



SUT509EF

NPN/PNP Epitaxial Planar Silicon Transistor

Description

- General purpose transistor

Feature

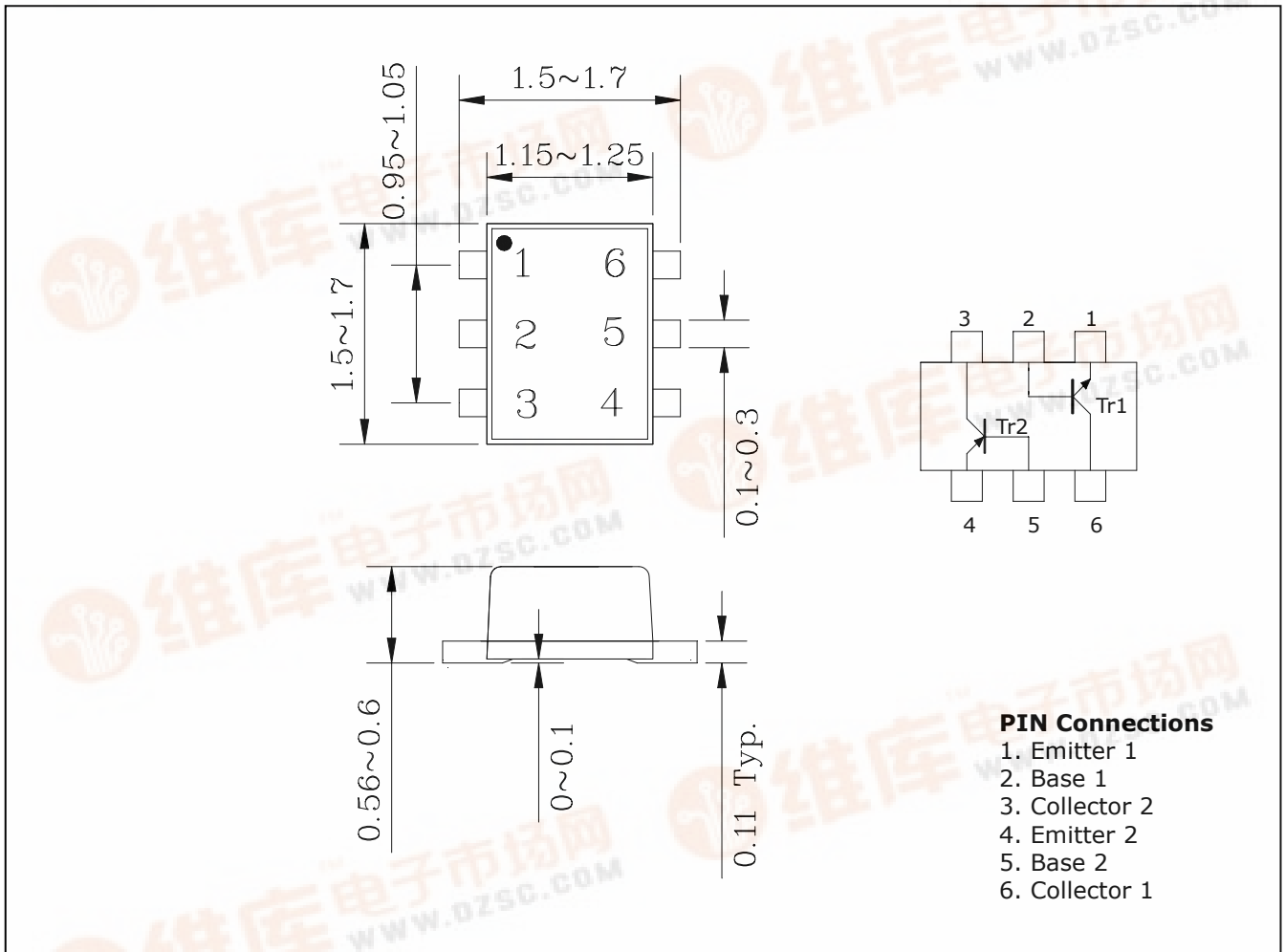
- Both 2SA1980 chip and 2SC5343 chip in SOT-563F package

