

SOT-23 Plastic-Encapsulate Transistors

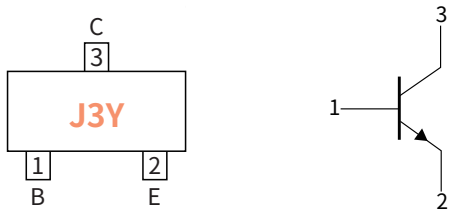
Features

- Complementary to S8550
- Power dissipation of 300mW
- High stability and high reliability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C

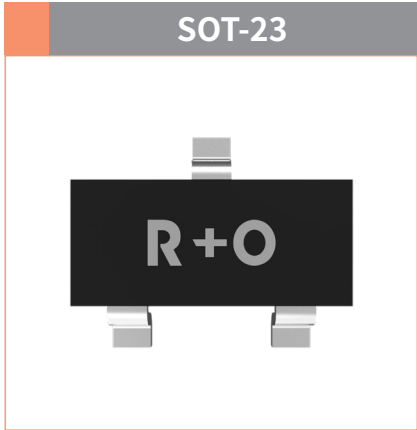
Mechanical Data

- Case: SOT-23
Molding compound meets UL 94V-0 flammability rating, RoHS-compliant,halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750,Method 2026

Function Diagram



Collector-Base Voltage
VCBO 40V
Collector Current
0.5 Ampere



Maximum Ratings (Ta=25°C Unless otherwise specified)

| PARAMETER | SYMBOL | UNIT | VALUE |
|-----------------------------|------------------|-------|-----------|
| Collector-Base Voltage | V_{CBO} | V | 40 |
| Collector-Emitter Voltage | V_{CEO} | | 25 |
| Emitter-Base Voltage | V_{EBO} | | 5.0 |
| Collector Current | I_C | A | 0.5 |
| Collector Power Dissipation | P_C | mW | 300 |
| Storage temperature | T_{stg} | °C | -55 ~+150 |
| Junction temperature | T_j | °C | -55 ~+150 |
| Typical Thermal Resistance | $R_{\theta J-A}$ | °C /W | 417 |

Electrical Characteristics (Ta=25°C Unless otherwise noted)

| PARAMETER | SYMBOL | UNIT | Condition | Min | Max |
|--------------------------------------|---------------|------|--------------------------|-----|-----|
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | V | $I_C=100\mu A, I_E=0$ | 40 | — |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | | $I_C=1mA, I_B=0$ | 25 | — |
| Emitter-Base Breakdown Voltage | $V_{(BR)EBO}$ | | $I_E=100\mu A, I_C=0$ | 5.0 | — |
| Collector-Emitter cut-off current | I_{CEO} | nA | $V_{CE}=20V, I_B=0$ | — | 100 |
| Collector-Base cut-off current | I_{CBO} | | $V_{CB}=40V, I_E=0$ | — | 100 |
| Emitter-Base cut-off current | I_{EBO} | | $V_{EB}=5.0V, I_C=0$ | — | 100 |
| DC Current Gain | $h_{FE(1)}$ | — | $I_C=50mA, V_{CE}=1.0V$ | 120 | 400 |
| | $h_{FE(2)}$ | | $I_C=500mA, V_{CE}=1.0V$ | 50 | — |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | V | $I_C=500mA, I_B=50mA$ | — | 0.6 |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ | V | $I_C=500mA, I_B=50mA$ | — | 1.2 |

● Classification Of h_{FE}

| RANK | L | H | J |
|-------|---------|---------|---------|
| Range | 100-200 | 200-350 | 300-400 |

