Shantou Huashan Electronic Devices Co.,Ltd.

PNP SILICON TRANSISTOR

H1020

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……900mW

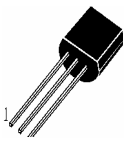
V_{CBO}——Collector-Base Voltage……-50V

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

V_{EBO}——Emitter-Base Voltage……-5V

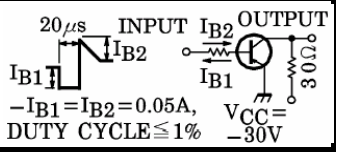
I_C——Collector Current……-2mA

TO-92



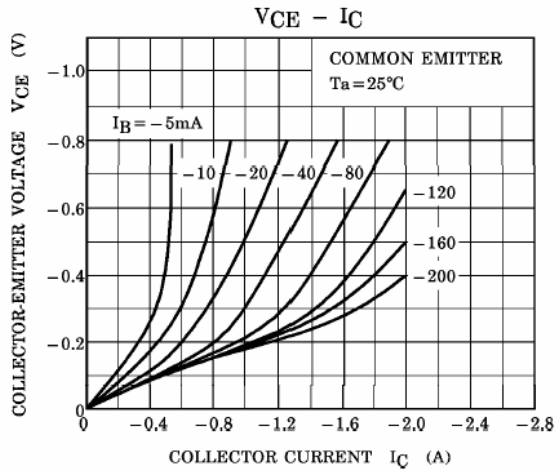
1—Emitter，E
2—Collector，C
3—Base，B

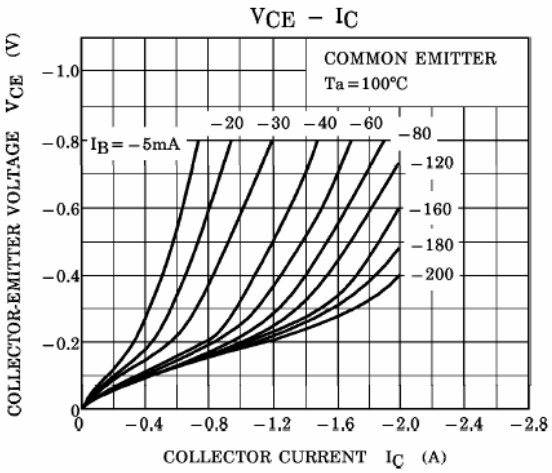
ELECTRICAL CHARACTERISTICS（T_a=25℃）

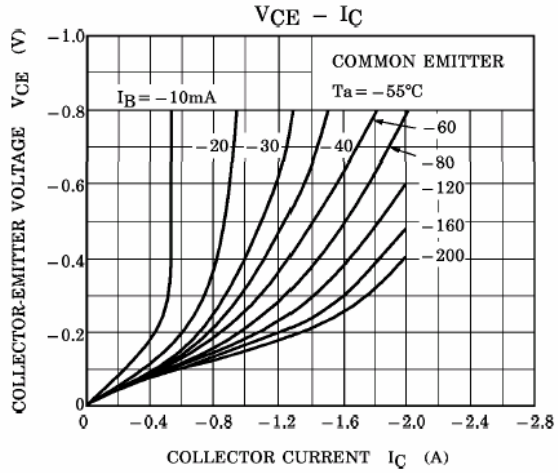
Symbol	Characteristics	Min	Typ	Max	Unit	Test Conditions
BV_{CBO}	Collector-Base Breakdown Voltage	−50			V	I_C=-1mA, I_E=0
BV_{CEO}	Collector-Emitter Breakdown Voltage	−50			V	I_C=-10mA, I_B=0
BV_{EBO}	Emitter-Base Breakdown Voltage	−5			V	I_E=-1mA，I_C=0
I_{CBO}	Collector Cut-off Current			−100	nA	V_{CB}=-50V, I_E=0
I_{EBO}	Emitter Cut-off Current			−100	nA	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=-0.05A
$V_{BE(sat)}$	Base-Emitter Saturation Voltage			−1.2	V	I_C=-1A, I_B=-0.05A
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	
t_F	Fall Time		0.1		μS	

