Silicon NPN transistor in a SOT-23 Plastic Package.

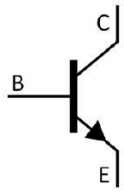
Features

High f_T, small Cob and small Crb.

Applications

High frequency amplifier, oscillation and mixing amplification.

Circuit Diagram



Package Outline

PIN1 Base PIN 2 Emitter PIN 3 Collector

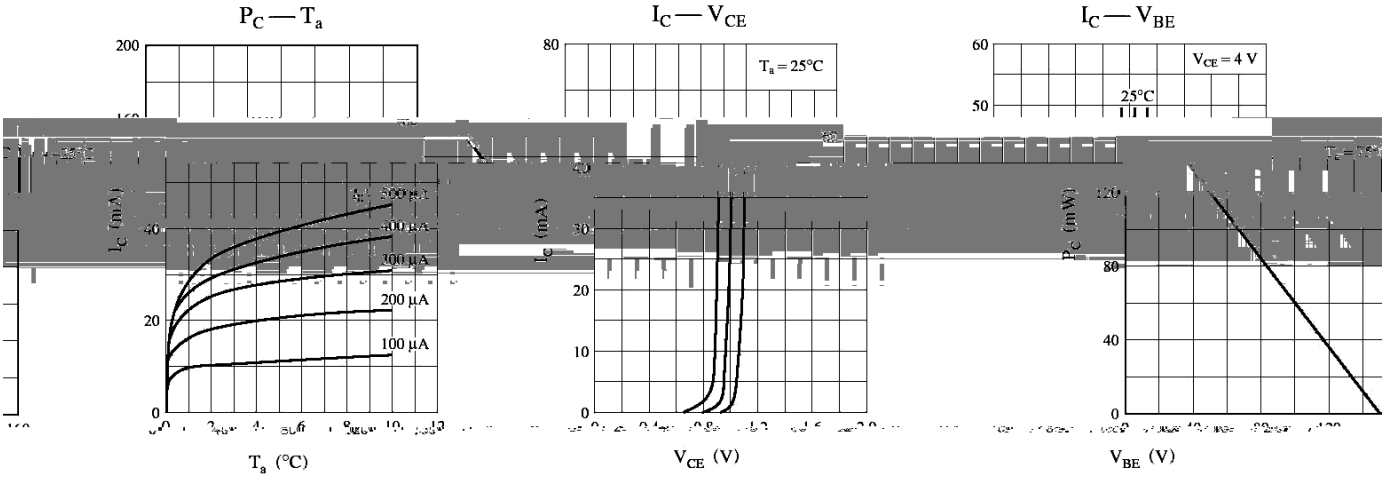
Classification of h_{FE}

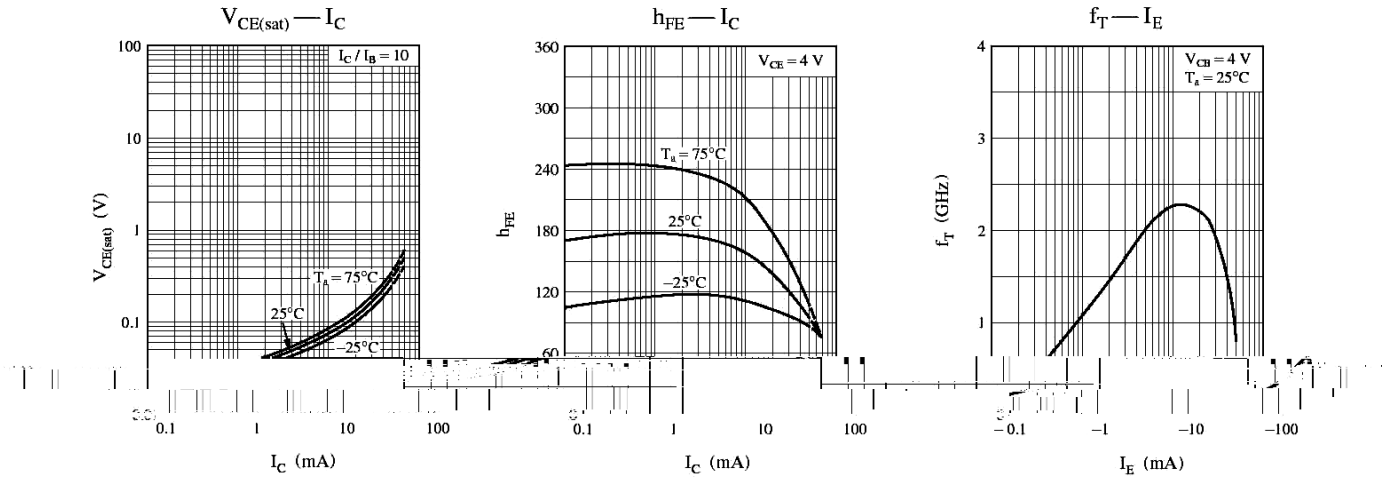
h_{FE} Classifications Symbol	P	Q
h_{FE} Range	75 130	110 220
Marking	H1SP	H1SQ

