AUK Semiconductor

# STA9012N

**PNP Silicon Transistor**

## Description

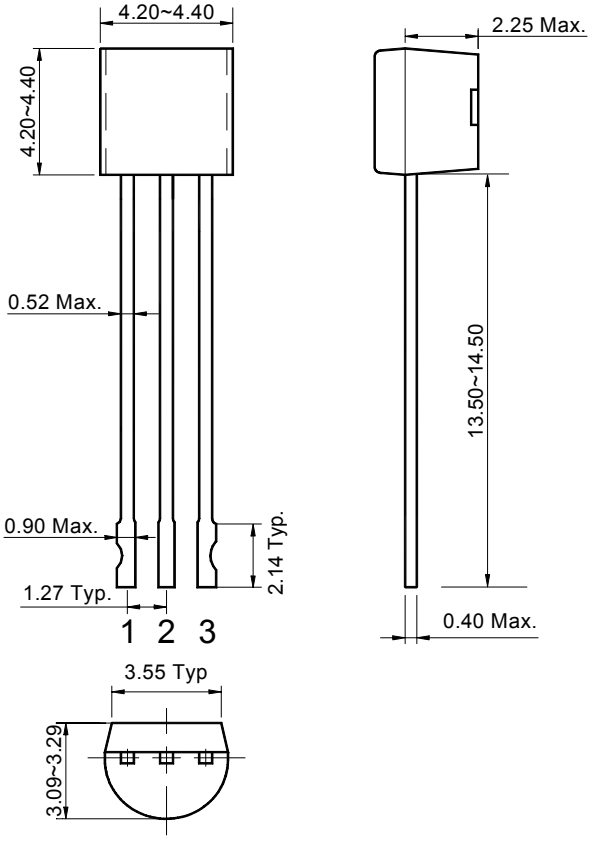
- General purpose application
- Switching application

## Features

- Excellent $h_{FE}$ linearity
- Complementary pair with STC9013N

## Ordering Information

| Type NO. | Marking | Package Code |
|---|---|---|
| STA9012N | STA9012 | TO-92N |




**PIN Connections**

1. Emitter
2. Base
3. Collector

## Absolute Maximum Ratings (Ta=25°C)

| Characteristic | Symbol | Rating | Unit |
|---|---|---|---|
| Collector-base voltage | $V_{CBO}$ | -40 | V |
| Collector-emitter voltage | $V_{CEO}$ | -30 | V |
| Emitter-base voltage | $V_{EBO}$ | -5 | V |
| Collector current | $I_C$ | -500 | mA |
| Collector power dissipation | $P_C$ | 500 | mW |
| Junction temperature | $T_J$ | 150 | °C |
| Storage temperature range | $T_{stg}$ | -55~150 | °C |

## Electrical Characteristics (Ta=25°C)

| Characteristic | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| Collector-emitter breakdown voltage | $BV_{CEO}$ | $I_C$=-1mA, $I_B$=0 | -30 | - | - | V |
| Collector cut-off current | $I_{CBO}$ | $V_{CB}$=-40V, $I_E$=0 | - | - | -0.1 | μA |
| Emitter cut-off current | $I_{EBO}$ | $V_{EB}$=-5V, $I_C$=0 | - | - | -0.1 | μA |
| DC current gain | $h_{FE}$* | $V_{CE}$=-1V, $I_C$=-50mA | 96 | - | 246 | - |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C$=-100mA, $I_B$=-10mA | - | -0.1 | -0.25 | V |
| Base-emitter voltage | $V_{BE}$ | $V_{CE}$=-1V, $I_C$=-100mA | - | -0.75 | -1.0 | V |
| Transition frequency | $f_T$ | $V_{CE}$=-6V, $I_C$=-20mA | - | 200 | - | MHz |
| Collector output capacitance | $C_{ob}$ | $V_{CB}$=-6V, $I_E$=0, f=1MHz | - | 7 | - | pF |

* : $h_{FE}$ rank / F : 96~135, G : 118~166, H : 144~202, I : 176~246.