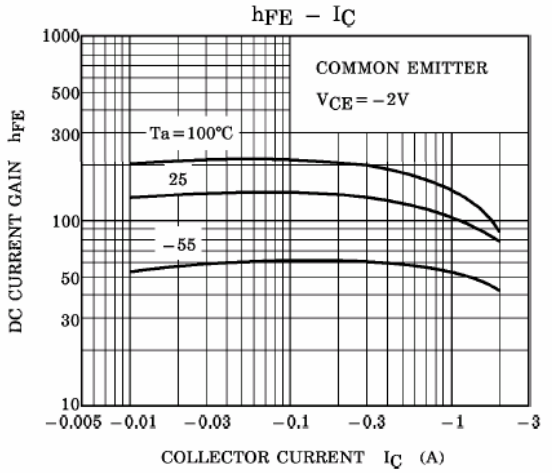
h_{FE} Classification

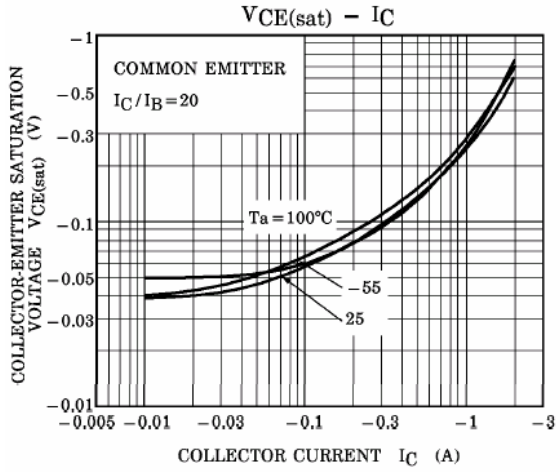
O	Y
70—140	120—240

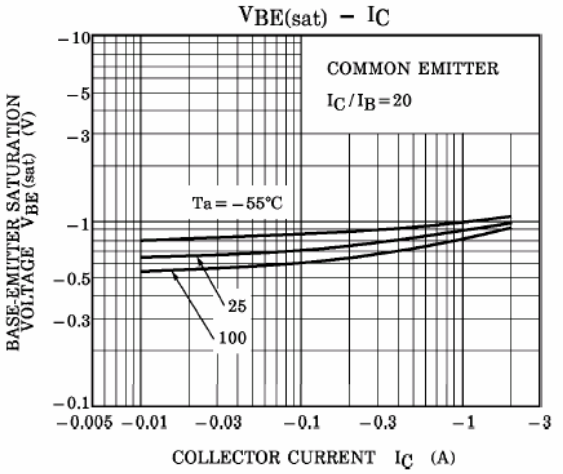

VCE – IC
COMMON EMITTER
Ta=25°C
IB=–5mA
–10
–20
–40
–80
–120
–160
–200
COLLECTOR-EMITTER VOLTAGE VCE (V)
COLLECTOR CURRENT IC (A)

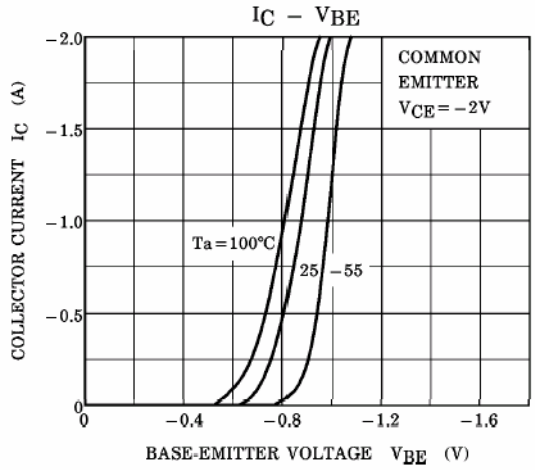

VCE – IC
COMMON EMITTER
Ta=100°C
IB=–5mA
–20
–30
–40
–60
–80
–120
–160
–180
–200
COLLECTOR-EMITTER VOLTAGE VCE (V)
COLLECTOR CURRENT IC (A)

