



## UM605A/B

## LINEAR INTEGRATED CIRCUIT

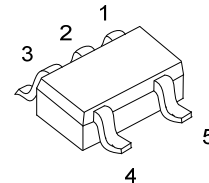
### OPERATIONAL AMPLIFIERS WITH 2.5V/1.25V SHUNT REGULATOR

#### DESCRIPTION

UTC **UM605A/B** that is designed to include 2 op amp and one shunt regulator for battery charger and AC adapter application.

#### FEATURES

- \* Small SOT-25 package
- \* Internal accurate 2.5V / 1.25V  $V_{REF}$
- \* Reduced external components



SOT-25

#### ORDERING INFORMATION

| Ordering Number |               | Package | Packing   |
|-----------------|---------------|---------|-----------|
| Lead Free       | Halogen Free  |         |           |
| UM605AL-AF5-R   | UM605AG-AF5-R | SOT-25  | Tape Reel |
| UM605BL-AF5-R   | UM605BG-AF5-R | SOT-25  | Tape Reel |

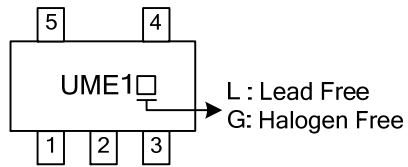
UM605AL-AF5-R

- (1) Packing Type
- (2) Package Type
- (3) Lead Free

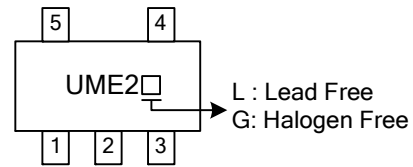
- (1) R: Tape Reel
- (2) AF5: SOT-25
- (3) L: Lead Free, G: Halogen Free

### MARKING

UM605A



UM605B

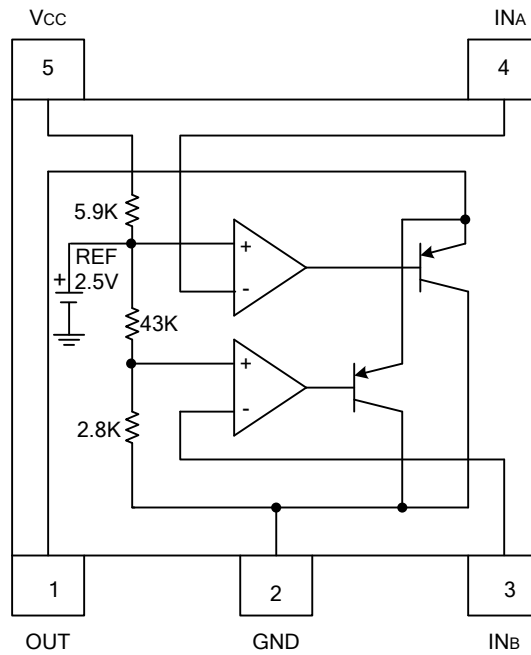


### PIN DESCRIPTION

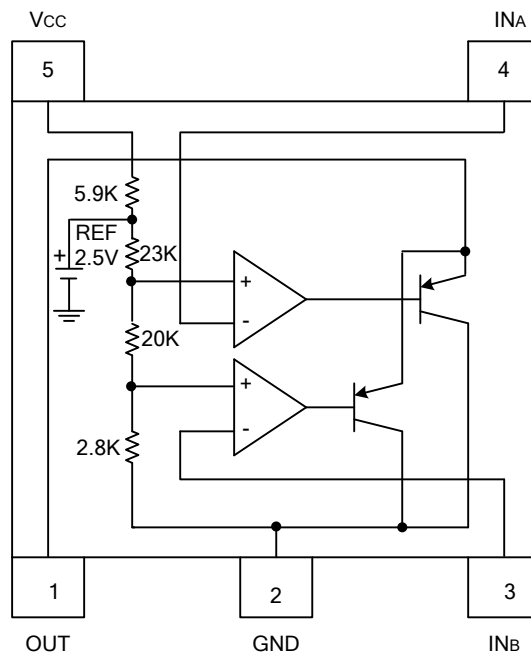
| PIN NO. | PIN NAME        | FUNCTION       | INTERNAL CIRCUIT DIAGRAM |
|---------|-----------------|----------------|--------------------------|
| 1       | OUT             | Output Pin     |                          |
| 2       | GND             | Ground         |                          |
| 3       | IN <sub>B</sub> | Input Pin      |                          |
| 4       | IN <sub>A</sub> |                |                          |
| 5       | V <sub>CC</sub> | Supply Voltage |                          |

