

SOT-323 Plastic-Encapsulate Transistors

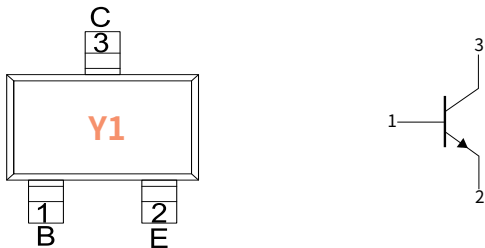
Features

- Complimentary to SS8550W
- Power dissipation of 200mW

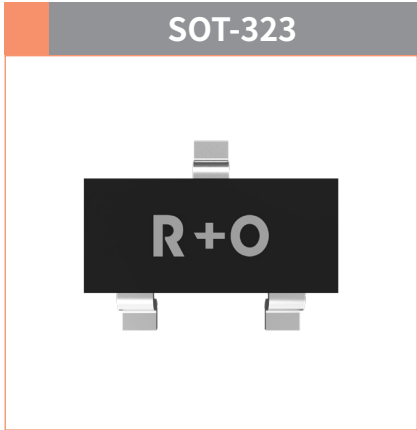
Mechanical Data

- Case: SOT-323  
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-Emitter Voltage  
VCEO 25V  
Collector Current  
1.5 Ampere



Ordering Information

| PACKAGE | PACKAGE CODE | UNIT WEIGHT(g) | REEL(pcs) | BOX(pcs) | CARTON(pcs) | DELIVERY MODE |
|---------|--------------|----------------|-----------|----------|-------------|---------------|
| SOT-323 | R1           | 0.005          | 3000      | 45000    | 180000      | 7"            |

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

| PARAMETER                   | SYMBOL           | UNIT | VALUE     |
|-----------------------------|------------------|------|-----------|
| Collector-Base Voltage      | V <sub>CBO</sub> | V    | 40        |
| Collector-Emitter Voltage   | V <sub>CEO</sub> |      | 25        |
| Emitter-Base Voltage        | V <sub>EBO</sub> |      | 5         |
| Collector Current           | I <sub>C</sub>   | A    | 1.5       |
| Collector Power Dissipation | P <sub>C</sub>   | mW   | 200       |
| Storage temperature         | T <sub>stg</sub> | °C   | -55 ~+150 |
| Junction temperature        | T <sub>j</sub>   | °C   | -55 ~+150 |

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

| PARAMETER                            | SYMBOL        | UNIT | Condition                | Min | Type | Max |
|--------------------------------------|---------------|------|--------------------------|-----|------|-----|
| Collector-Base Breakdown Voltage     | $V_{(BR)CBO}$ | V    | $I_C=100\mu A, I_E=0$    | 40  | —    | —   |
| Collector-Emitter Breakdown Voltage  | $V_{(BR)CEO}$ |      | $I_C=0.1mA, I_B=0$       | 25  | —    | —   |
| Emitter-Base Breakdown Voltage       | $V_{(BR)EBO}$ |      | $I_E=100\mu A, I_C=0$    | 5   | —    | —   |
| Collector-Base cut-off current       | $I_{CBO}$     | nA   | $V_{CB}=40V, I_E=0$      | —   | —    | 100 |
| Collector-Emitter cut-off current    | $I_{CEO}$     |      | $V_{CE}=20V, I_B=0$      | —   | —    | 100 |
| Emitter-Base cut-off current         | $I_{EBO}$     |      | $V_{EB}=5.0V, I_C=0$     | —   | —    | 100 |
| DC Current Gain                      | $h_{FE(1)}$   | —    | $I_C=100mA, V_{CE}=1.0V$ | 120 | —    | 400 |
|                                      | $h_{FE(2)}$   |      | $I_C=800mA, V_{CE}=1.0V$ | 40  | —    | —   |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | V    | $I_C=800mA, I_B=80mA$    | —   | —    | 0.5 |
| Base-Emitter Saturation Voltage      | $V_{BE(sat)}$ | V    | $I_C=800mA, I_B=80mA$    | —   | —    | 1.2 |

