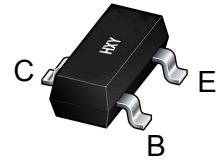




FEATURES

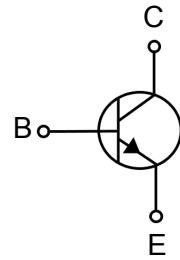
- Collector Current: $I_C=0.5A$
- Power Dissipation of 300mw



SOT-23

Package Marking and Ordering Information

| Product ID | Pack | Marking | Qty(PCS) |
|------------|--------|---------|----------|
| S9013 | SOT-23 | J3 | 3000 |



MAXIMUM RATINGS (Ta=25 unless otherwise noted)

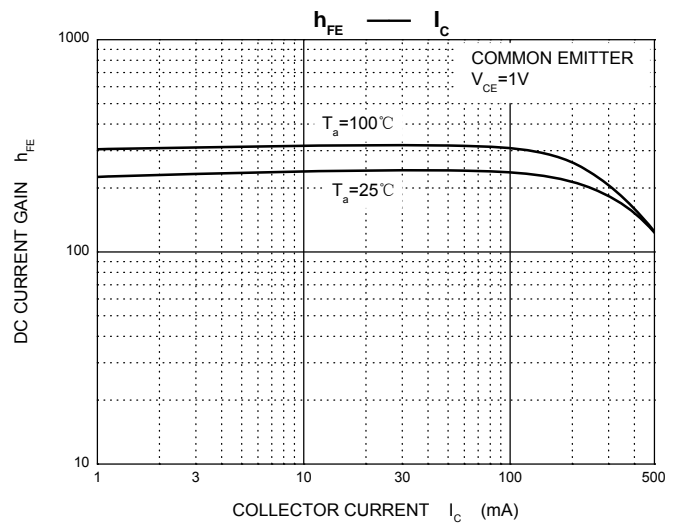
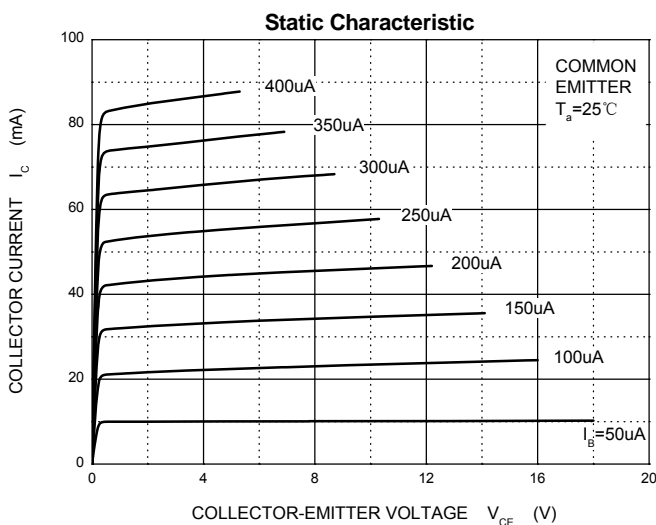
| Parameter | Symbol | Limit | Unit |
|---|-----------|----------|---------------|
| Collector-Base Voltage | V_{CBO} | 40 | V |
| Collector-Emitter Voltage | V_{CEO} | 25 | V |
| Emitter-Base Voltage | V_{EBO} | 5 | V |
| Collector Current | I_C | 500 | mA |
| Collector Power Dissipation | P_C | 350 | mW |
| Thermal Resistance From Junction To Ambient | R_{OJA} | 416 | $^{\circ}C/W$ |
| Junction Temperature | T_J | 150 | $^{\circ}C$ |
| Storage Temperature | T_{stg} | -55~+150 | $^{\circ}C$ |

