**Shantou Huashan Electronic Devices Co.,Ltd.**

PNP SILICON TRANSISTOR

# H1020S

## APPLICATIONS

power amplifier Applications,
power Switching Applications.

## ABSOLUTE MAXIMUM RATINGS（$T_a$=25℃）

$T_{stg}$——Storage Temperature…… -55~150℃

$T_j$——Junction Temperature……150℃

$P_C$——Collector Dissipation……750mW

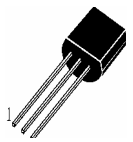
$V_{CBO}$——Collector-Base Voltage……-50V

$V_{CEO}$——Collector-Emitter Voltage……-50V

$V_{EBO}$——Emitter-Base Voltage……-5V

$I_C$——Collector Current……-2A

TO-92



1—Emitter，E
2—Collector，C
3—Base，B

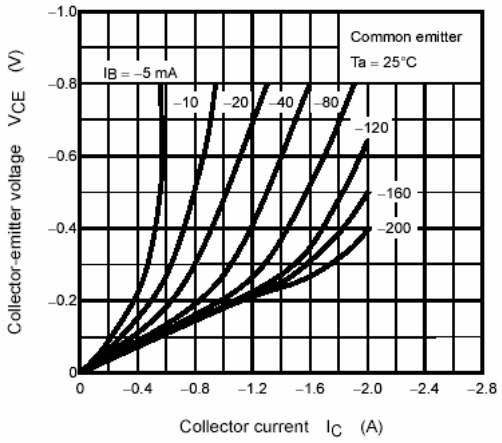
## ELECTRICAL CHARACTERISTICS（$T_a$=25℃）

| Symbol | Characteristics | Min | Typ | Max | Unit | Test Conditions |
|---|---|---|---|---|---|---|
| $BV_{CBO}$ | Collector-Base Breakdown Voltage | −50 | | | V | $I_C$=-100μA, $I_E$=0 |
| $BV_{CEO}$ | Collector-Emitter Breakdown Voltage | −50 | | | V | $I_C$=-10mA, $I_B$=0 |
| $BV_{EBO}$ | Emitter-Base Breakdown Voltage | −5 | | | V | $I_E$=-100μA，$I_C$=0 |
| $I_{CBO}$ | Collector Cut-off Current | | | −1.0 | μA | $V_{CB}$=-50V, $I_E$=0 |
| $I_{EBO}$ | Emitter Cut-off Current | | | −1.0 | μA | $V_{EB}$=-5V, $I_C$=0 |
| $H_{FE(1)}$ | DC Current Gain | 70 | | 240 | | $V_{CE}$=-2V, $I_C$=-0.5A |
| $H_{FE(2)}$ | | 40 | | | | $V_{CE}$=-2V, $I_C$=-1.5A |
| $V_{CE(sat)}$ | Collector- Emitter Saturation Voltage | | | −0.5 | V | $I_C$=-1A, $I_B$=-50mA |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | | | −1.2 | V | $I_C$=-1A, $I_B$=-50mA |
| $f_T$ | Current Gain-Bandwidth Product | | 100 | | MHz | $V_{CE}$=-2V, $I_C$=-0.5A |
| Cob | Output Capacitance | | 40 | | pF | $V_{CB}$=-10V, $I_E$=0，f=1MHz |
| $t_{ON}$ | Turn-on Time | | 0.1 | | μS | |
| $t_{STG}$ | Storage Time | | 1.0 | | μS | See specified test circuit |
| $t_F$ | Fall Time | | 0.1 | | μS | |