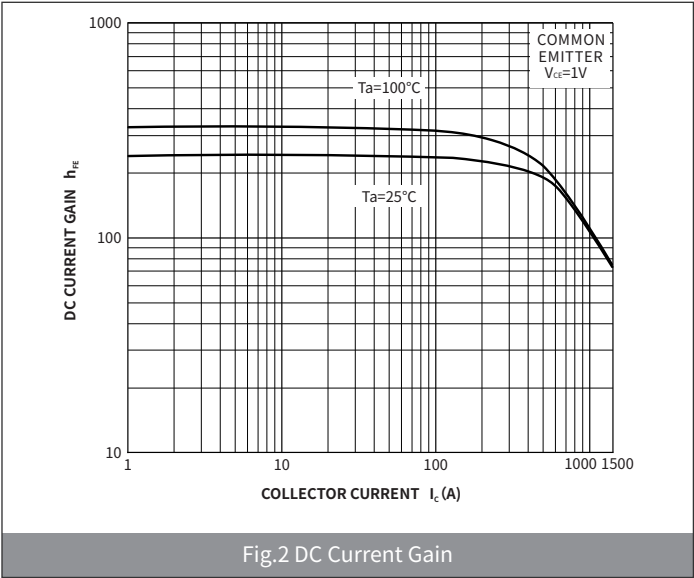
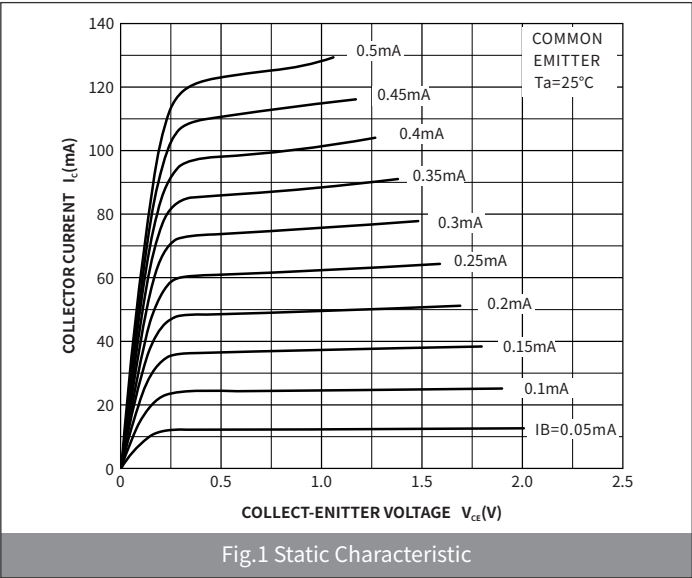
Small-signal Characteristics

| ITEM                 | SYMBOL | Condition                       | UNIT | Min | Typ | Max |
|----------------------|--------|---------------------------------|------|-----|-----|-----|
| Transition frequency | $f_T$  | $I_C=50mA, V_{CE}=10V, f=30MHz$ | MHz  | 100 | —   | —   |

Classification Of  $h_{FE}$

| RANK  | L       | H       | J       |
|-------|---------|---------|---------|
| Range | 120-200 | 200-350 | 300-400 |

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



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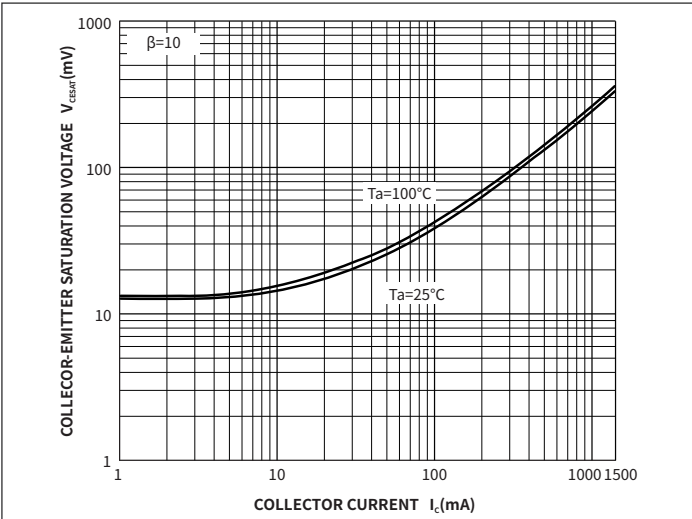