## Electrical Characteristic Curves

**Fig. 1 $P_C$ - $T_a$**

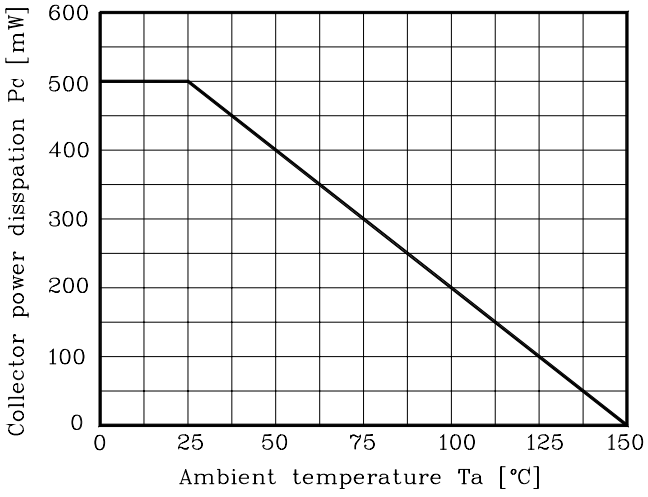



**Fig. 2 $I_C$ - $V_{BE}$**

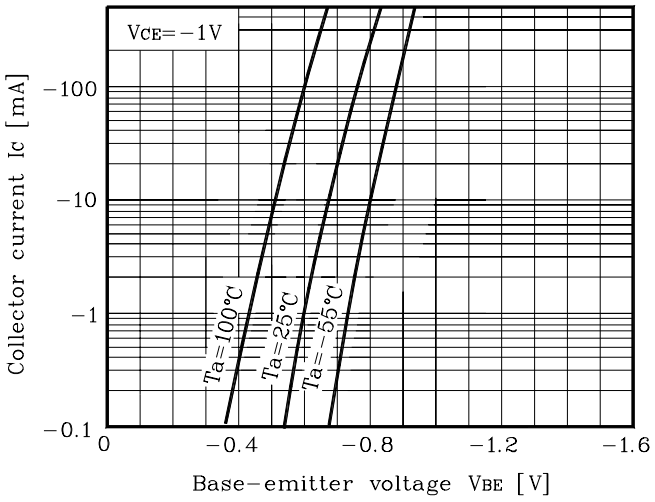



**Fig. 3 $I_C$ - $V_{CE}$**

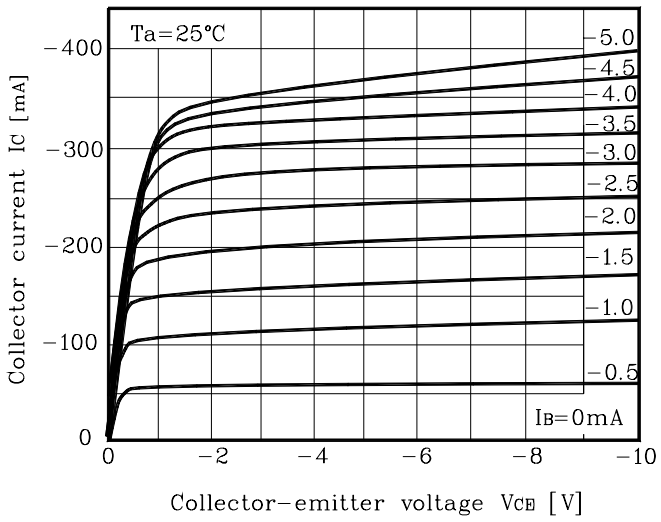



**Fig. 4 $V_{CE(sat)}$ - $I_C$**

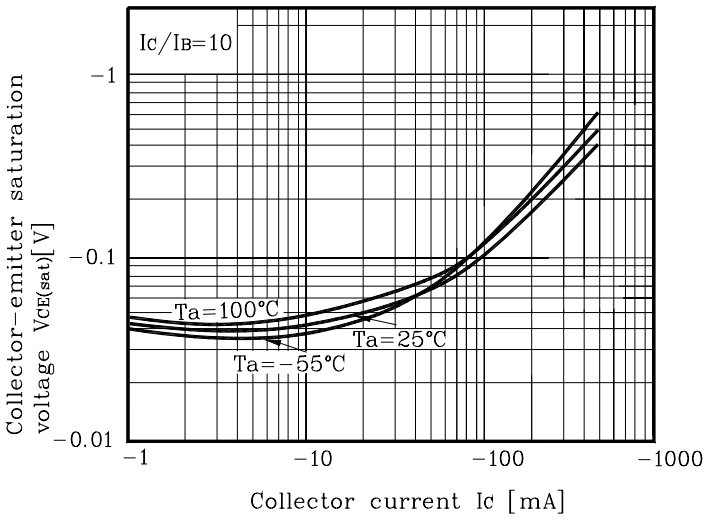



**Fig. 5 $h_{FE}$ - $I_C$**

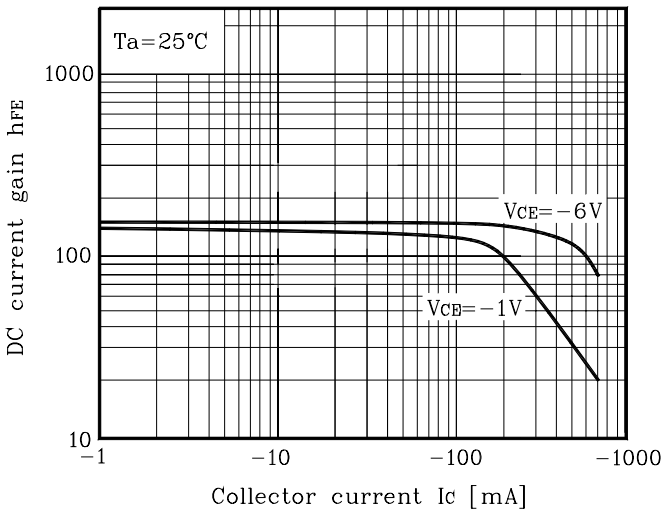
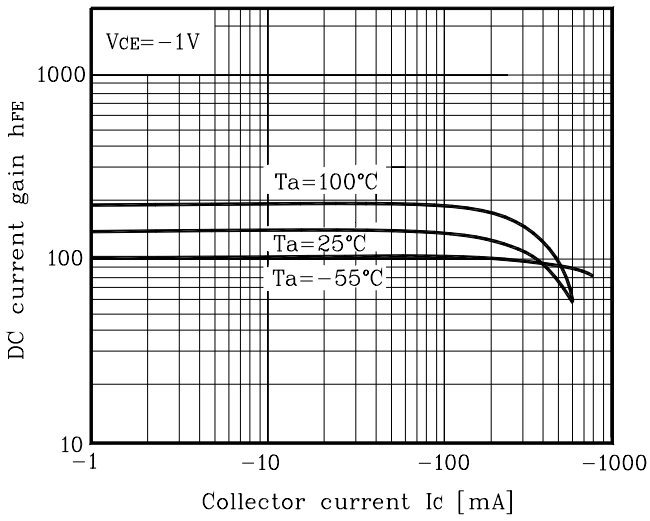



**Fig. 6 $h_{FE}$ - $I_C$**



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