



S8050

NPN SILICON TRANSISTOR

LOW VOLTAGE HIGH CURRENT SMALL SIGNAL NPN TRANSISTOR

DESCRIPTION

The UTC **S8050** is a low voltage high current small signal NPN transistor, designed for Class B push-pull audio amplifier and general purpose applications.

FEATURES

- * Collector current up to 700mA
- * Collector-Emitter voltage up to 20 V
- * Complementary to S8550

ORDERING INFORMATION

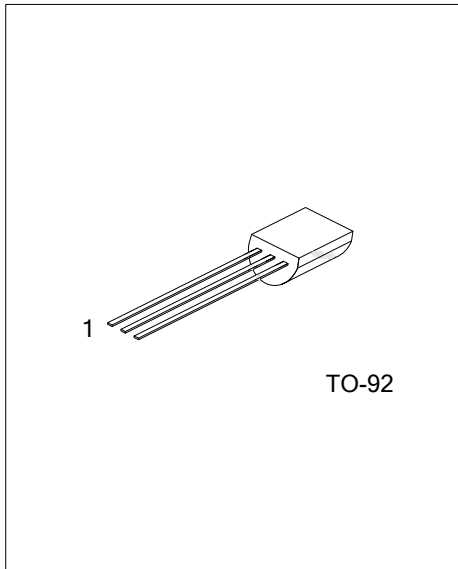
| Order Number | | Package | Pin Assignment | | | Packing |
|-------------------|----------------|---------|----------------|---|---|----------|
| Lead Free Plating | Halogen Free | | 1 | 2 | 3 | |
| S8050L-x-T92-B | S8050G-x-T92-B | TO-92 | E | B | C | Tape Box |
| S8050L-x-T92-K | S8050G-x-T92-K | TO-92 | E | B | C | Bulk |

Note: Pin Assignment: E: Emitter B: Base C: Collector

| | |
|--|---|
| <p>S8050L-x-T92-B</p> <p>(1) Packing Type (2) Package Type (3) Rank (4) Lead Plating</p> | <p>(1) B: Tape Box, K: Bulk (2) T92: TO-92 (3) x: refer to Classification of h_{FE2} (4) L: Lead Free, G: Halogen Free</p> |
|--|---|

MARKING INFORMATION

| PACKAGE | MARKING |
|---------|--|
| TO-92 | <p>UTC S8050 □□□ 1</p> <p>L: Lead Free G: Halogen Free Data Code</p> |



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

| PARAMETER | SYMBOL | RATINGS | UNIT |
|---|-----------|------------|------------------|
| Collector-Base Voltage | V_{CBO} | 30 | V |
| Collector-Emitter Voltage | V_{CEO} | 20 | V |
| Emitter-Base Voltage | V_{EBO} | 5 | V |
| Collector Current | I_C | 700 | mA |
| Collector Dissipation($T_A=25^\circ\text{C}$) | P_C | 1 | W |
| Junction Temperature | T_J | 150 | $^\circ\text{C}$ |
| Storage Temperature | T_{STG} | -65 ~ +150 | $^\circ\text{C}$ |

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.

