

Features

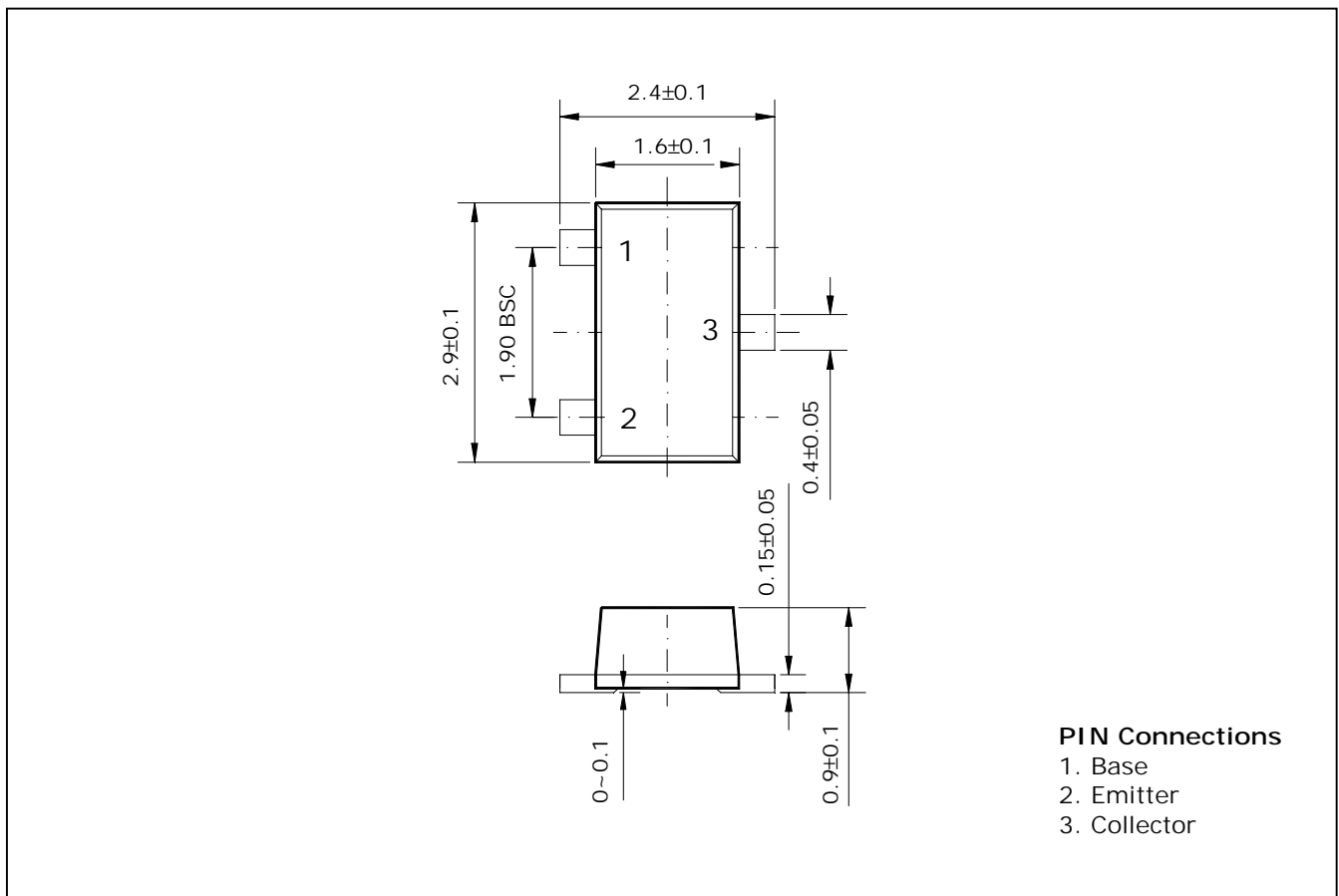
- Low saturation medium current application
- Extremely low collector saturation voltage
- Suitable for low voltage large current drivers
- High DC current gain and large current capability
- Low on resistance : $R_{ON}=0.6\Omega(\text{Max.})$ ($I_B=1\text{mA}$)

Ordering Information

| Type NO. | Marking | Package Code |
|----------|---------|--------------|
| STD123SF | 123 | SOT-23F |

Outline Dimensions

unit : mm



Absolute maximum ratings

(Ta=25°C)

| Characteristic | Symbol | Ratings | Unit |
|---------------------------|-----------|-----------|------|
| Collector-Base voltage | V_{CBO} | 20 | V |
| Collector-Emitter voltage | V_{CEO} | 15 | V |
| Emitter-Base voltage | V_{EBO} | 6.5 | V |
| Collector current | I_C | 1 | A |
| Collector dissipation | P_C^* | 350 | mW |
| Junction temperature | T_J | 150 | °C |
| Storage temperature | T_{stg} | -55 ~ 150 | °C |

