



2N6099

Preliminary

POWER TRANSISTOR

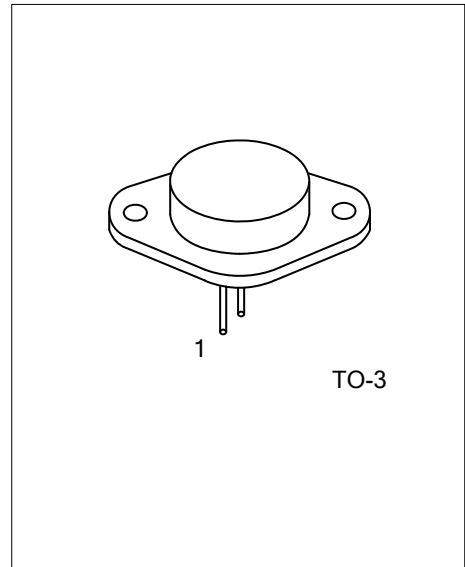
COMPLEMENTARY SILICON TRANSISTORS

DESCRIPTION

The UTC **2N6099** are complement silicon power transistors designed for high power audio, disk head positions and other linear applications. These device can be used in power switching circuits such as relay or solenoid drivers, DC to DC converters or inverts.

FEATURES

- * Complement Characterized for linear operation
- * High DC Current Gain and low saturation voltage
 $\beta_{FE} > 15(-8A, -4V)$
 $V_{CE(SAT)} < -1.4V(I_C = -8A, I_B = -0.8A)$
- * For Low Distortion Complementary Designs

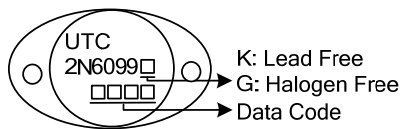


ORDERING INFORMATION

| Ordering Number | | Package | Pin Assignment | | | Packing |
|-----------------|---------------|---------|----------------|---|---|---------|
| Lead Free | Halogen Free | | 1 | 2 | 3 | |
| 2N6099L-T30-Y | 2N6099G-T30-Y | TO-3 | B | E | C | Tray |

| | |
|---|--|
| <p>2N6099L-T30-Y</p> <p>(1) Packing Type (2) Package Type (3) Lead Free</p> | <p>(1) Y: Tray (2) T30: TO-3 (3) L: Lead Free, G: Halogen Free</p> |
|---|--|

MARKING INFORMATION



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

| PARAMETER | | SYMBOL | RATINGS | UNIT |
|---------------------------|----------------------------------|-----------|------------|---------------------|
| Collector-Base Voltage | | V_{CB0} | -160 | V |
| Collector-Emitter Voltage | | V_{CEO} | -140 | V |
| Emitter-Base Voltage | | V_{EBO} | -7 | V |
| Collector-Emitter Voltage | | V_{CEX} | -160 | V |
| Power Dissipation | $T_C=25^\circ\text{C}$ | P_D | 150 | W |
| | Dertate Above 25°C | | 0.855 | W/ $^\circ\text{C}$ |
| Collector Current | Continuous | I_C | -16 | A |
| | Peak | | -30 | A |
| Base Current | Continuous | I_B | -4 | A |
| | Peak | | -15 | A |
| Junction Temperature | | T_J | 150 | $^\circ\text{C}$ |
| Storage Temperature | | T_{STG} | -55 ~ +150 | $^\circ\text{C}$ |

Notes: 1. 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.

2. Pulse Test: $P_W \leq 5\text{ms}$, Duty Cycle $\leq 10\%$

■ THERMAL DATA

| PARAMETER | SYMBOL | RATINGS | UNIT |
|------------------|---------------|---------|--------------------|
| Junction to Case | θ_{JC} | 1.17 | $^\circ\text{C/W}$ |

■ ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$, unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--|---------------|--|------|-----|------|------|
| OFF CHARACTERISTICS | | | | | | |
| Collector-Base Breakdown Voltage | BV_{CB0} | $I_C=-0.2\text{A}, I_B=0$ | -160 | | | V |
| Collector-Emitter Sustaining Voltage | BV_{CEX} | $I_C=-0.1\text{A}, V_{BE(OFF)}=-1.5\text{V}, R_{BE}=-100\Omega$ | -160 | | | V |
| Collector-Emitter Sustaining Voltage | BV_{CER} | $I_C=-0.1\text{A}, R_{BE}=-100\Omega$ | -150 | | | V |
| Collector Cut-off Current | I_{CB0} | $V_{CB}=-140\text{V}, I_E=0$ | | | -2 | mA |
| Emitter Cut-off Current | I_{EBO} | $V_{BE}=-7\text{V}, I_C=0$ | | | -5 | mA |
| Collector Cut-off Current | I_{CEX} | $V_{CE}=-140\text{V}, V_{BE(OFF)}=-1.5\text{V}$ | | -2 | | mA |
| | | $V_{CE}=-140\text{V}, V_{BE(OFF)}=-1.5\text{V}, T_C=150^\circ\text{C}$ | | -10 | | mA |
| ON CHARACTERISTICS | | | | | | |
| DC Current Gain (Note) | h_{FE1} | $V_{CE}=-4\text{V}, I_C=-8\text{A}$ | 15 | | 60 | |
| | h_{FE2} | $V_{CE}=-4\text{V}, I_C=-16\text{A}$ | 5 | | | |
| Collector-Emitter Saturation Voltage | $V_{CE(SAT)}$ | $I_C=-8\text{A}, I_B=-800\text{mA}$ | | | -1.4 | V |
| | | $I_C=-16\text{A}, I_B=-3.2\text{A}$ | | | -4 | V |
| Base-Emitter Saturation Voltage | $V_{BE(ON)}$ | $I_C=-8\text{A}, V_{CE}=-4\text{V}$ | | | -2.2 | V |
| DYNAMIC CHARACTERISTICS | | | | | | |
| Small Signal Current Gain | h_{FE} | $I_C=-1\text{A}, V_{CE}=-4\text{V}, f=1\text{kHz}$ | 40 | | | |
| Magnitade Of Commom-Emitter Small Signal, Short Circuit Forward Current Transfer Ratio | $ h_{FE} $ | $I_C=-1\text{A}, f=50\text{kHz}$ | 4 | | | |
| Second Breakdown Collector With Base Forward Biased | I_S/b | $t=1\text{s}(\text{non-repetive}), V_{CE}=-100\text{V}$ | -1.5 | | | A |

Note: Pulse Test: $P_W \leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$

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