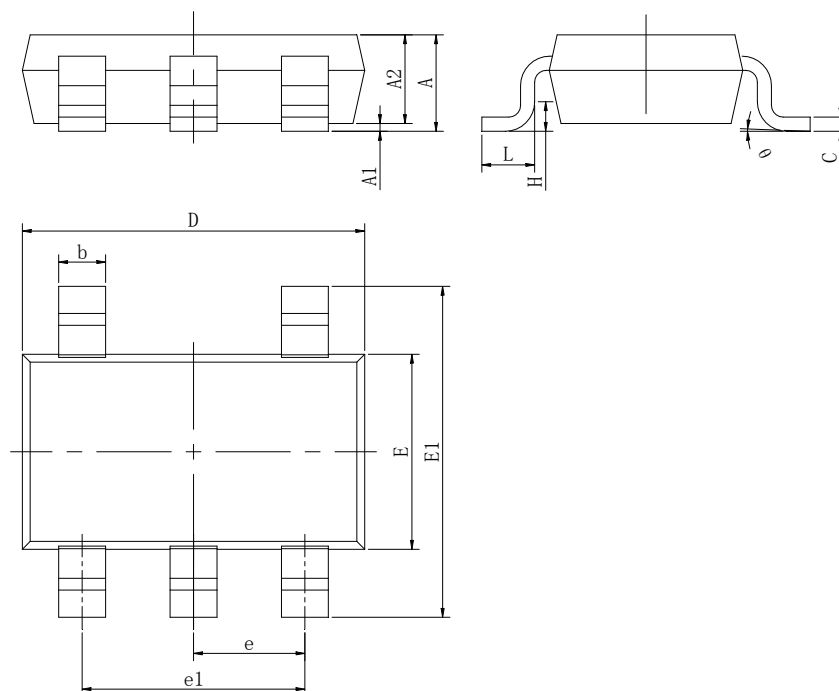
Unit:mm



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min                       | Max   | Min                  | Max   |
| A      | 1.350                     | 1.800 | 0.053                | 0.071 |
| A1     | 0.000                     | 0.250 | 0.000                | 0.010 |
| A2     | 1.250                     | 1.550 | 0.053                | 0.061 |
| b      | 0.300                     | 0.510 | 0.011                | 0.020 |
| c      | 0.170                     | 0.250 | 0.006                | 0.010 |
| D      | 4.700                     | 5.100 | 0.185                | 0.201 |
| E      | 3.800                     | 4.000 | 0.150                | 0.157 |
| E1     | 5.800                     | 6.300 | 0.228                | 0.244 |
| e      | 1.270(BSC)                |       | 0.050(BSC)           |       |
| L      | 0.400                     | 1.270 | 0.016                | 0.050 |
| θ      | 0°                        | 8°    | 0°                   | 8°    |

SOT23-5

Unit:mm



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min                       | Max   | Min                  | Max   |
| A      | 0.700                     | 0.900 | 0.028                | 0.035 |
| A1     | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2     | 0.700                     | 0.800 | 0.028                | 0.031 |
| b      | 0.350                     | 0.500 | 0.014                | 0.020 |
| c      | 0.080                     | 0.200 | 0.003                | 0.008 |
| D      | 2.820                     | 3.020 | 0.111                | 0.119 |
| E      | 1.600                     | 1.700 | 0.063                | 0.067 |
| E1     | 2.650                     | 2.950 | 0.104                | 0.116 |
| e      | 0.95 (BSC)                |       | 0.037(BSC)           |       |
| e1     | 1.90 (BSC)                |       | 0.075(BSC)           |       |
| L      | 0.300                     | 0.600 | 0.012                | 0.024 |
| θ      | 0°                        | 8°    | 0°                   | 8°    |

## Statements

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