Fig.3 Collector-Emitter Saturation Voltage

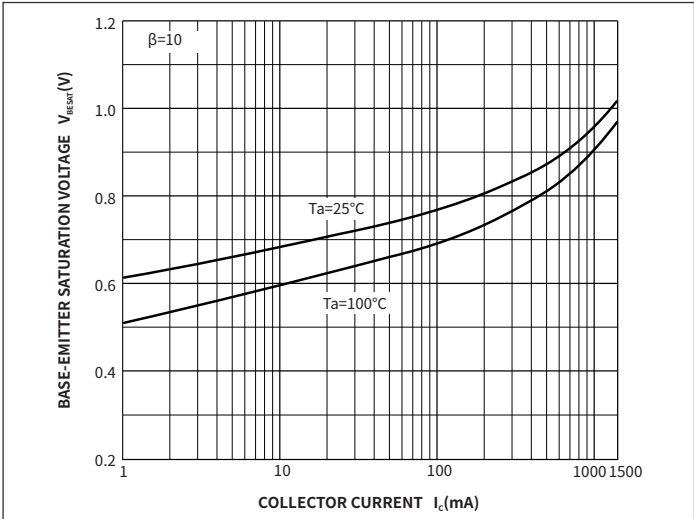


Fig.4 Base-Emitter Saturation Voltage

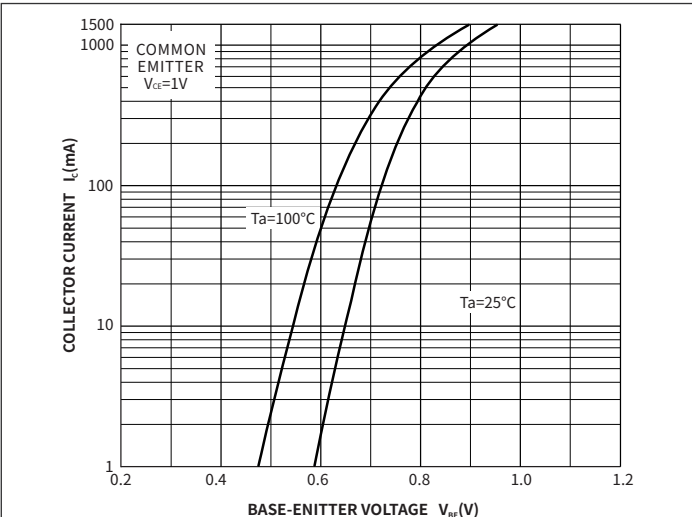


Fig.5 Base-Emitter On Voltage

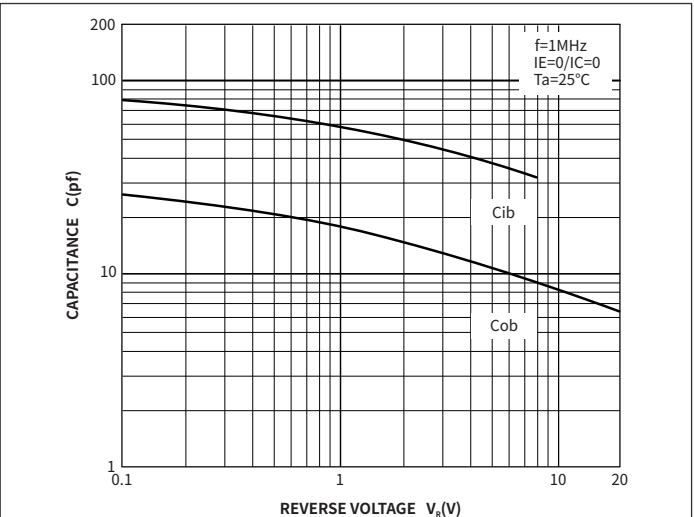


Fig.6  $C_{ob}/C_{ib}-V_{CB} V_{EB}$

Package Outline Dimensions (SOT-323)

| Symbol | Dimensions  |      |          |       |
|--------|-------------|------|----------|-------|
|        | Millimeters |      | Inches   |       |
|        | Min.        | Max. | Min.     | Max.  |
| A      | 0.80        | 1.10 | 0.031    | 0.043 |
| A1     | -           | 0.10 | -        | 0.004 |
| A2     | 0.90        | 1.00 | 0.035    | 0.039 |
| b      | 0.30        | 0.40 | 0.012    | 0.020 |
| c      | 0.10        | 0.25 | 0.004    | 0.010 |
| D      | 1.80        | 2.20 | 0.071    | 0.087 |
| E      | 1.15        | 1.35 | 0.045    | 0.053 |
| E1     | 2.00        | 2.2  | 0.079    | 0.086 |
| e      | 0.650TYP    |      | 0.026TYP |       |
| e1     | 1.20        | 1.40 | 0.047    | 0.055 |
| L      | 0.525REF    |      | 0.021REF |       |
| L1     | 0.15        | 0.45 | 0.006    | 0.018 |
| θ      | -           | 8°   | -        | 8°    |

Suggested Pad Layout

| Symbol | Dimensions  |      |        |       |
|--------|-------------|------|--------|-------|
|        | Millimeters |      | Inches |       |
|        | Min.        | Max. | Min.   | Max.  |
| J      | 0.65        | 0.75 | 0.026  | 0.030 |
| K      | 0.85        | 0.95 | 0.033  | 0.037 |
| M      | 1.85        | 1.95 | 0.073  | 0.077 |
| N      | 1.25        | 1.35 | 0.049  | 0.053 |