

SOT-23 Plastic-Encapsulate Transistors

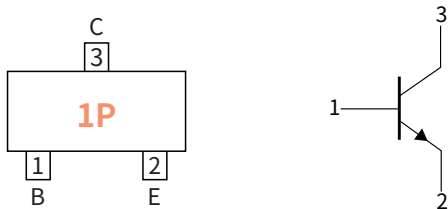
Features

- Complementary to MMBT2907A
- 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

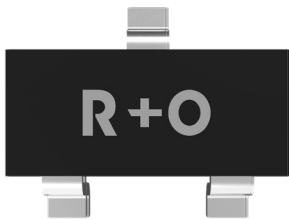
Function Diagram



Collector-Base Voltage  
VCBO 75V

Collector Current  
-0.6 Ampere

SOT-23



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

| PARAMETER                   | SYMBOL           | UNIT  | VALUE     |
|-----------------------------|------------------|-------|-----------|
| Collector-Base Voltage      | $V_{CBO}$        | V     | 75        |
| Collector-Emitter Voltage   | $V_{CEO}$        |       | 40        |
| Emitter-Base Voltage        | $V_{EBO}$        |       | 6.0       |
| Collector Current           | $I_C$            | A     | 0.6       |
| 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     | $V_{CBO}$      | V       | $I_C=10\mu A, I_E=0$                                        | 75  | —    |
| Collector-Emitter Breakdown Voltage  | $V_{CEO}$      |         | $I_C=10mA, I_B=0$                                           | 40  | —    |
| Emitter-Base Breakdown Voltage       | $V_{EBO}$      |         | $I_E=10\mu A, I_C=0$                                        | 6.0 | —    |
| Collector-Base cut-off current       | $I_{CBO}$      | $\mu A$ | $V_{CB}=60V, I_E=0$                                         | —   | 0.01 |
| Collector cut-off current            | $I_{CEX}$      |         | $V_{CE}=30V, V_{BE(off)}=3.0V$                              | —   | 0.01 |
| Emitter-Base cut-off current         | $I_{EBO}$      |         | $V_{EB}=3.0V, I_C=0$                                        | —   | 0.1  |
| DC Current Gain                      | $h_{FE}$       | —       | $I_C=0.1mA, V_{CE}=10V$                                     | 40  | —    |
|                                      |                |         | $I_C=150mA, V_{CE}=10V$                                     | 100 | 300  |
|                                      |                |         | $I_C=500mA, V_{CE}=10V$                                     | 42  | —    |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)1}$ | V       | $I_C=500mA, I_B=50mA$                                       | —   | 1.0  |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)2}$ |         | $I_C=150mA, I_B=15mA$                                       | —   | 0.3  |
| Base-Emitter Saturation Voltage      | $V_{BE(sat)1}$ |         | $I_C=500mA, I_B=50mA$                                       | —   | 2.0  |
| Base-Emitter Saturation Voltage      | $V_{BE(sat)2}$ |         | $I_C=150mA, I_B=15mA$                                       | —   | 1.2  |
| Delay time                           | $t_d$          | ns      | $V_{CC}=30V, V_{BE(off)}=-0.5V$<br>$I_C=150mA, I_{B1}=15mA$ | —   | 10   |
| Rise time                            | $t_r$          |         |                                                             | —   | 25   |
| Storage time                         | $t_s$          |         | $V_{CC}=30V, I_C=150mA$<br>$I_{B1}=I_{B2}=15mA$             | —   | 225  |
| Fall time                            | $t_f$          |         |                                                             | —   | 60   |

● Classification Of  $h_{FE}$

| RANK  | L       | H       |
|-------|---------|---------|
| Range | 100-200 | 200-300 |

