



## M2107

## LINEAR INTEGRATED CIRCUIT

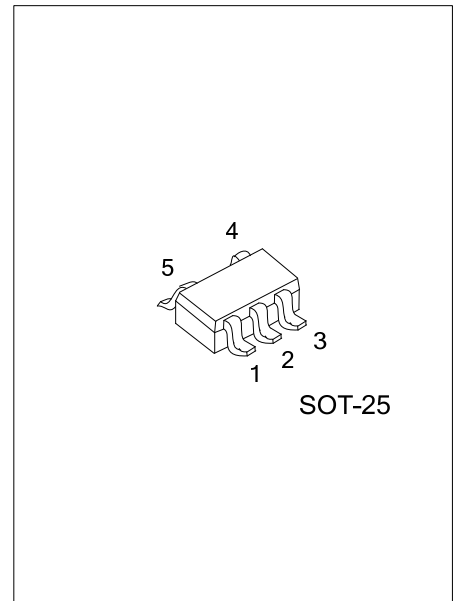
### SINGLE OPERATIONAL AMPLIFIER

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



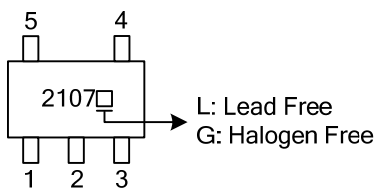
#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment					Packing
Lead Free	Halogen Free		1	2	3	4	5	
M2107L-AF5-R	M2107G-AF5-R	SOT-25	I <sup>+</sup>	V <sup>-</sup>	I <sup>-</sup>	O	V <sup>+</sup>	Tape Reel

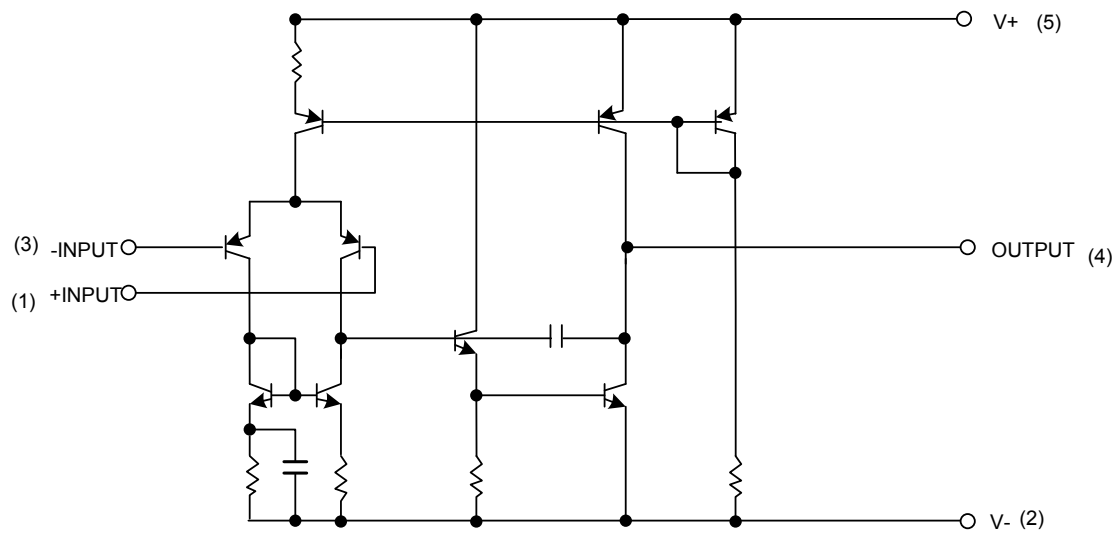
Note: Pin Assignment: I: V<sub>IN</sub> O: Output

<p>M2107L-AF5-R</p> <p>(1) Packing Type (2) Package Type (3) Lead Free</p>	<p>(1) R: Tape Reel (2) AF5: SOT-25 (3) G: Halogen Free, L: Lead Free</p>
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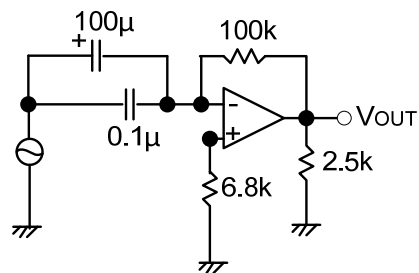
#### MARKING