* : Package mounted on 99.5% alumina 10×8×0.1mm

Electrical Characteristics

(Ta=25°C)

| Characteristic | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|--------------------------------------|---------------|--------------------------------|------|------|------|----------|
| Collector-Base breakdown voltage | BV_{CBO} | $I_C=50\mu A, I_E=0$ | 20 | - | - | V |
| Collector-Emitter breakdown voltage | BV_{CEO} | $I_C=1mA, I_B=0$ | 15 | - | - | V |
| Emitter-Base breakdown voltage | BV_{EBO} | $I_E=50\mu A, I_C=0$ | 6.5 | - | - | V |
| Collector cut-off current | I_{CBO} | $V_{CB}=20V, I_E=0$ | - | - | 0.1 | μA |
| Emitter cut-off current | I_{EBO} | $V_{EB}=6V, I_C=0$ | - | - | 0.1 | μA |
| DC current gain | h_{FE} | $V_{CE}=1V, I_C=100mA$ | 150 | - | - | - |
| Collector-Emitter saturation voltage | $V_{CE(sat)}$ | $I_C=500mA, I_B=50mA$ | - | 0.1 | 0.3 | V |
| Transistor frequency | f_T | $V_{CE}=5V, I_C=50mA$ | - | 260 | - | MHz |
| Collector output capacitance | C_{ob} | $V_{CB}=10V, I_E=0, f=1MHz$ | - | 5 | - | pF |
| On resistance | R_{ON} | $f=1KHz, I_B=1mA, V_{IN}=0.3V$ | - | 0.6 | - | Ω |

Electrical Characteristic Curves

Fig. 1 $P_C - T_a$

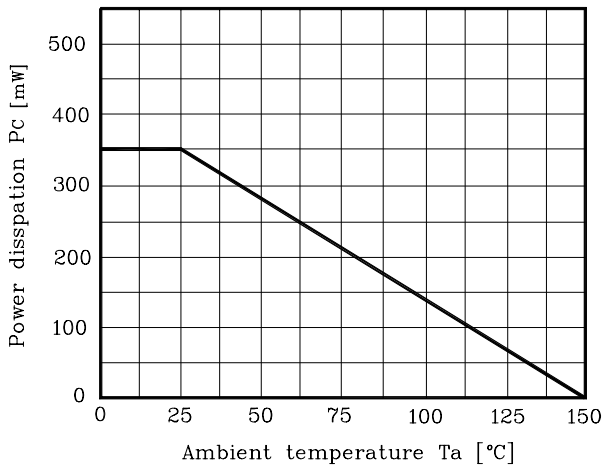


Fig. 2 $V_{CE(sat)} - I_C$

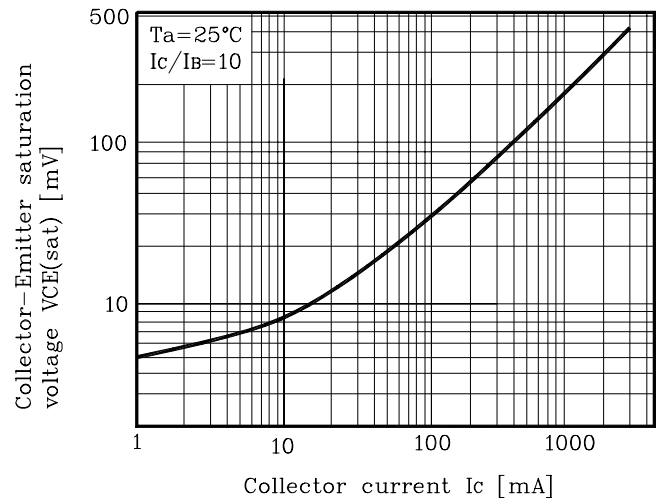


Fig. 2 $C_{ob} - V_{CB}$

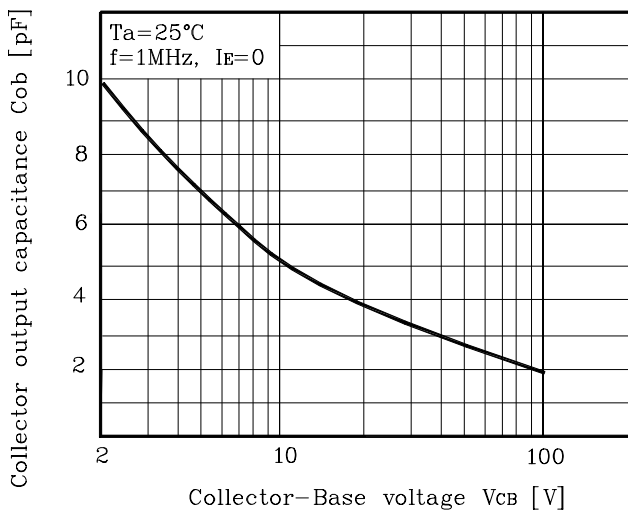


Fig. 4 $h_{FE} - I_C$

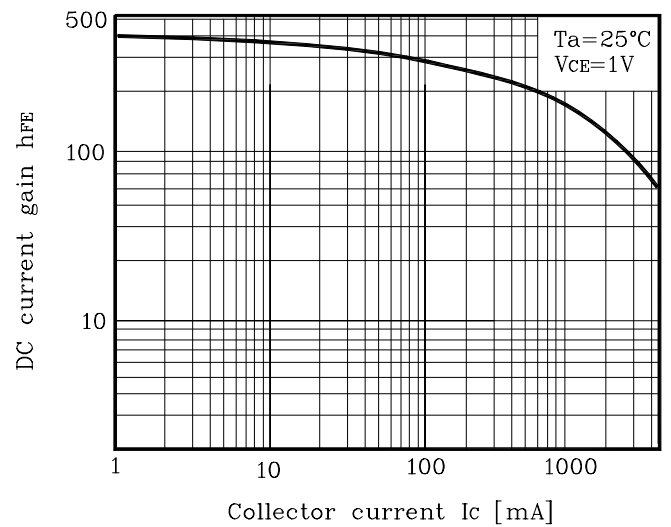


Fig. 5 $R_{ON} - I_B$