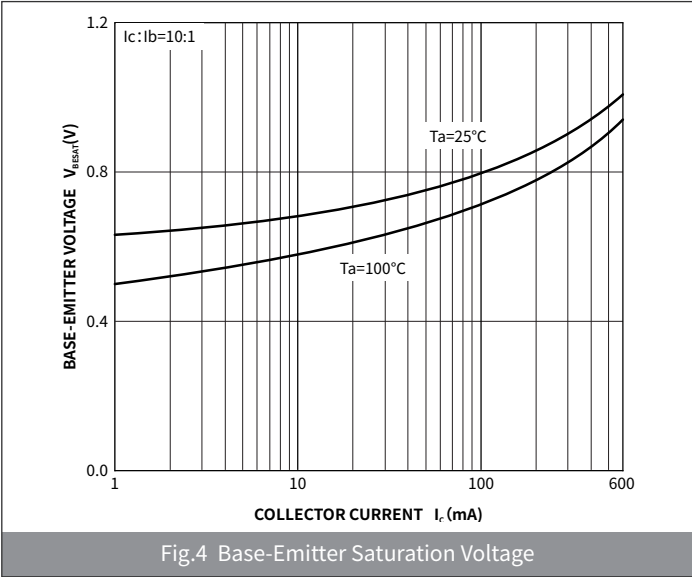
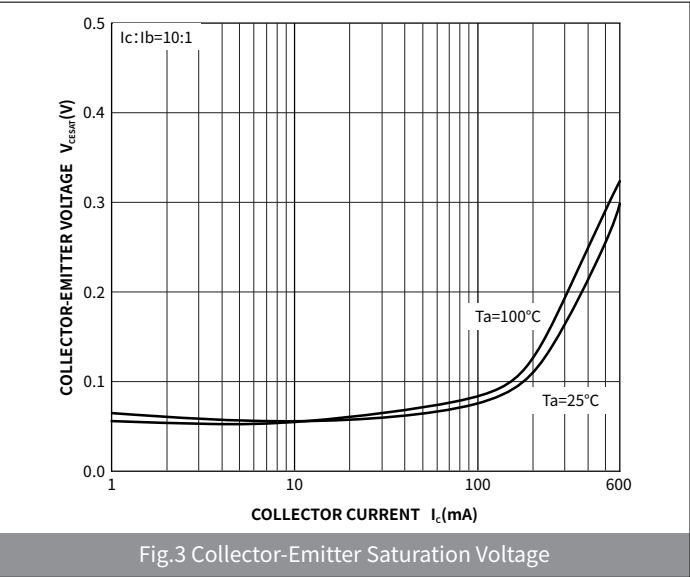
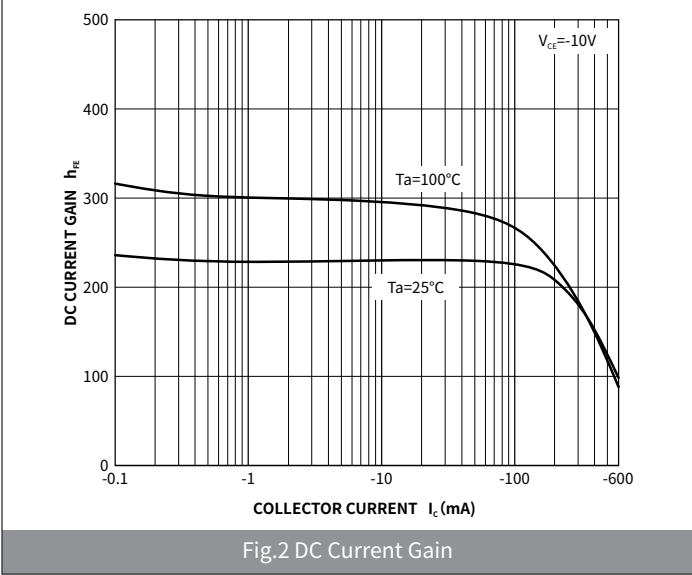
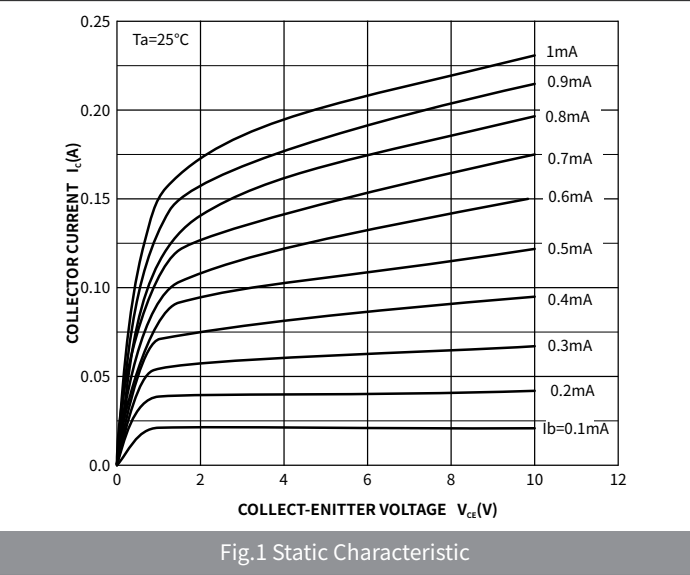
● Small-signal Characteristics

