



# A6043

## LINEAR INTEGRATED CIRCUIT

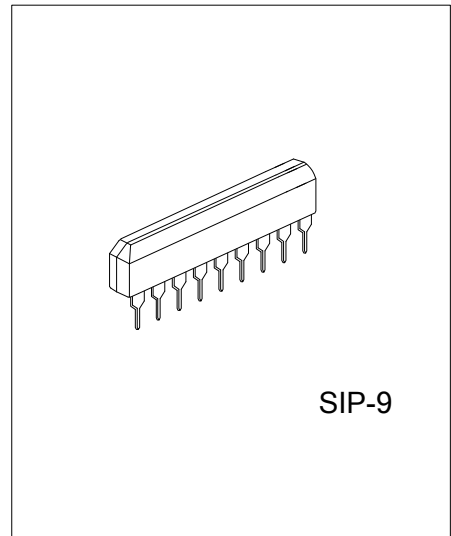
### FM STEREO MULTIPLEX

#### DESCRIPTION

The UTC **A6043** is Phase Locked Loop(PLL) FM stereo multiplex IC. It is suitable for automotive applications and portable radio applications.

#### FEATURES

- \* Low and wide operation:  $V_{CC} = 3V \sim 12V$
- \* High pilot lamp ON sensitivity:  $V_{L(ON)} = 9mV_{rms}$  (Typ.)
- \* Suitable for LED driving:  $I_{LAMP} = 20mA$  (Max.)
- \* Recommendable input voltage range:  $V_{IN} = 200 \sim 700mV_{rms}$
- \* Low distortion: THD = 0.08% (Typ.) at  $V_{IN} = 200mV_{rms}$ (Stereo)
- \* VCO stop capability stereo lamp and turn off are simultaneously operated by connect pin 7 to  $V_{CC}$ .
- \* Easy adjustment (The monitored free running frequency of VCO is 38kHz at pin 6.)

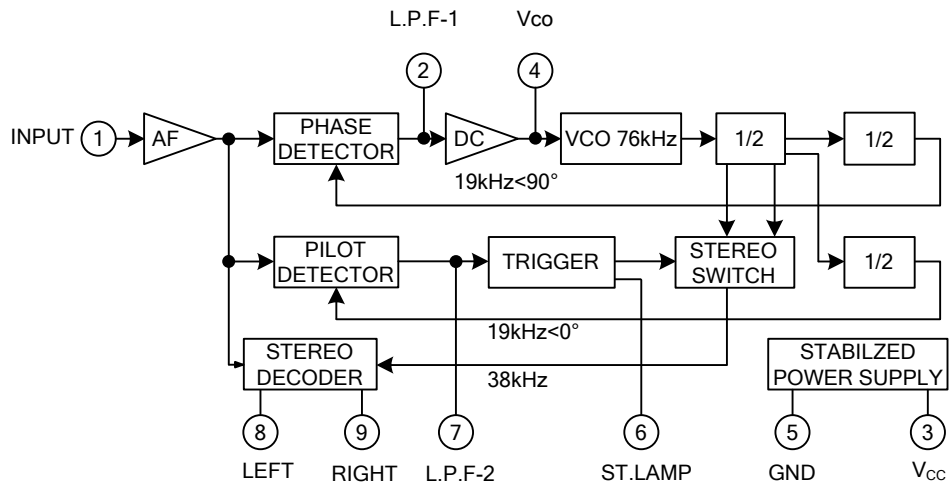


\*Pb-free plating product number: A6043L

#### ORDERING INFORMATION

| Order Number |              | Package | Packing |
|--------------|--------------|---------|---------|
| Normal       | Lead free    |         |         |
| A6043-G09-T  | A6043L-G09-T | SIP-9   | Tube    |

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

| PARAMETER             | SYMBOL            | RATINGS    | UNIT |
|-----------------------|-------------------|------------|------|
| Supply Voltage        | V <sub>CC</sub>   | 12         | V    |
| Lamp Voltage          | V <sub>LAMP</sub> | 16         | V    |
| Lamp Current          | I <sub>LAMP</sub> | 20         | mA   |
| Power Dissipation     | P <sub>D</sub>    | 500        | mW   |
| Operating Temperature | T <sub>OPR</sub>  | -20 ~ +85  | °C   |
| Storage Temperature   | T <sub>STG</sub>  | -40 ~ +150 | °C   |

■ ELECTRICAL CHARACTERISTICS

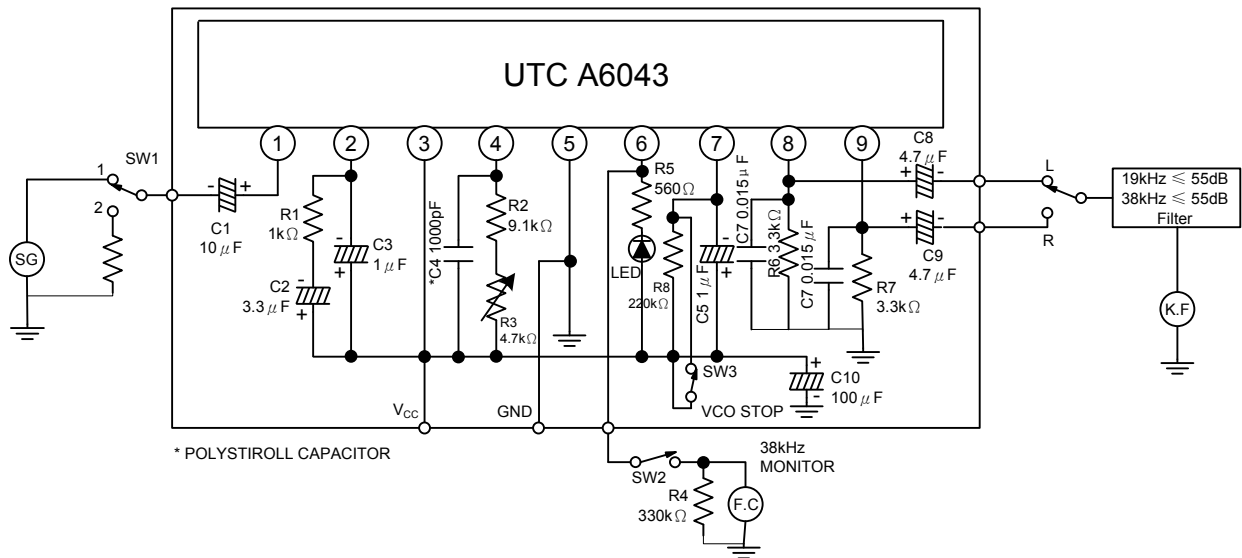
1. DC CHARACTERISTICS (Ta = 25°C, V<sub>CC</sub> = 8V, terminal Voltage at No Signal.)