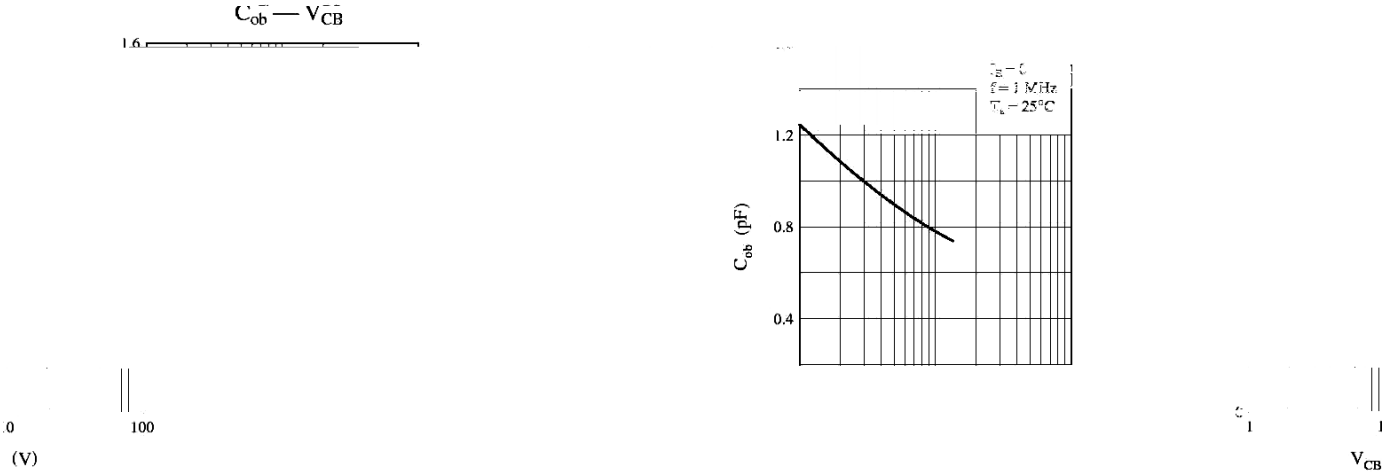
Parameter	Symbol	Rating	Unit
Collector to Base Voltage	V_{CBO}	15	V
Collector to Emitter Voltage	V_{CEO}	10	V
Emitter to Base Voltage	V_{EBO}	3.0	V
Collector Current	I_C	50	mA
Collector Power Dissipation	P_C	150	mW
Junction Temperature	T_j	150	℃
Storage Temperature Range	T_{stg}	-55 150	℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-emitter voltage	V_{CEO}	I_C=2.0mA I_B=0	10			V
Emitter-base voltage	V_{EBO}	I_C=10 A I_B=0	3.0			V
Collector Cut-Off Current	I_{CBO}	V_{CB}=10V I_E=0			1.0	A
DC Current Gain	h_{FE}	V_{CE}=4.0V I_c=5.0mA	75		220	
hFE ratio	* h_{FE}	h_{FE}:V_{CE}=4.0V I_c=100 A	0.75		1.60	
		h_{FE}:V_{CE}=4.0V I_c=5.0mA				
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=20mA I_B=4.0mA			0.5	V
Transition Frequency	f_T	V_{CE}=4.0V I_C=-5.0mA f=200MHz	1.4	1.9	2.5	GHz
Collector output capacitance	C_{ob}	V_{CB}=4.0V I_E=0, f=1.0MHz		1.4		pF
Reverse transfer capacitance (Common emitter)	C_{rb}	V_{CB}=4.0V I_E=0, f=1.0MHz		0.45		pF
Collector-base parameter	rbb'Cc	V_{CB}=4.0V I_C=5.0mA f=31.9MHz		11		ps