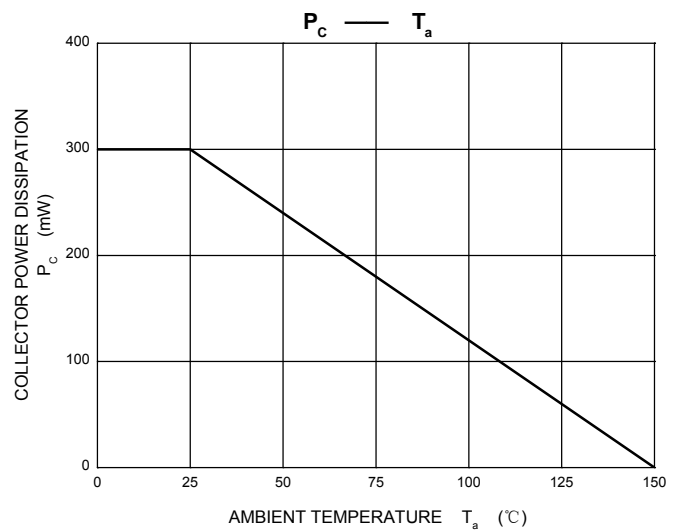
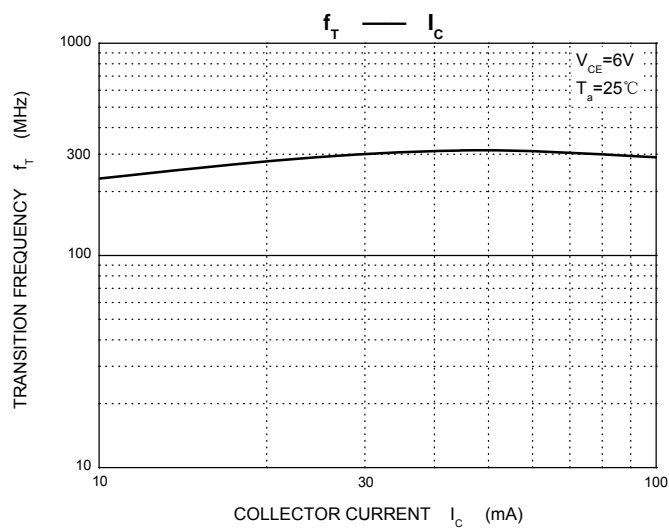
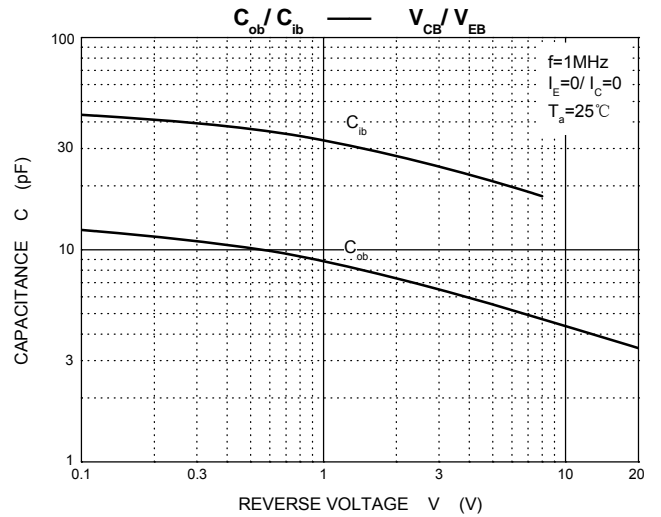
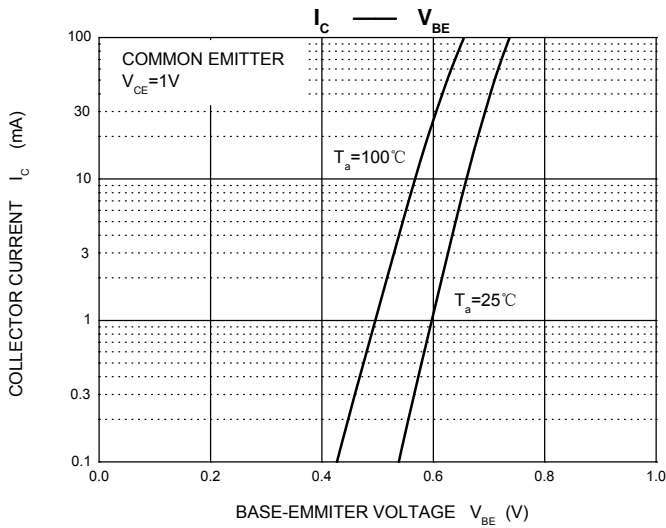
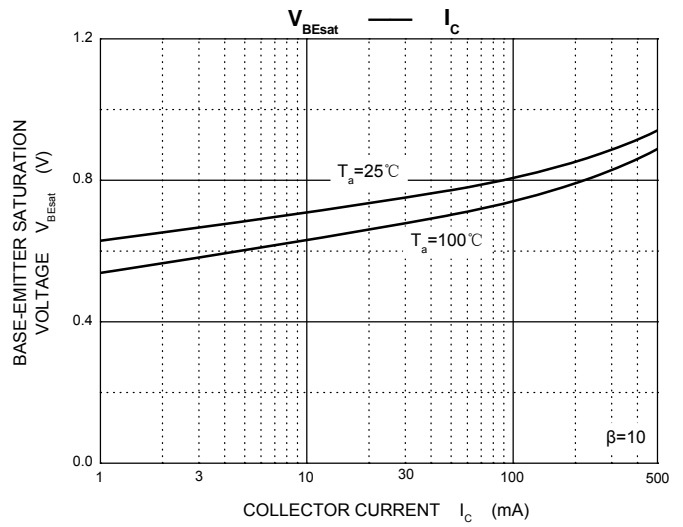
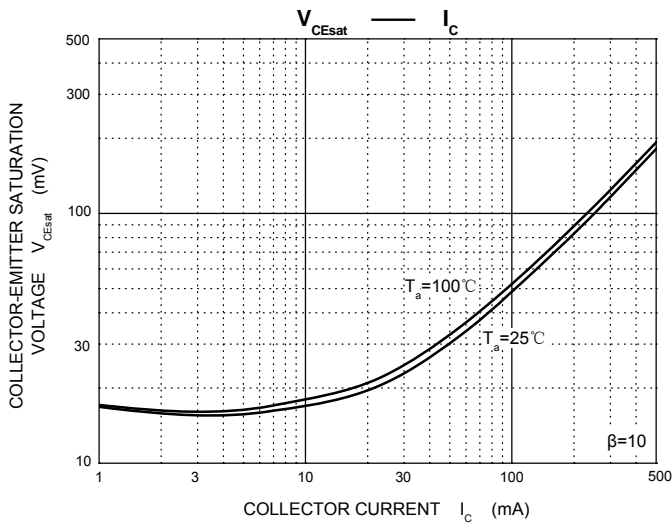