## ■ BLOCK DIAGRAM



## ■ TEST CIRCUIT



■ ABSOLUTE MAXIMUM RATINGS ( $T_A=25^\circ\text{C}$ , unless otherwise specified.)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V_+(V+/V_-)$	7(or $\pm 3.5$ )	V
Differential Input Voltage	$V_{I(\text{DIFF})}$	$\pm 7$	V
Input Voltage	$V_{\text{IN}}$	$\pm 3.5$	V
Power Dissipation	$P_D$	200	mW
Operating Temperature	$T_{\text{OPR}}$	-20 ~ +75	$^\circ\text{C}$
Storage Temperature	$T_{\text{STG}}$	-40 ~ +125	$^\circ\text{C}$

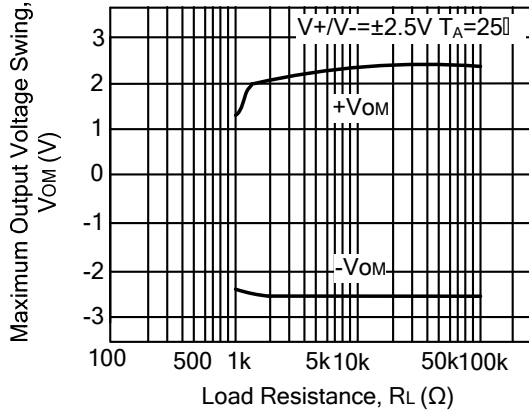
Note Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ ,  $V^+/V^-=\pm 2.5\text{V}$ , unless otherwise specified.)

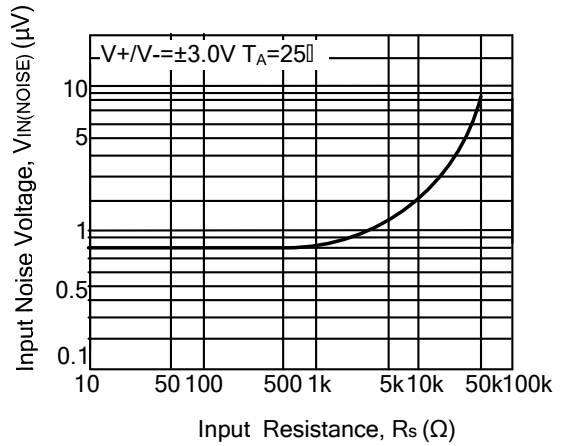
PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Input Offset Voltage	$V_{\text{IN(OFF)}}$	$R_S=10\text{k}\Omega$		1	6	mV
Input Offset Current	$I_{\text{IN(OFF)}}$	$I^+ - I^-$		5	200	nA
Input Bias Current	$I_{\text{IN(BIAS)}}$			100	500	nA
Large Signal Voltage Gain	$G_V$	$V_{\text{OUT}}=\pm 2.0\text{V}, R_L=10\text{k}\Omega$	60	80		dB
Supply Voltage Rejection Ratio	SVR	$R_S\leq 10\text{k}\Omega$	60	70		dB
Input Common Mode Voltage	$V_{\text{IN(CM)}}$		$\pm 1.5$			V
Rejection Ratio	RR	$R_S\leq 10\text{k}\Omega$	60	80		dB
Output Voltage Swing	$V_{\text{OM}}$	$R_L=2.5\text{k}\Omega$	$\pm 2.0$	$\pm 2.2$		V
Slew Rate	SR	$V_{\text{IN}}=\pm 1\text{Vp-p}, \text{ACL}=+1$		3		V/ $\mu\text{s}$
Operating Current	$I_{\text{OPR}}$		1	2	3	mA