Ordering Information

| Type NO. | Marking | Package Code |
|----------|---------|--------------|
| SUT509EF | 3X | SOT-563F |

Outline Dimensions

unit : mm



SUT509EF

Absolute maximum ratings (Tr1, Tr2)

Ta=25°C

| Characteristic | Symbol | Ratings | | Unit |
|---------------------------|------------------|---------|------|------|
| | | Tr1 | Tr2 | |
| Collector-Base voltage | V _{CBO} | 60 | -50 | V |
| Collector-Emitter voltage | V _{CEO} | 50 | -50 | V |
| Emitter-base voltage | V _{EBO} | 5 | -5 | V |
| Collector current | I _C | 150 | -150 | mA |
| Collector dissipation | P _C | 100 | | mW |
| Junction temperature | T _j | 150 | | °C |
| Storage temperature range | T _{stg} | -55~150 | | °C |

Electrical Characteristics (Tr1 : NPN)

Ta=25°C

| Characteristic | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|--------------------------------------|----------------------|--|------|------|------|------|
| Collector-Base breakdown voltage | BV _{CBO} | I _C =100μA, I _E =0 | 60 | - | - | V |
| Collector-Emitter breakdown voltage | BV _{CEO} | I _C =1mA, I _B =0 | 50 | - | - | V |
| Emitter-Base breakdown voltage | BV _{EBO} | I _E =10μA, I _C =0 | 5 | - | - | V |
| Collector cut-off current | I _{CBO} | V _{CB} =60V, I _E =0 | - | - | 0.1 | μA |
| Emitter cut-off current | I _{EBO} | V _{EB} =5V, I _C =0 | - | - | 0.1 | μA |
| DC current gain | h _{FE} | V _{CE} =6V, I _C =2mA | 70 | - | 700 | - |
| Collector-Emitter saturation voltage | V _{CE(sat)} | I _C =100mA, I _B =10mA | - | - | 0.25 | V |
| Transition frequency | f _T | V _{CE} =10V, I _C =1mA, f=100MHz | 80 | - | - | MHz |
| Collector output capacitance | C _{ob} | V _{CB} =10V, I _E =0, f=1MHz | - | 2 | 3.5 | pF |

Electrical Characteristics (Tr2 : PNP)

Ta=25°C

| Characteristic | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|--------------------------------------|----------------------|--|------|------|------|------|
| Collector-Base breakdown voltage | BV _{CBO} | I _C =-100μA, I _E =0 | -50 | - | - | V |
| Collector-Emitter breakdown voltage | BV _{CEO} | I _C =-1mA, I _B =0 | -50 | - | - | V |
| Emitter-Base breakdown voltage | BV _{EBO} | I _E =-10μA, I _C =0 | -5 | - | - | V |
| Collector cut-off current | I _{CBO} | V _{CB} =-50V, I _E =0 | - | - | -0.1 | μA |
| Emitter cut-off current | I _{EBO} | V _{EB} =-5V, I _C =0 | - | - | -0.1 | μA |
| DC current gain | h _{FE} | V _{CE} =-6V, I _C =-2mA | 120 | - | 400 | - |
| Collector-Emitter saturation voltage | V _{CE(sat)} | I _C =-100mA, I _B =-10mA | - | - | -0.3 | V |
| Transition frequency | f _T | V _{CE} =-10V, I _C =-1mA, f=100MHz | 80 | - | - | MHz |
| Collector output capacitance | C _{ob} | V _{CB} =-10V, I _E =0, f=1MHz | - | 4 | 7 | pF |