## ■ BLOCK DIAGRAM

UM605A



UM605B



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

| PARAMETER                     | SYMBOL    | RATINGS    | UNIT             |
|-------------------------------|-----------|------------|------------------|
| Supply Voltage                | $V_{CC}$  | -0.3 ~ +20 | V                |
| Recommended Operating Voltage | $V_{OPR}$ | +4 ~ +20   | V                |
| Power Dissipation             | $P_D$     | 250        | mW               |
| Operating Temperature         | $T_{OPR}$ | -25 ~ +85  | $^\circ\text{C}$ |
| Storage Temperature           | $T_{STG}$ | -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 ( $V_{CC}=5\text{V}$ ,  $T_A=25^\circ\text{C}$ , unless otherwise specified.)

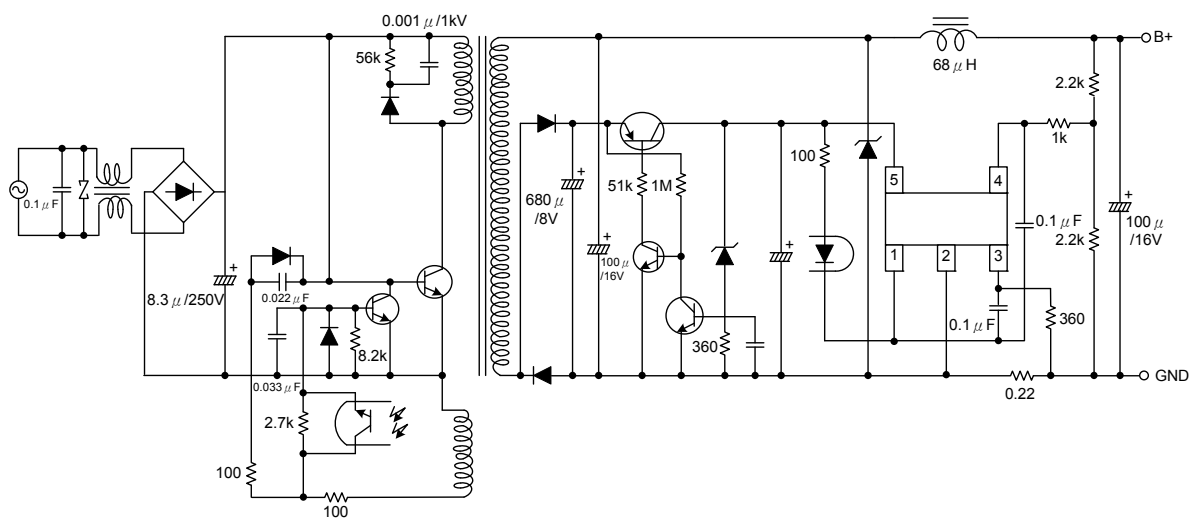
**FOR UM605A**

| PARAMETER                | SYMBOL          | TEST CONDITIONS                                                | MIN  | TYP  | MAX  | UNIT |
|--------------------------|-----------------|----------------------------------------------------------------|------|------|------|------|
| Current Consumption      | $I_{CC}$        | $IN_A=0\text{V}$ , $IN_B=0\text{V}$ , $R_L=\infty$             |      | 2.4  | 3.4  | mA   |
| <b>A AMPLIFIER</b>       |                 |                                                                |      |      |      |      |
| Output Inverting Voltage | $V_A$           | $IN_A=0\text{V}$ , $R_L=4.3\text{k}$                           | 2.45 | 2.50 | 2.55 | V    |
| Output Sink Current      | $I_{O(SINK A)}$ | $IN_B=2.7\text{V}$ , $IN_A=0\text{V}$ , $V_{OUT}=1.5\text{V}$  | 5    |      |      | mA   |
| Input Bias Current       | $I_{I(BIAS A)}$ | $IN_A=0\text{V}$ , $R_L=4.3\text{k}$                           |      | 50   | 140  | nA   |
| PSRR                     | PSRR(A)         | $IN_A=0\text{V}$ , $R_L=4.3\text{k}$                           | 50   |      |      | dB   |
| <b>B AMPLIFIER</b>       |                 |                                                                |      |      |      |      |
| Output Inverting Voltage | $V_B$           | $IN_B=0\text{V}$ , $R_L=4.3\text{k}$                           | 152  |      | 160  | mV   |
| Output Sink Current      | $I_{O(SINK B)}$ | $IN_B=0\text{V}$ , $IN_A=0.17\text{V}$ , $V_{OUT}=1.5\text{V}$ | 5    |      |      | mA   |