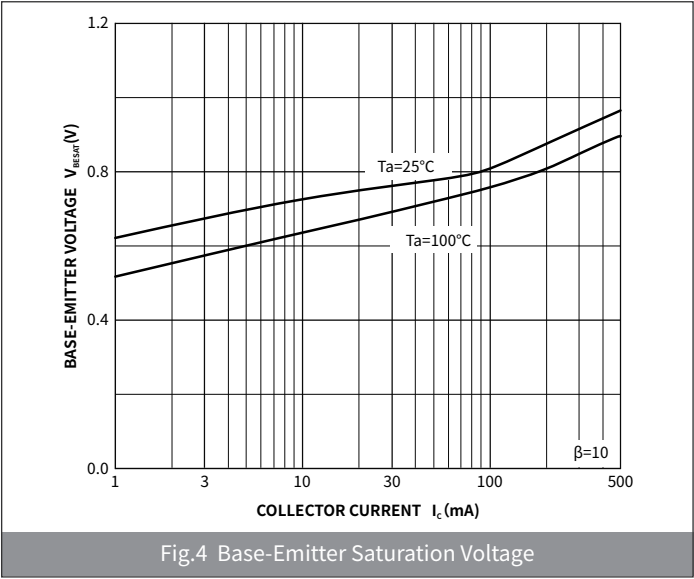
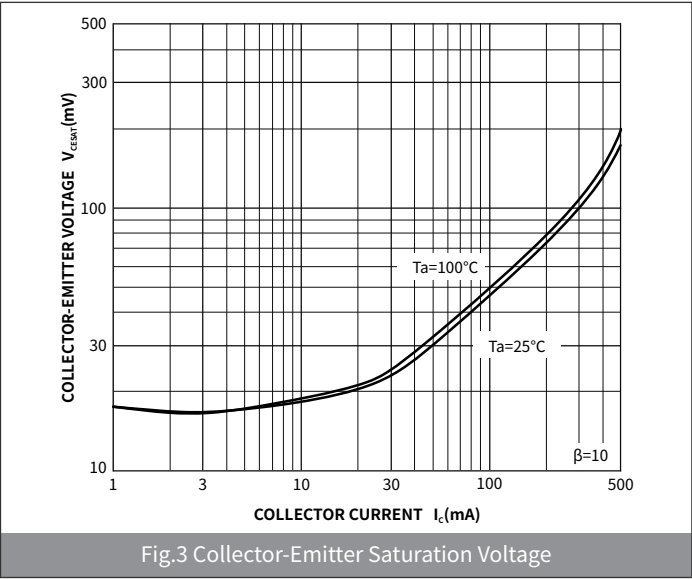
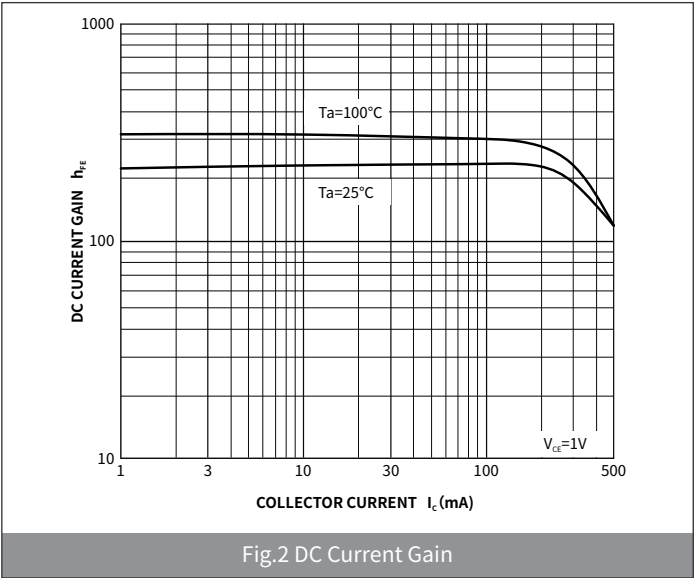
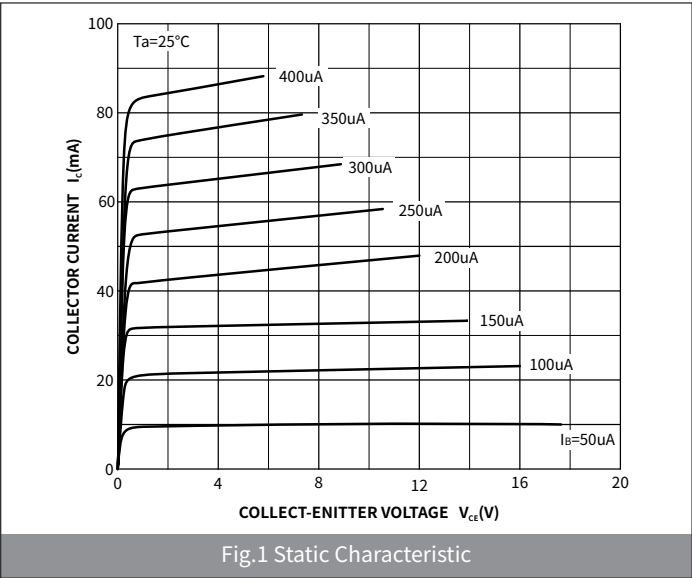
● Small-signal Characteristics