Electrical Characteristic Curves

Tr1 : NPN

Fig. 1 $I_C - V_{BE}$

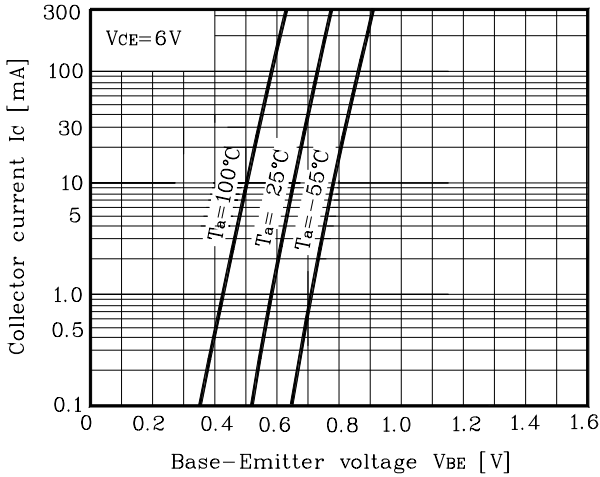


Fig. 2 $I_C - V_{CE}$

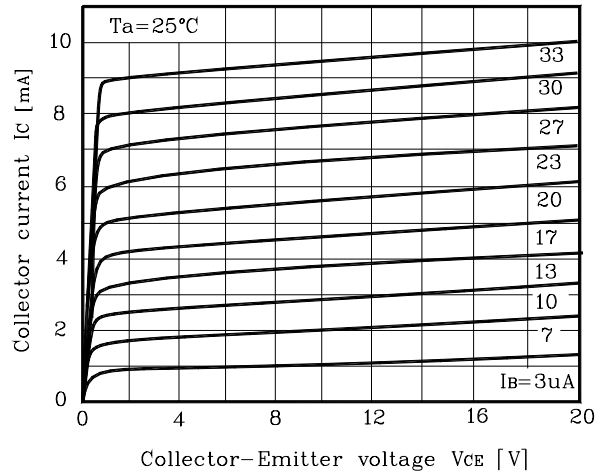


Fig. 3 $h_{FE} - I_C$

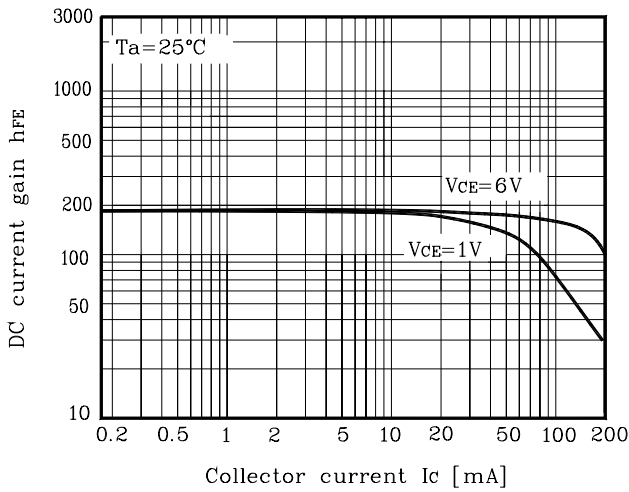
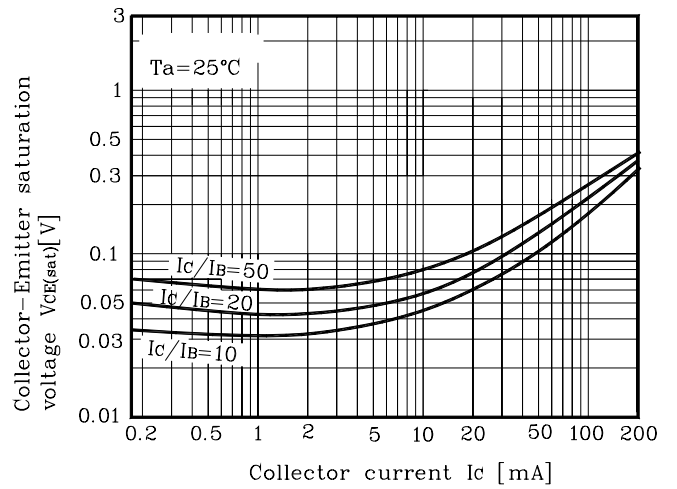


