



S8050 Small Signal NPN Transistor

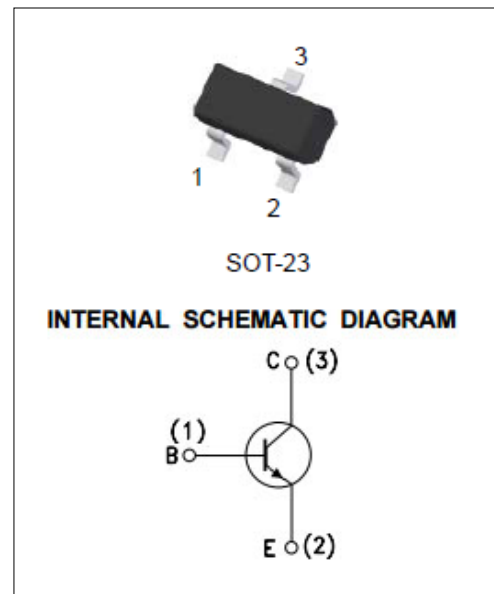
Rev.1.2

FEATURE:

- Complementary to S8550.
- Power dissipation of 300mW.
- High stability and high reliability.

MECHANICAL DATA:

- SOT-23 small outline plastic package
- Epoxy UL: 94V-0
- Mounting position: Any
- Marking: J3Y.



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

| Parameter | Symbol | Value | Unit |
|---------------------------------------|------------------|------------|--------------------|
| Storage temperature range | T_{stg} | -55 to 150 | $^{\circ}\text{C}$ |
| Max. operating junction temperature | T_j | 150 | $^{\circ}\text{C}$ |
| Collector-emitter voltage ($I_B=0$) | V_{CEO} | 25 | V |
| Collector-base voltage ($I_E=0$) | V_{CBO} | 40 | V |
| Emitter-base voltage ($I_C=0$) | V_{EBO} | 5 | V |
| Collector current | I_C | 500 | mA |
| Collector power dissipation | P_C | 300 | mW |

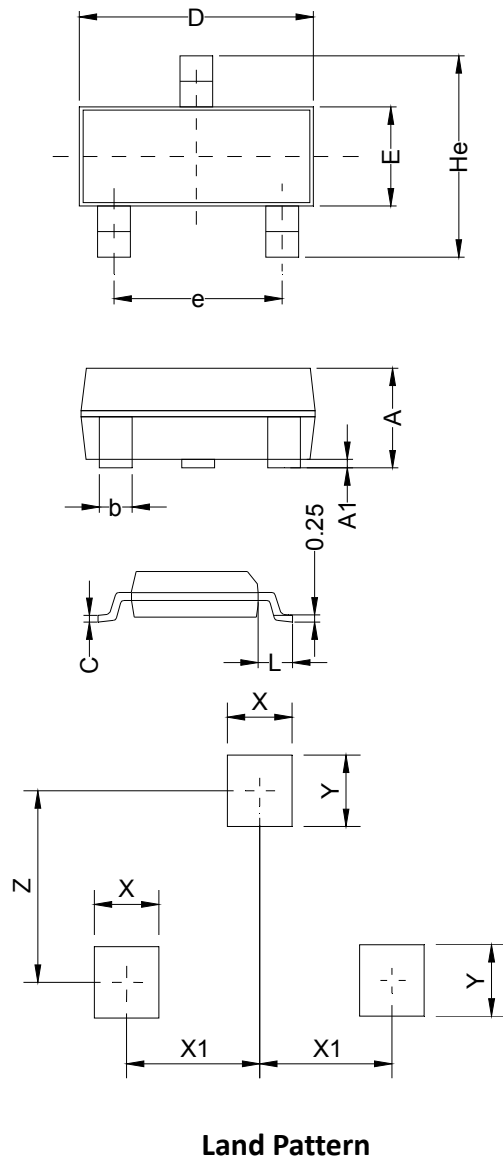
ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