| ITEM | SYMBOL | Condition | UNIT | Min | Max |
|----------------------|--------|--------------------------------|------|-----|-----|
| Transition frequency | f_T | $I_C=20mA, V_{CE}=6V, f=30MHz$ | MHz | 100 | — |

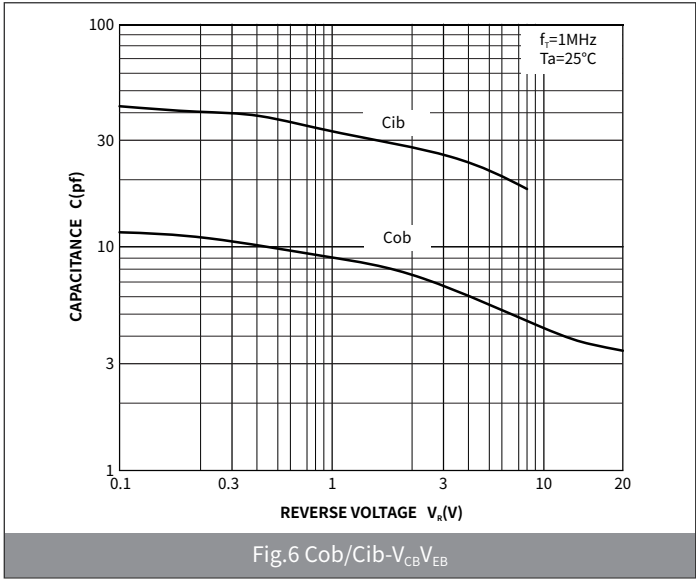
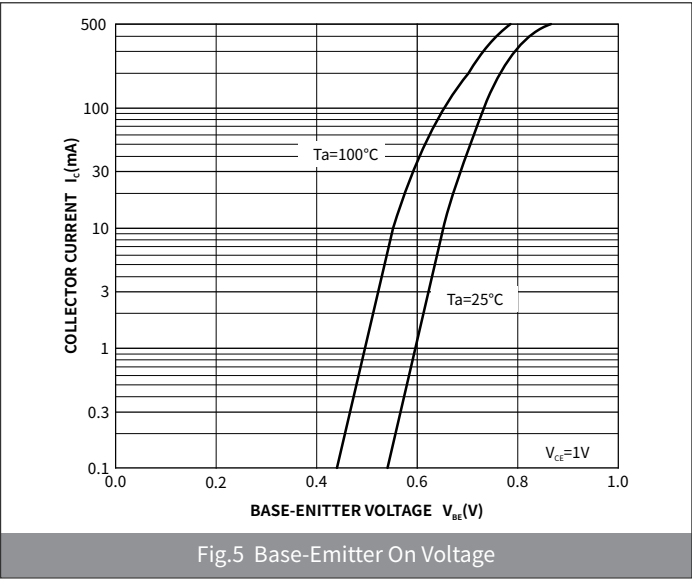
● Ordering Information

| PACKAGE | PACKAGE CODE | UNIT WEIGHT(g) | REEL(pcs) | BOX(pcs) | CARTON(pcs) | DELIVERY MODE |
|---------|--------------|----------------|-----------|----------|-------------|---------------|
| SOT-23 | R1 | 0.008 | 3000 | 45000 | 180000 | 7" |