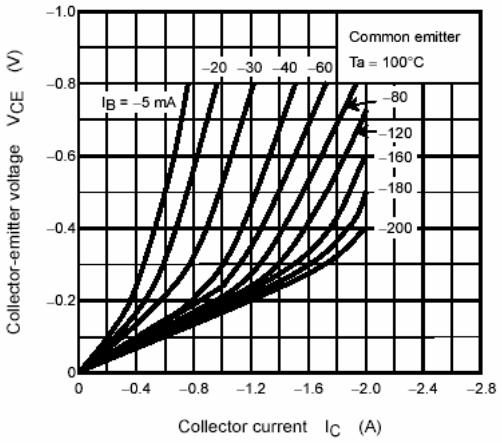
## $h_{FE}$ Classification

| O | Y |
|---|---|
| 70—140 | 120—240 |

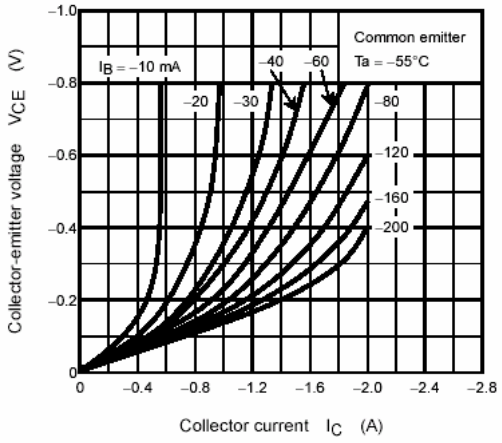
$V_{CE} - I_C$



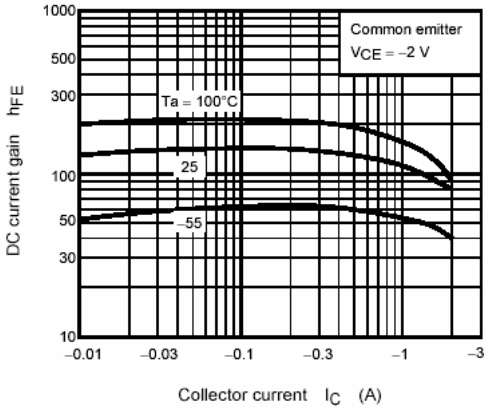

$V_{CE} - I_C$



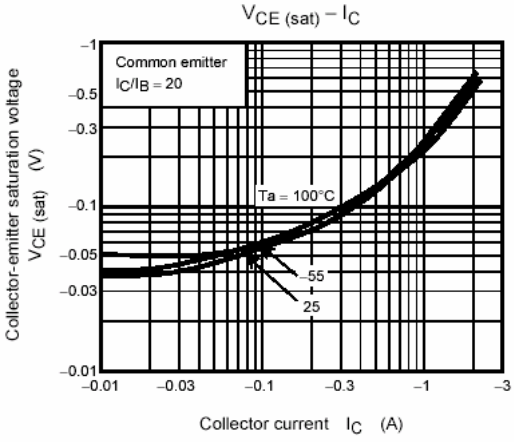

$V_{CE} - I_C$



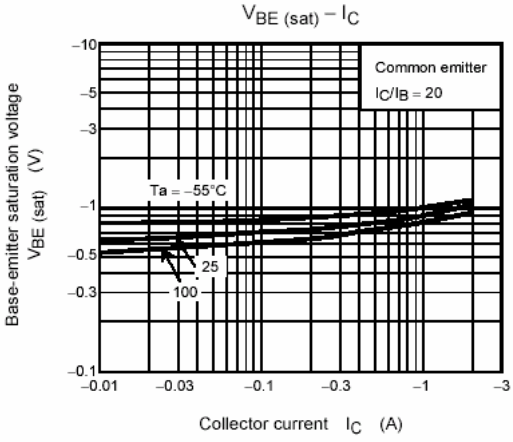

$h_{FE} - I_C$



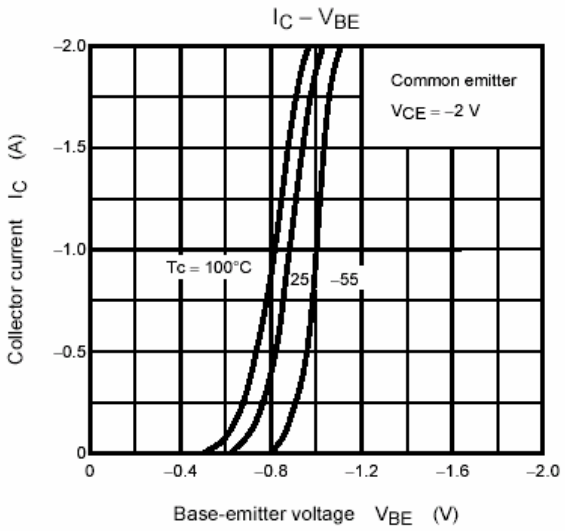

$V_{CE\ (sat)} - I_C$

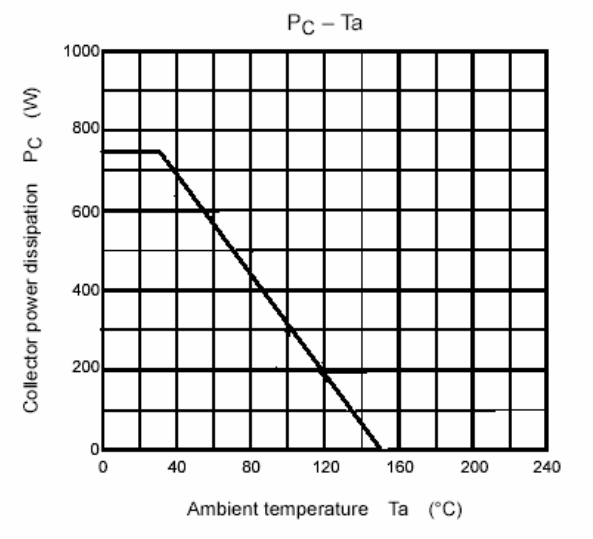


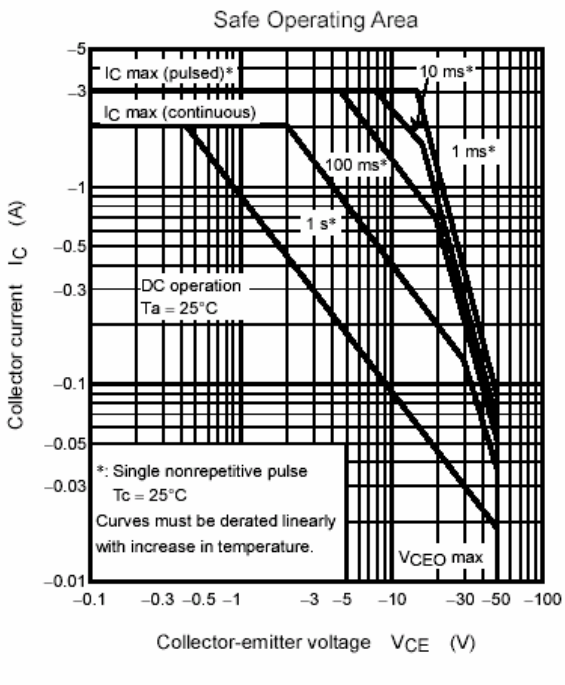

$V_{BE\ (sat)} - I_C$



# H1020S


$I_C - V_{BE}$
Common emitter
$V_{CE} = -2$ V
Tc = 100°C
25
−55
Collector current $I_C$ (A)
Base-emitter voltage $V_{BE}$ (V)
−2.0
−1.5
−1.0
−0.5
0
−0.4
−0.8
−1.2
−1.6
−2.0


$P_C - Ta$
Collector power dissipation $P_C$ (W)
Ambient temperature Ta (°C)
1000
800
600
400
200
0
40
80
120
160
200
240


Safe Operating Area
$I_C$ max (pulsed)*
$I_C$ max (continuous)
10 ms*
1 ms*
100 ms*
1 s*
DC operation
Ta = 25°C
*: Single nonrepetitive pulse
Tc = 25°C
Curves must be derated linearly
with increase in temperature.
$V_{CEO}$ max
Collector current $I_C$ (A)
Collector-emitter voltage $V_{CE}$ (V)
−5
−3
−1
−0.5
−0.3
−0.1
−0.05
−0.03
−0.01
−0.1
−0.3
−0.5
−1
−3
−5
−10
−30
−50
−100