## TYPICAL CHARACTERISTICS

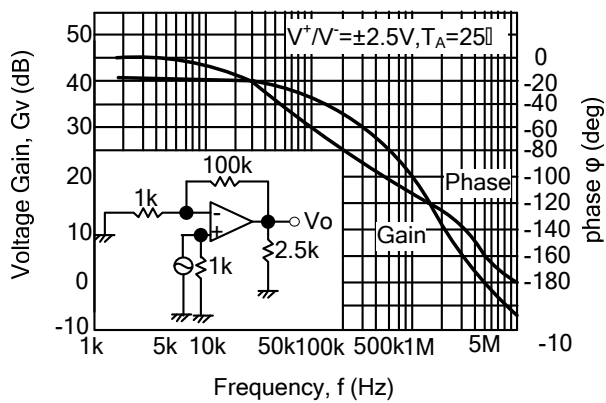
Maximum Output Voltage Swing vs. Load Resistance



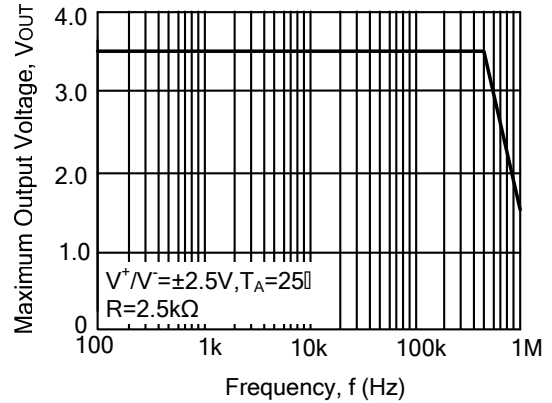
Input Noise Voltage vs. Input Resistance



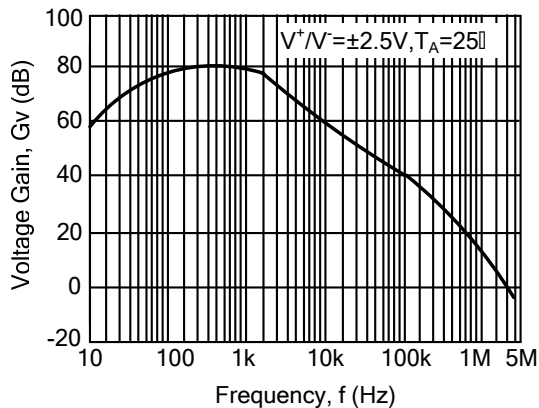
Voltage Gain, Phase vs. Frequency



Maximum Output Voltage vs. Frequency

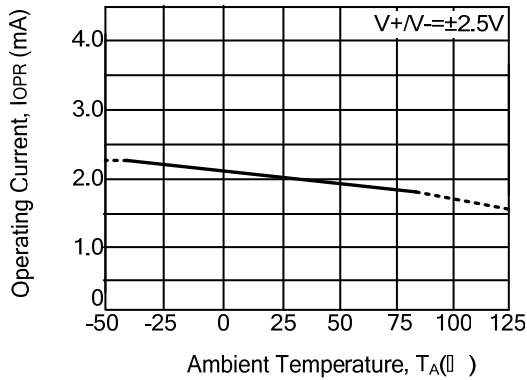


Voltage Gain vs. Frequency

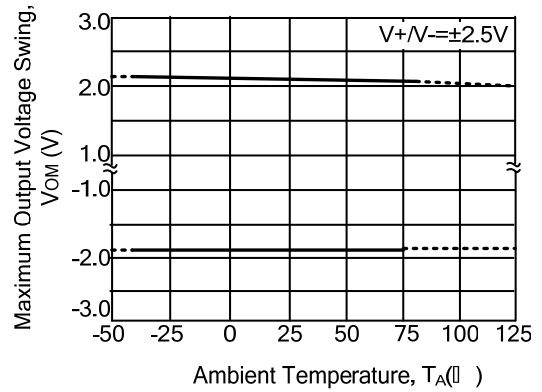


■ TYPICAL CHARACTERISTICS (Cont.)