Fig. 4 $V_{CE(sat)} - I_C$



Tr2 : PNP

Fig. 1 $I_C - V_{BE}$

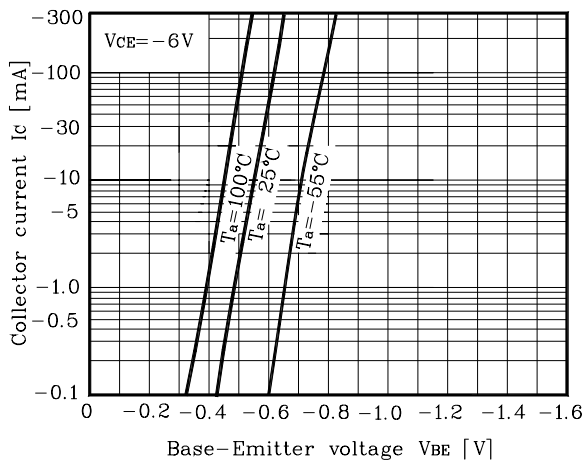
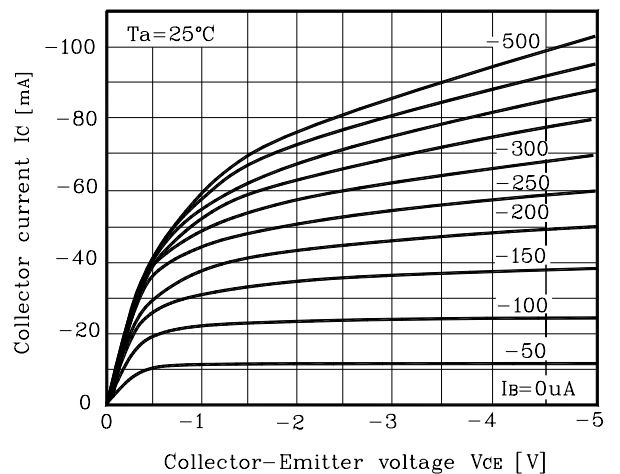


Fig. 2 $I_C - V_{CE}$



Electrical Characteristic Curves

Fig. 3 $h_{FE}-I_C$

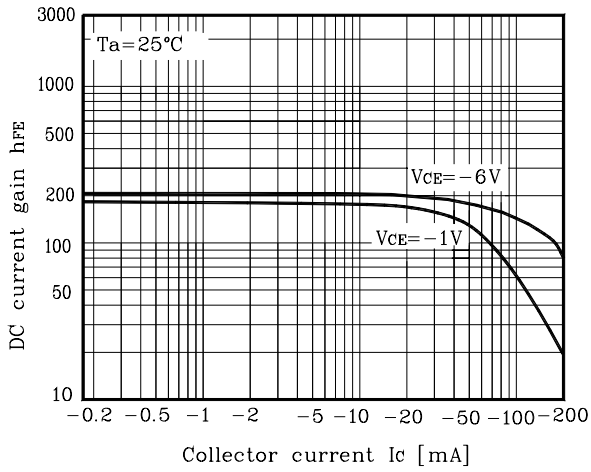
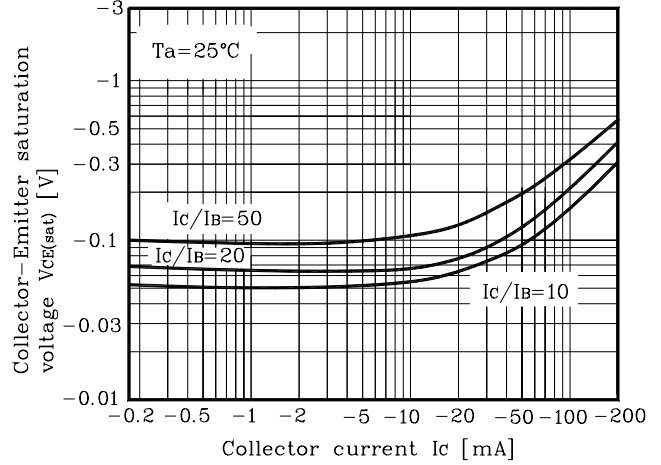


Fig. 4 $V_{CE(sat)}-I_C$



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