

# UTC A2804 LINEAR INTEGRATED CIRCUIT

## ZERO VOLTAGE SWITCH

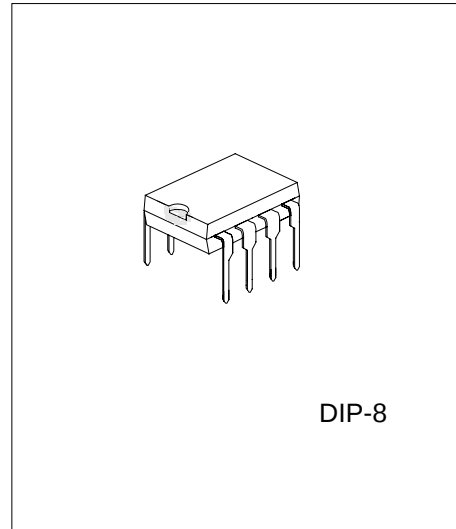
### DESCRIPTION

The UTC A2804 is a TRIAC controller providing a complete solution for temperature controlled electric panel heaters, cookers, film processing baths etc.

Switching occurs at the zero voltage point in order to minimize radio frequency interference. The device is suitable for mains-on-line operation and requires minimal components.

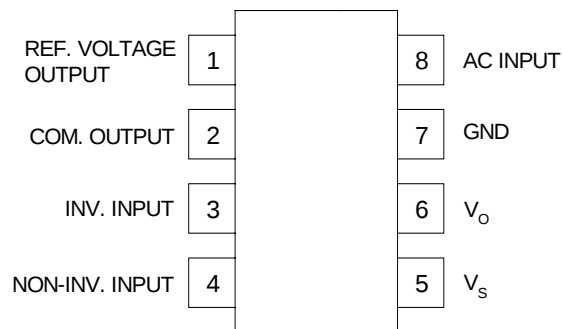
### FEATURES

- \*Easy operation either through the AC line or a DC supply.
- \*Supply voltage control.
- \*Very few external components.
- \*Symmetrical burst control-No DC current components in the load circuit
- \*Negative output current pulse up to 250mA-short circuit protection.
- \*Reference voltage output

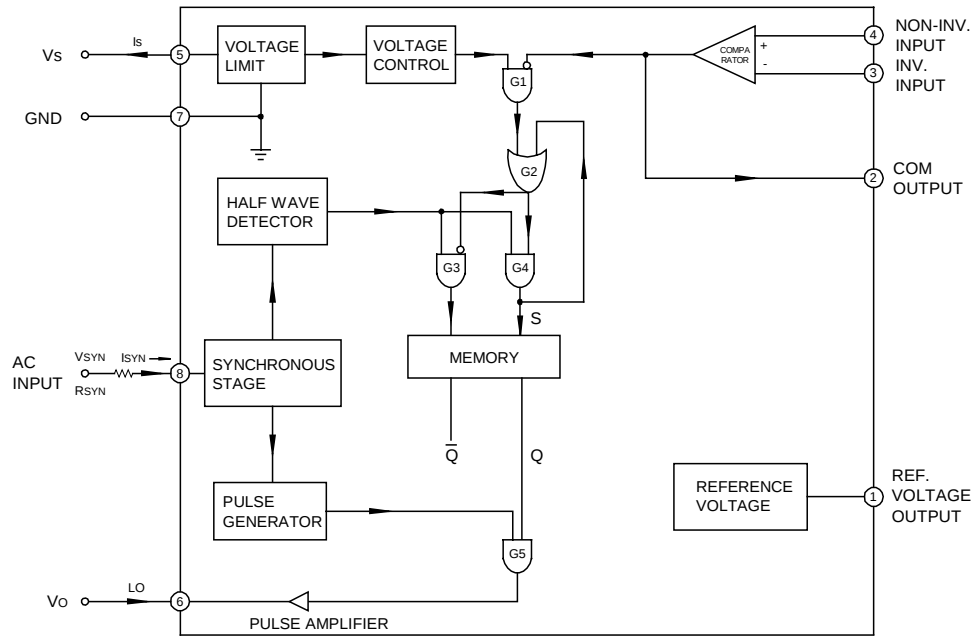


\*Pb-free plating product number: A2804L

### PIN CONFIGURATION



BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS (Ta=25 °C)

| PARAMETER                     | SYMBOL | RATINGS     | UNIT |
|-------------------------------|--------|-------------|------|
| Supply Voltage                | -Vs    | 8.2         | V    |
| Supply Current                | -Is    | 40(average) | mA   |
| Synchronous Current           | ISYN   | 5.0(rms)    | mA   |
| Input Voltage                 | Vi     | ≤  Vs       | V    |
| Power Dissipation             | Pd     | 350         | mW   |
| Junction Temperature          | Tj     | 125         | °C   |
| Operating Ambient Temperature | Topr   | -20 ~ +70   | °C   |
| Storage Temperature           | Tstg   | -65 ~ +150  | °C   |

ELECTRICAL CHARACTERISTICS

(Vs=8.0V, VSYN=100 ~ 115Vrms, Ta=25 °C, f=50/60Hz, unless otherwise specified)