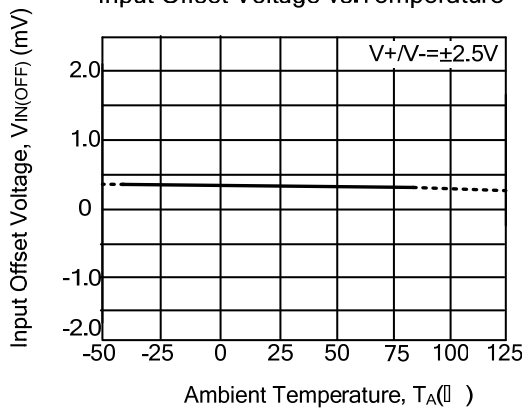
Operating Current vs. Temperature



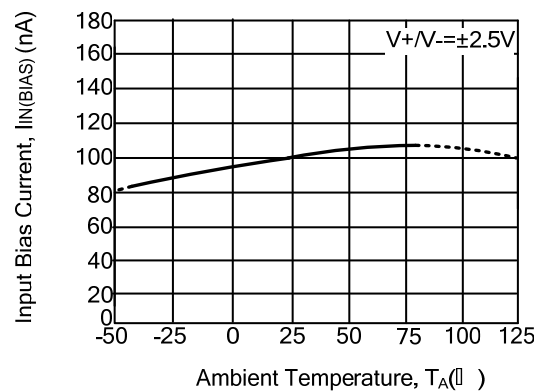
Maximum Output Voltage Swing vs. Temperature



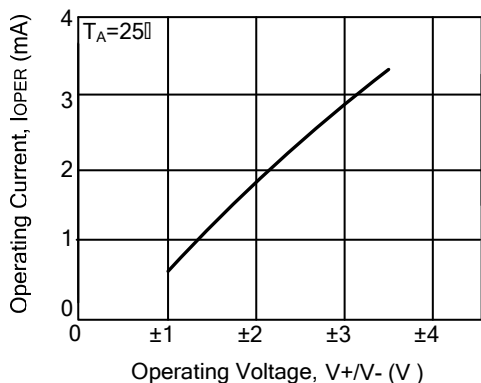
Input Offset Voltage vs. Temperature



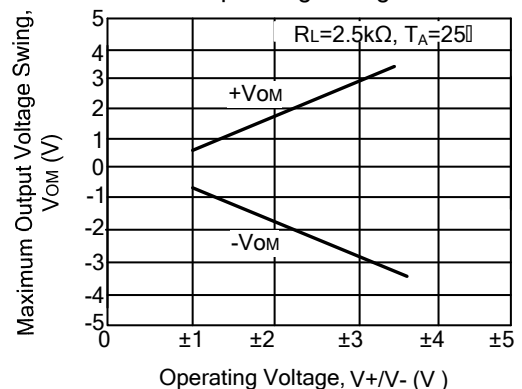
Input Bias Current vs. Temperature



Operating Current vs. Operating Voltage

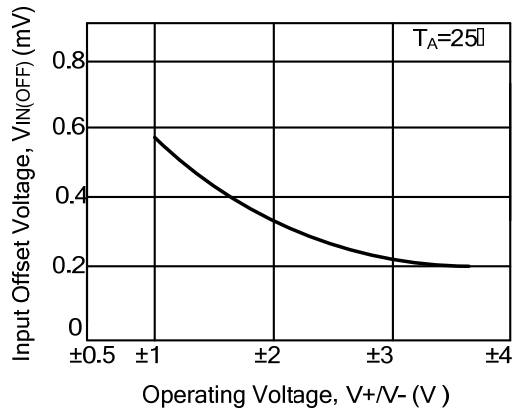


Maximum Output Voltage Swing vs. Operating Voltage

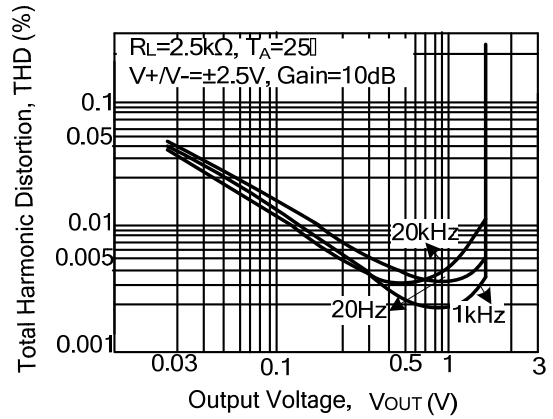


■ TYPICAL CHARACTERISTICS (Cont.)

Input Offset Voltage vs. Operating Voltage



Total Harmonic Distortion vs. Output Voltage



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