| Input Bias Current       | $I_{I(BIAS B)}$ | $IN_B=0\text{V}$ , $R_L=4.3\text{k}$                           |      | 50   | 140  | nA   |
| PSRR                     | PSRR(B)         | $IN_B=0\text{V}$ , $R_L=4.3\text{k}$                           | 65   |      |      | dB   |

**FOR UM605B**

| PARAMETER                | SYMBOL          | TEST CONDITIONS                                                | MIN   | TYP  | MAX   | UNIT |
|--------------------------|-----------------|----------------------------------------------------------------|-------|------|-------|------|
| Current Consumption      | $I_{CC}$        | $IN_A=0\text{V}$ , $IN_B=0\text{V}$ , $R_L=\infty$             |       | 1.2  | 1.7   | mA   |
| <b>A AMPLIFIER</b>       |                 |                                                                |       |      |       |      |
| Output Inverting Voltage | $V_A$           | $IN_A=0\text{V}$ , $R_L=4.3\text{k}$                           | 1.225 | 1.25 | 1.275 | V    |
| Output Sink Current      | $I_{O(SINK A)}$ | $IN_B=2.7\text{V}$ , $IN_A=0\text{V}$ , $V_{OUT}=1.5\text{V}$  | 5     |      |       | mA   |
| Input Bias Current       | $I_{I(BIAS A)}$ | $IN_A=0\text{V}$ , $R_L=4.3\text{k}$                           |       | 50   | 140   | nA   |
| PSRR                     | PSRR(A)         | $IN_A=0\text{V}$ , $R_L=4.3\text{k}$                           | 62    |      |       | dB   |
| <b>B AMPLIFIER</b>       |                 |                                                                |       |      |       |      |
| Output Inverting Voltage | $V_B$           | $IN_B=0\text{V}$ , $R_L=4.3\text{k}$                           | 152   |      | 160   | mV   |
| Output Sink Current      | $I_{O(SINK B)}$ | $IN_B=0\text{V}$ , $IN_A=0.17\text{V}$ , $V_{OUT}=1.5\text{V}$ | 5     |      |       | mA   |
| Input Bias Current       | $I_{I(BIAS B)}$ | $IN_B=0\text{V}$ , $R_L=4.3\text{k}$                           |       | 50   | 140   | nA   |
| PSRR                     | PSRR(B)         | $IN_B=0\text{V}$ , $R_L=4.3\text{k}$                           | 65    |      |       | dB   |

## ■ APPLICATION CIRCUIT



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