| Symbol | Test Condition | Value | | | Unit |
|---------------|---|-------|------|------|------|
| | | MIN. | TYP. | MAX. | |
| $V_{(BR)CBO}$ | $I_C=100\mu\text{A}, I_E=0$ | 40 | | | V |
| $V_{(BR)CEO}$ | $I_C=1\text{mA}, I_B=0$ | 25 | | | V |
| $V_{(BR)EBO}$ | $I_E=100\mu\text{A}, I_C=0$ | 5 | | | V |
| I_{CEO} | $V_{CE}=20\text{V}, I_B=0$ | | | 100 | nA |
| I_{CBO} | $V_{CB}=40\text{V}, I_E=0$ | | | 100 | nA |
| I_{EBO} | $V_{EB}=5\text{V}, I_C=0$ | | | 100 | nA |
| h_{FE} | $I_C=1\text{mA}, V_{CE}=5\text{V}$ | 120 | | 400 | |
| | $I_C=50\text{mA}, V_{CE}=1\text{V}$ | 120 | | | |
| | $I_C=500\text{mA}, V_{CE}=1\text{V}$ | 50 | | | |
| $V_{CE(sat)}$ | $I_C=500\text{mA}, I_B=50\text{mA}$ | - | - | 0.60 | V |
| $V_{BE(sat)}$ | $I_C=500\text{mA}, I_B=50\text{mA}$ | - | - | 1.20 | V |
| f_T | $V_{CE}=6\text{V}, I_C=20\text{mA}, f=30\text{MHz}$ | 150 | | | MHz |

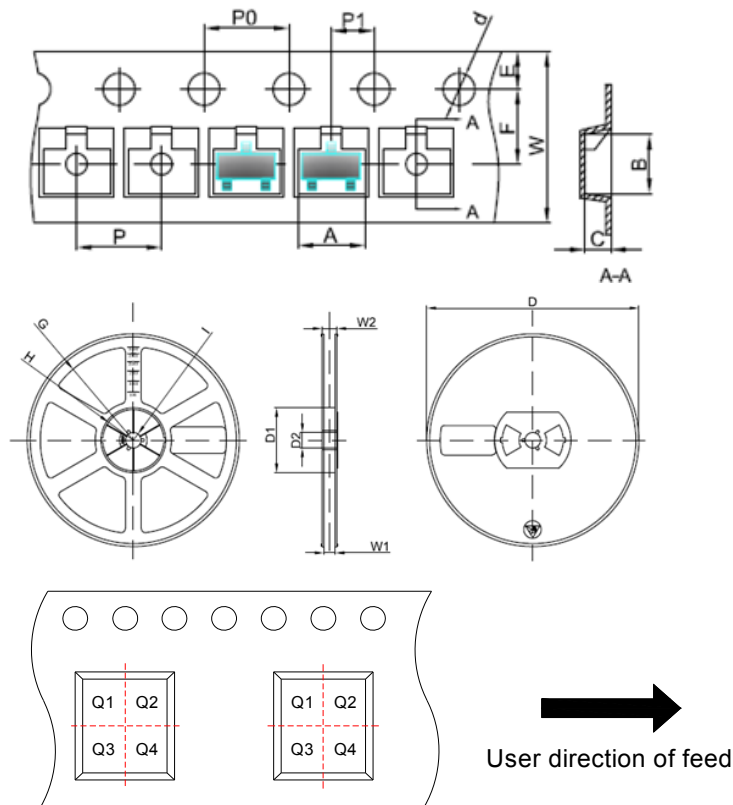
THERMAL RESISTANCES

| Symbol | Parameter | Value (Max.) | Unit |
|---------------|---------------------|--------------|-----------------------------|
| $R_{th(J-A)}$ | junction to ambient | 417 | $^{\circ}\text{C}/\text{W}$ |