| PIN NO. | PARAMETER                   | SYMBOL          | MIN | TYP | MAX | UNIT |
|---------|-----------------------------|-----------------|-----|-----|-----|------|
| 1       | Composite Signal Input      | Input           |     | 3.5 |     | V    |
| 2       | PLL Low-Pass Filter         | LPF1            |     | 6.6 |     | V    |
| 3       | V <sub>CC</sub>             | V <sub>CC</sub> |     | 8.0 |     | V    |
| 4       | V <sub>CO</sub>             | V <sub>CO</sub> |     | 7.1 |     | V    |
| 5       | Ground                      | GND             |     | 0   |     | V    |
| 6       | Stereo Lamp                 | SLED            |     |     |     | V    |
| 7       | Pilot Detect Low-Pas Filter | LPF2            |     | 7.4 |     | V    |
| 8       | L-ch output                 | L-ch            |     | 4.0 |     | V    |
| 9       | R-ch output                 | R-ch            |     | 4.0 |     | V    |

2. AC ELECTRICAL CHARACTERISTICS (Ta = 25°C, V<sub>CC</sub> = 8V, f = 1kHz, unless otherwise specified.)

| PARAMETER                     | SYMBOL               | TEST CONDITIONS   | MIN                    | TYP  | MAX  | UNIT              |
|-------------------------------|----------------------|---|------------------------|------|------|-------------------|
| Supply Current                | I <sub>CC</sub>      | at Lamp off   |                        | 11   | 18   | mA                |
| Maximum Input Voltage(Stereo) | V <sub>IN(MAX)</sub> | L+R = 90%, P = 10%  |                        | 900  |      | mV <sub>rms</sub> |
| Channel Separation            | CS                   | L+R = 180 mV <sub>rms</sub> , P = 20mV <sub>rms</sub>   | 36                     | 45   |      | dB                |
| Total Harmonic Distortion     | Monaural             | V <sub>IN</sub> = 200mV <sub>rms</sub><br>L+R = 180 mV <sub>rms</sub> , P = 20mV <sub>rms</sub>               |                        | 0.08 | 0.3  | %                 |
|                               | Stereo               |   |                        | 0.08 |      | %                 |
| Voltage Gain                  | G <sub>V</sub>       | V <sub>IN</sub> = 200mV <sub>rms</sub>  | -2.0                   | 0.5  | +2.0 | dB                |
| Channel Balance               | CB                   | V <sub>IN</sub> = 200mV <sub>rms</sub>  |                        | 0    | 1.5  | dB                |
| Lamp Sensitivity              | ON                   | V <sub>L(ON)</sub><br>Pilot Input   |                        | 9    | 15   | mV <sub>rms</sub> |
|                               | OFF                  |   | V <sub>L(OFF)</sub>    | 2    | 6    | mV <sub>rms</sub> |
| Stereo Lamp Hysteresis        | V <sub>HYS</sub>     | To Turn Off from Lamp Turn On   |                        | 3    |      | mV <sub>rms</sub> |
| Capture Range                 | CR                   | P = 20mV <sub>rms</sub>   |                        | ±3   |      | %                 |
| Carrier Leak                  | 19kHz                | CL<br>L+R = 180 mV <sub>rms</sub> , P = 20mV <sub>rms</sub>   |                        | 34   |      | dB                |
|                               | 38kHz                |   |                        | 42   |      |                   |
| SCA Rejection Ratio           | SCA Rej.             | L+R = 160 mV <sub>rms</sub> , P = 20mV <sub>rms</sub><br>SCA = 20mV <sub>rms</sub> , f <sub>SCA</sub> = 67kHz |                        | 70   |      | dB                |
| Signal to Noise Ratio         | S/N                  | V <sub>IN</sub> = 200mV <sub>rms</sub> , f = 1kHz, R <sub>G</sub> = 620Ω                                      |                        | 74   |      | dB                |
| Input Resistance              | R <sub>IN</sub>      |   |                        | 33   |      | kΩ                |
| Output Current (Pins 8, 9)    | I <sub>OUT</sub>     | R <sub>L</sub> = 3.3kΩ  | V <sub>CC</sub> = 3.5V | 0.3  | 0.6  | mA                |
|                               |                      |   | V <sub>CC</sub> = 8.0V | 1.2  | 1.8  |                   |
|                               |                      |   | V <sub>CC</sub> = 12V  | 1.4  | 2.1  |                   |

## ■ TEST CIRCUIT



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