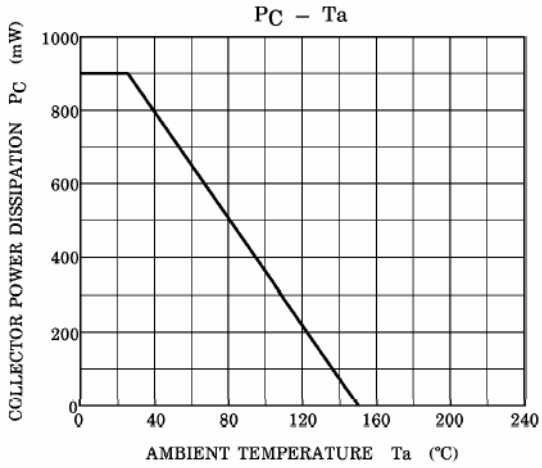

VCE – IC
COMMON EMITTER
Ta=–55°C
IB=–10mA
–20
–30
–40
–60
–80
–120
–160
–200
COLLECTOR-EMITTER VOLTAGE VCE (V)
COLLECTOR CURRENT IC (A)

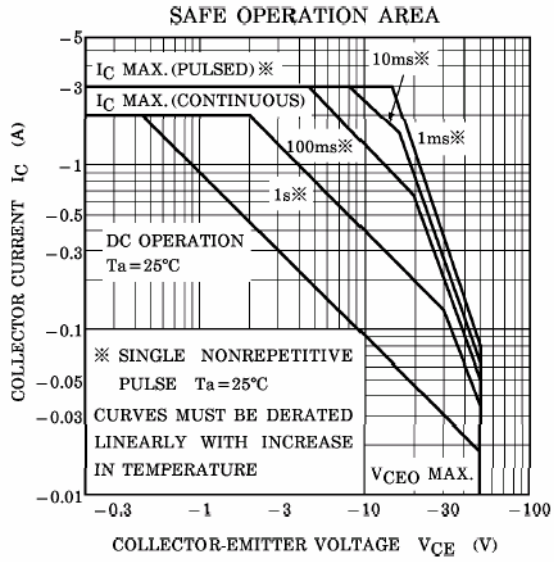

hFE – IC
COMMON EMITTER
VCE=–2V
Ta=100°C
25
–55
DC CURRENT GAIN hFE
COLLECTOR CURRENT IC (A)


VCE(sat) – IC
COMMON EMITTER
IC/IB=20
Ta=100°C
–55
25
COLLECTOR-EMITTER SATURATION VOLTAGE VCE(sat) (V)
COLLECTOR CURRENT IC (A)


VBE(sat) – IC
COMMON EMITTER
IC/IB=20
Ta=–55°C
25
100
BASE-EMITTER SATURATION VOLTAGE VBE(sat) (V)
COLLECTOR CURRENT IC (A)


I_C – V_{BE}
COMMON EMITTER
V_{CE} = −2V
Ta = 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


P_C – Ta
COLLECTOR POWER DISSIPATION P_C (mW)
AMBIENT TEMPERATURE Ta (°C)
1000
800
600
400
200
0
0
40
80
120
160
200
240


SAFE OPERATION AREA
I_C MAX. (PULSED) ※
I_C MAX. (CONTINUOUS)
10ms※
1ms※
100ms※
1s※
DC OPERATION
Ta = 25°C
※ SINGLE NONREPETITIVE PULSE Ta = 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
−0.3
−1
−3
−10
−30
−100