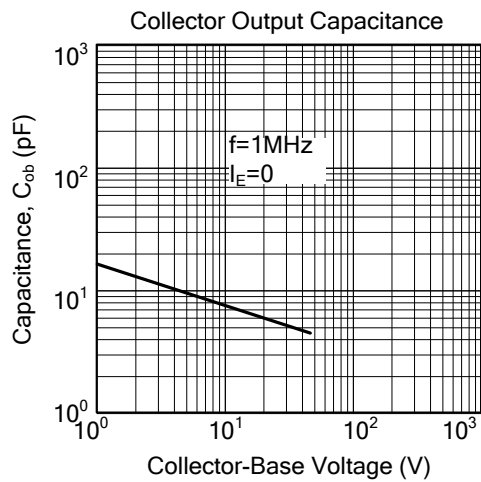
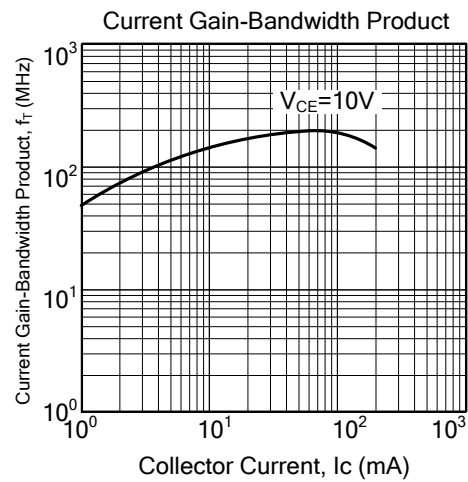
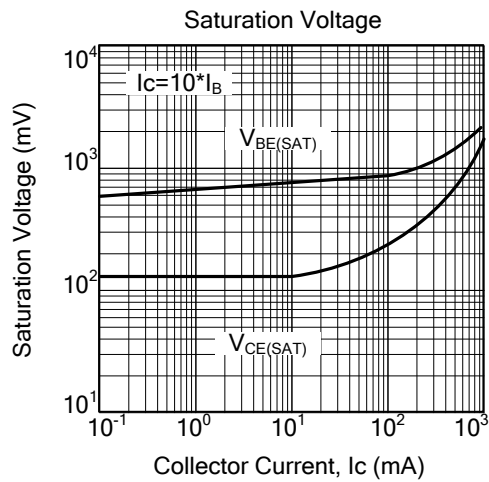
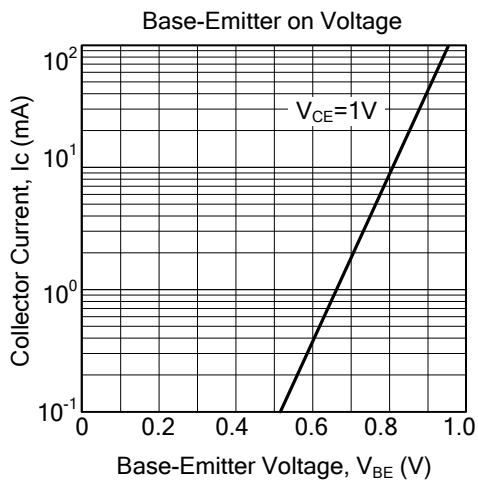
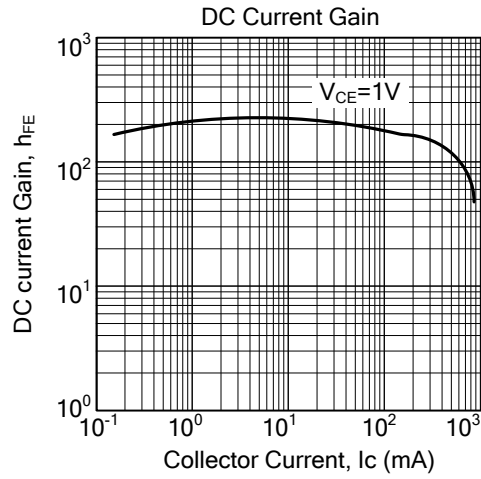
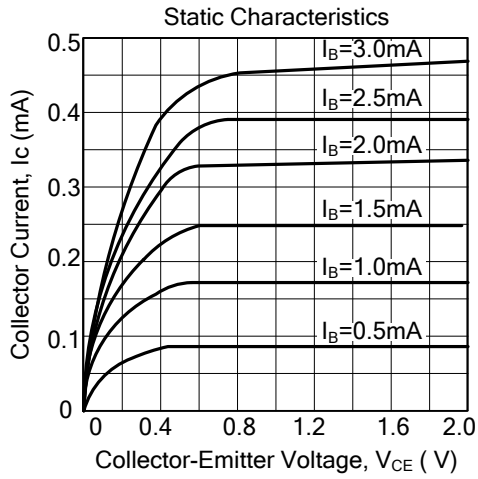
■ ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$, unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--------------------------------------|---------------|---|-----|-----|-----|---------------|
| Collector-Base Breakdown Voltage | BV_{CBO} | $I_C=100\mu\text{A}$, $I_E=0$ | 30 | | | V |
| Collector-Emitter Breakdown Voltage | BV_{CEO} | $I_C=1\text{mA}$, $I_B=0$ | 20 | | | V |
| Emitter-Base Breakdown Voltage | BV_{EBO} | $I_E=100\mu\text{A}$, $I_C=0$ | 5 | | | V |
| Collector Cut-Off Current | I_{CBO} | $V_{CB}=30\text{V}$, $I_E=0$ | | | 1 | μA |
| Emitter Cut-Off Current | I_{EBO} | $V_{EB}=5\text{V}$, $I_C=0$ | | | 100 | nA |
| DC Current Gain | h_{FE1} | $V_{CE}=1\text{V}$, $I_C=1\text{mA}$ | 100 | | | |
| | h_{FE2} | $V_{CE}=1\text{V}$, $I_C=150\text{mA}$ | 120 | | 400 | |
| | h_{FE3} | $V_{CE}=1\text{V}$, $I_C=500\text{mA}$ | 40 | | | |
| Collector-Emitter Saturation Voltage | $V_{CE(SAT)}$ | $I_C=500\text{mA}$, $I_B=50\text{mA}$ | | | 0.5 | V |
| Base-Emitter Saturation Voltage | $V_{BE(SAT)}$ | $I_C=500\text{mA}$, $I_B=50\text{mA}$ | | | 1.2 | V |
| Base-Emitter Saturation Voltage | V_{BE} | $V_{CE}=1\text{V}$, $I_C=10\text{mA}$ | | | 1.0 | V |
| Current Gain Bandwidth Product | f_T | $V_{CE}=10\text{V}$, $I_C=50\text{mA}$ | 100 | | | MHz |
| Output Capacitance | C_{ob} | $V_{CB}=10\text{V}$, $I_E=0$, $f=1\text{MHz}$ | | 9.0 | | pF |

■ CLASSIFICATION OF h_{FE2}

| RANK | C | D | E |
|-------|---------|---------|---------|
| RANGE | 120-200 | 160-300 | 280-400 |

■ TYPICAL CHARACTERISTICS



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