| ITEM                 | SYMBOL | Condition                        | UNIT | Min | Max |
|----------------------|--------|----------------------------------|------|-----|-----|
| Transition frequency | $f_T$  | $I_C=20mA, V_{CE}=20V, f=100MHz$ | MHz  | 300 | —   |

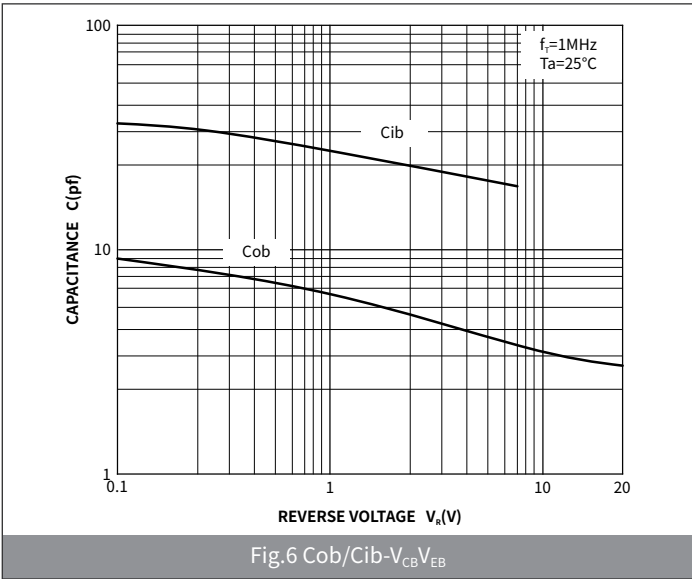
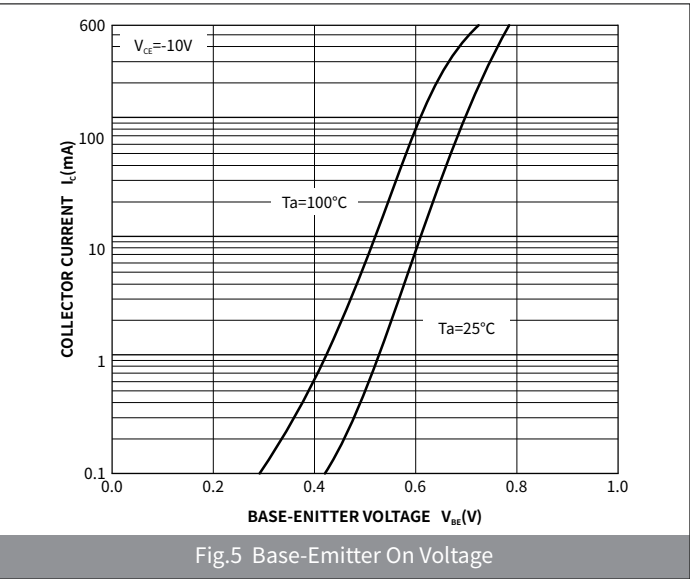
● Ordering Information