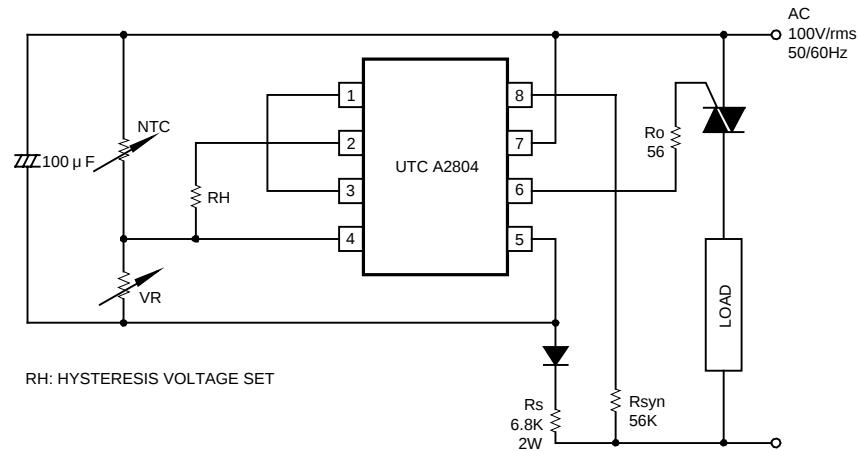
| PARAMETER           | SYMBOL | TEST CONDITIONS            | MIN | TYP | MAX | UNIT |
|---------------------|--------|----------------------------|-----|-----|-----|------|
| Circuit Current     | -Is    | Pin5, RSYN=56K             |     | 2.0 | 2.5 | mA   |
| Supply Voltage 1    | -Vs1   | Pin5, Is=2.5mA<br>RSYN=56K | 7.2 |     | 8.4 | V    |
| Supply Voltage 2    | -Vs2   | Pin5, Is=20mA<br>RSYN=56K  | 7.2 |     | 8.6 | V    |
| Synchronous Current | ISYN   | Pin8                       | 0.3 |     |     | mA   |
| Output Pulse Width  | TP     | Pin6, RSYN=56K             |     | 200 |     | μs   |
| Output Voltage      | Vo     | Pin6, Io ≤ 200mA           | 4.2 | 5.2 |     | V    |

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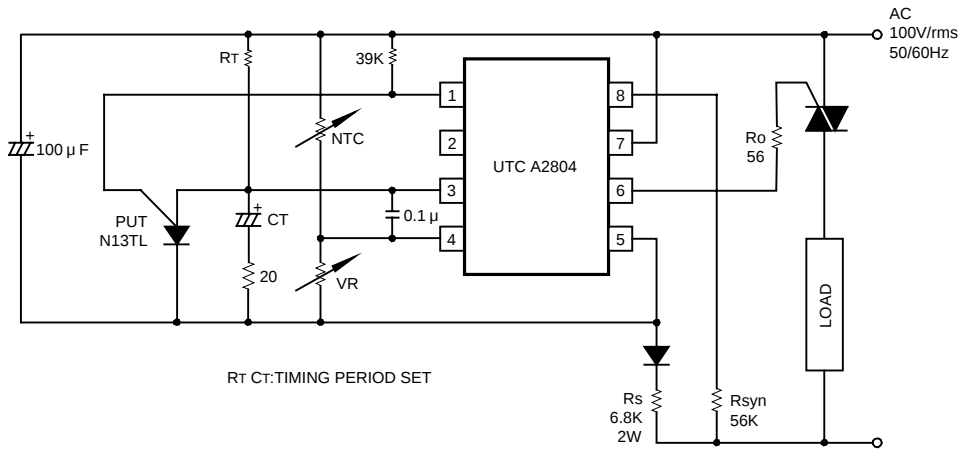
| PARAMETER                       | SYMBOL     | TEST CONDITIONS          | MIN | TYP | MAX | UNIT    |
|---------------------------------|------------|--------------------------|-----|-----|-----|---------|
| Output Current                  | $I_o$      | Pin6, $R_o \leq 25$      | 200 | 250 |     | mA      |
| Output Offset Voltage           | $I_{Lo}$   | Pin6                     |     |     | 2.0 | $\mu A$ |
| Input Offset Voltage            | $V_{io}$   | Pin3, 4                  |     | 2.0 | 5.0 | mV      |
| Input Bias Current              | $I_i$      | Pin3, 4                  |     | 0.5 | 1.0 | $\mu A$ |
| Common Mode Input Voltage Range | $-V_{icm}$ | Pin3, 4                  | 0   |     | 5.7 | V       |
| Output Leakage Current          | $I_{Lc}$   | Pin2                     |     |     | 0.2 | $\mu A$ |
| Reference Voltage               | $-V_R$     | Pin1, $I_R \leq 1 \mu A$ |     | 3.6 |     | V       |

## APPLICATIONS

### ON-OFF TEMPERATURE CONTROL



### TIME PROPORTIONAL TEMPERATURE CONTROL



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