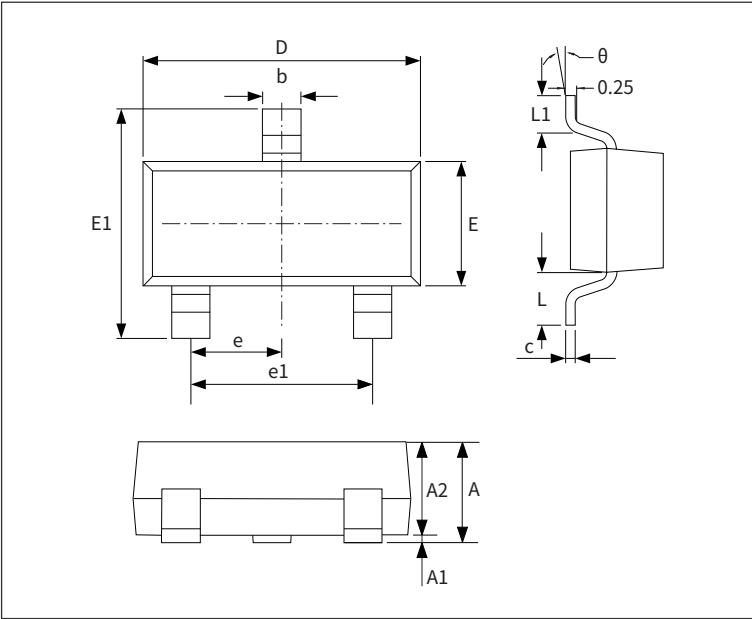
● Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)



● Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)

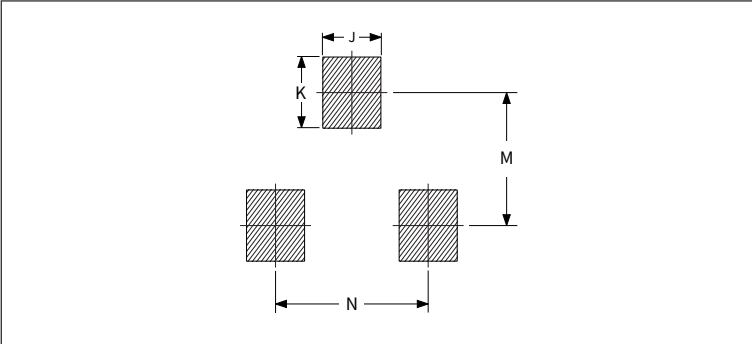


● Package Outline Dimensions (SOT-23)



| Symbol | Dimensions | | | |
|--------|-------------|------|----------|-------|
| | Millimeters | | Inches | |
| | Min. | Max. | Min. | Max. |
| A | 0.90 | 1.15 | 0.035 | 0.045 |
| A1 | - | 0.10 | - | 0.004 |
| A2 | 0.90 | 1.05 | 0.035 | 0.041 |
| b | 0.30 | 0.50 | 0.012 | 0.020 |
| c | 0.10 | 0.20 | 0.004 | 0.008 |
| D | 2.80 | 3.00 | 0.110 | 0.118 |
| E | 1.20 | 1.40 | 0.047 | 0.055 |
| E1 | 2.25 | 2.55 | 0.089 | 0.100 |
| e | 0.950TYP | | 0.037TYP | |
| e1 | 1.80 | 2.00 | 0.071 | 0.079 |
| L | 0.550REF | | 0.022REF | |
| L1 | 0.30 | 0.50 | 0.012 | 0.020 |
| θ | - | 8° | - | 8° |

● Suggested Pad Layout



| Symbol | Dimensions | | | |
|--------|-------------|------|--------|-------|
| | Millimeters | | Inches | |
| | Min. | Max. | Min. | Max. |
| J | 0.75 | 0.85 | 0.030 | 0.033 |
| K | 0.85 | 0.95 | 0.033 | 0.037 |
| M | 1.95 | 2.05 | 0.077 | 0.081 |
| N | 1.85 | 1.95 | 0.073 | 0.077 |