ELECTRICAL CHARACTERISTICS (Ta=25 unless otherwise specified)

| Parameter | Symbol | Test conditions | Min | Typ | Max | Unit |
|--------------------------------------|---------------|--------------------------------|-----|-----|-----|---------|
| Collector-base breakdown voltage | $V_{(BR)CBO}$ | $I_C=0.1mA, I_E=0$ | 40 | | | V |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_C=1mA, I_B=0$ | 25 | | | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E=0.1mA, I_C=0$ | 5 | | | V |
| Collector cut-off current | I_{CBO} | $V_{CB}=40V, I_E=0$ | | | 0.1 | μA |
| Collector cut-off current | I_{CEO} | $V_{CE}=20V, I_B=0$ | | | 0.1 | μA |
| Emitter cut-off current | I_{EBO} | $V_{EB}=5V, I_C=0$ | | | 0.1 | μA |
| DC current gain | $h_{FE(1)}$ | $V_{CE}=1V, I_C=50mA$ | 120 | | 400 | |
| | $h_{FE(2)}$ | $V_{CE}=1V, I_C=500mA$ | 40 | | | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=500mA, I_B=50mA$ | | | 0.6 | V |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | $I_C=500mA, I_B=50mA$ | | | 1.2 | V |
| Base-emitter voltage | V_{BE} | $V_{CB}=1V, I_C=10mA,$ | | | 0.7 | V |
| Transition frequency | f_T | $V_{CE}=6V, I_C=20mA, f=30MHz$ | 150 | | | MHz |
| Collector output capacitance | C_{ob} | $V_{CB}=6V, I_E=0, f=1MHz$ | | | 8 | pF |

Typical Characteristics





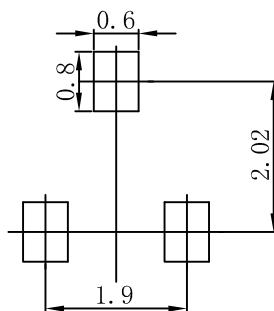


SOT-23 Package Outline Dimensions



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 0.900 | 1.150 | 0.035 | 0.045 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 0.900 | 1.050 | 0.035 | 0.041 |
| b | 0.300 | 0.500 | 0.012 | 0.020 |
| c | 0.080 | 0.150 | 0.003 | 0.006 |
| D | 2.800 | 3.000 | 0.110 | 0.118 |
| E | 1.200 | 1.400 | 0.047 | 0.055 |
| E1 | 2.250 | 2.550 | 0.089 | 0.100 |
| e | 0.950 TYP | | 0.037 TYP | |
| e1 | 1.800 | 2.000 | 0.071 | 0.079 |
| L | 0.550 REF | | 0.022 REF | |
| L1 | 0.300 | 0.500 | 0.012 | 0.020 |
| θ | 0° | 8° | 0° | 8° |

SOT-23 Suggested Pad Layout



- Note:
1. Controlling dimension: in millimeters.
 2. General tolerance: $\pm 0.05\text{mm}$.
 3. The pad layout is for reference purposes only.



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