PACKAGE MECHANICAL DATA



| Symbol | Millimeters | | | Inches | | |
|--------|-------------|-------|------|----------|-------|-------|
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 0.90 | 1.063 | 1.15 | 0.035 | 0.042 | 0.045 |
| A1 | 0.00 | 0.075 | 0.14 | 0.000 | 0.003 | 0.006 |
| b | 0.30 | 0.40 | 0.50 | 0.012 | 0.016 | 0.020 |
| C | 0.07 | 0.10 | 0.15 | 0.003 | 0.004 | 0.006 |
| D | 2.80 | 2.90 | 3.00 | 0.110 | 0.114 | 0.118 |
| e | 1.80 | 1.90 | 2.00 | 0.071 | 0.075 | 0.079 |
| E | 1.20 | 1.30 | 1.40 | 0.047 | 0.051 | 0.055 |
| L | 0.55REF | | | 0.022REF | | |
| He | 2.25 | 2.40 | 2.55 | 0.089 | 0.094 | 0.100 |
| X | 0.80 | | | 0.031 | | |
| X1 | 0.95 | | | 0.037 | | |
| Y | 0.80 | | | 0.031 | | |
| Z | 2.02 | | | 0.080 | | |

TAPE AND REEL SPECIFICATION-SOT-23


Pin 1 quadrant: Q3

Packaging Description:

SOT-23 parts are shipped in tape. The carrier tape is made from a dissipative(carbon filled) polycarbonate resin. The cover tape is a multilayer film(heat activated adhesive in nature)primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000units per 7" or 17.8cm diameter reel. The reels are clear in color and made of polystyrene plastic(anti-static coated).

| Symbol | Millimeters | Inches |
|--------|-------------|--------|
| | Typ. | Typ. |
| A | 3.15 | 0.124 |
| B | 2.77 | 0.109 |
| C | 1.22 | 0.048 |
| d | Φ1.50 | Φ0.059 |
| E | 1.75 | 0.069 |
| F | 3.50 | 0.138 |
| P0 | 4.00 | 0.157 |
| P | 4.00 | 0.157 |
| P1 | 2.00 | 0.079 |
| W | 8.00 | 0.315 |
| D | Φ178 | Φ7.008 |
| D1 | 54.40 | 2.142 |
| D2 | 13.00 | 0.512 |
| G | R78.00 | R3.071 |
| H | R25.60 | R1.008 |
| I | R6.50 | R0.256 |
| W1 | 9.50 | 0.374 |
| W2 | 12.30 | 0.484 |

ORDERING INFORMATION

| Part Number | Package | Reel Size | Quantity Per Reel |
|-------------|---------|-----------|-------------------|
| S8050 | SOT-23 | 7 Inch | 3,000 pcs |

FIG.1: Power derating curve

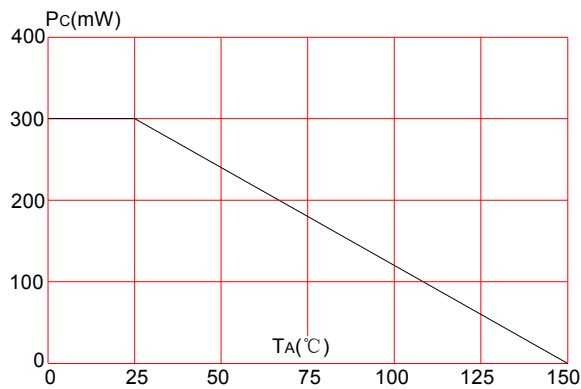
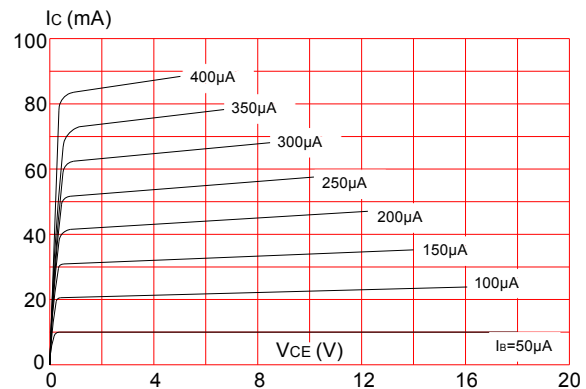


FIG.2: Static characteristic



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