| PACKAGE | PACKAGE CODE | UNIT WEIGHT(g) | REEL(pcs) | BOX(pcs) | CARTON(pcs) | DELIVERY MODE |
|---------|--------------|----------------|-----------|----------|-------------|---------------|
| SOT-23  | R1           | 0.008          | 3000      | 30000    | 120000      | 7"            |

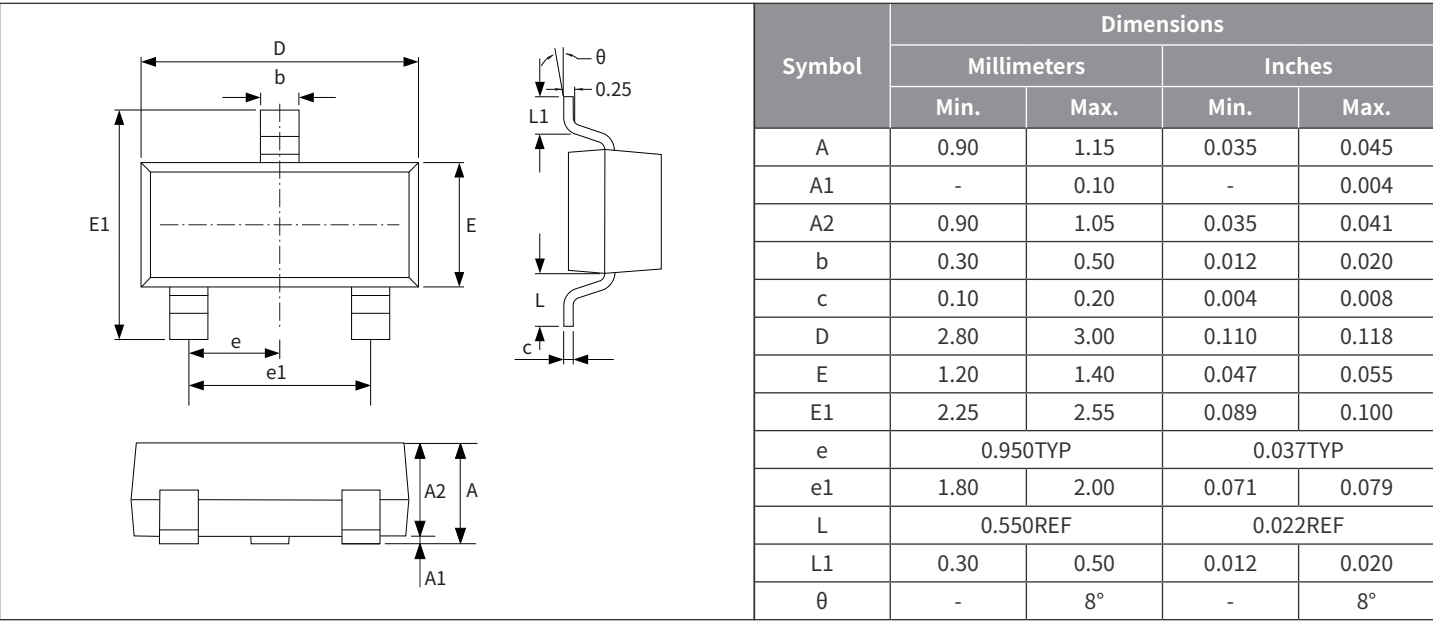
● Ratings And Characteristics Curves ( $T_a=25^{\circ}C$  Unless otherwise specified)



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● Package Outline Dimensions (SOT-23)



● Suggested Pad Layout