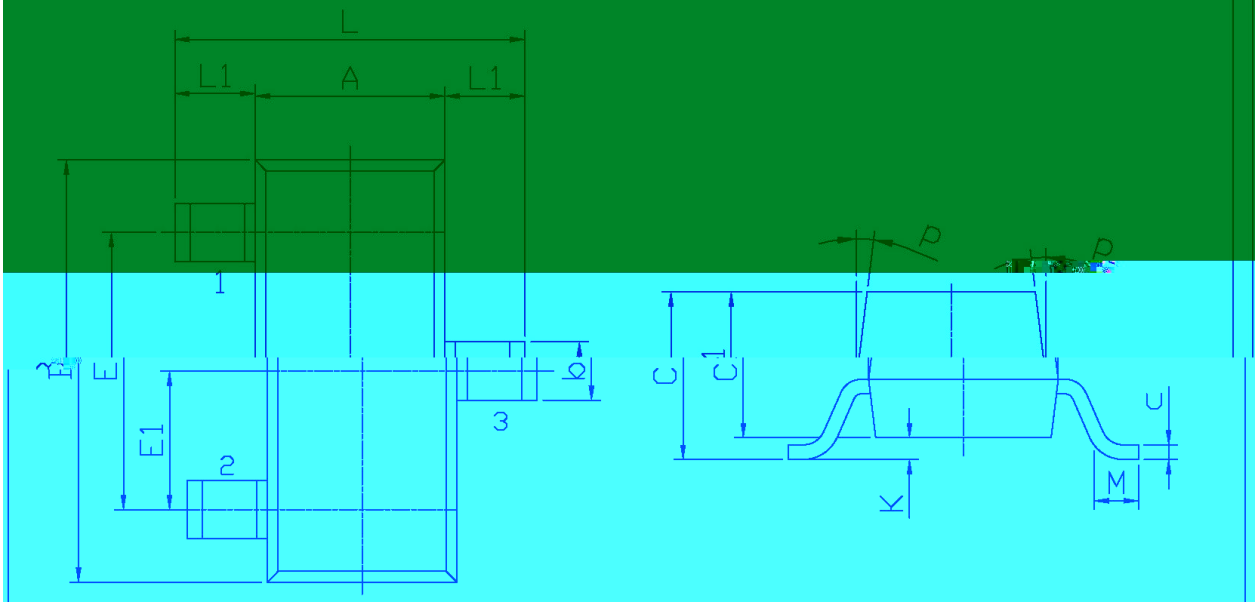
* h_{FE}= h_{FE2}/h_{FE1}


P_C — T_a
200
0
20
40
I_C (mA)
500 µA
400 µA
300 µA
200 µA
100 µA
T_a (°C)
I_C — V_{CE}
80
60
40
20
10
0
T_a = 25°C
I_B (mA)
V_{CE} (V)
I_C — V_{BE}
60
50
40
30
20
0
V_{CE} = 4 V
25°C
P_C (mW)
120
80
40
V_{BE} (V)

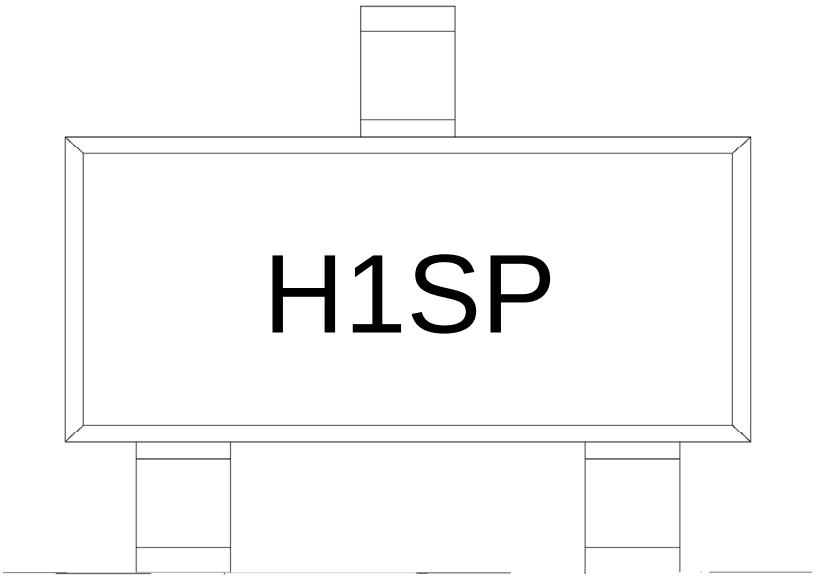

$V_{CE(sat)}$ — I_C
100
10
1
0.1
I_C / I_B = 10
T_a = 75°C
25°C
−25°C
$V_{CE(sat)}$ (V)
0.1
1
10
100
I_C (mA)
h_{FE} — I_C
360
300
240
180
120
60
V_{CE} = 4 V
T_a = 75°C
25°C
−25°C
h_{FE}
0.1
1
10
100
I_C (mA)
f_T — I_E
4
3
2
1
V_{CB} = 4 V
T_a = 25°C
f_T (GHz)
−0.1
−1
−10
−100
I_E (mA)


C_{ob} — V_{CB}
1.2
0.8
0.4
C_{ob} (pF)
f = 1 MHz
T_a = 25°C
100
(V)
1
V_{CB}

SOT-23 单位：mm



Symbol	Dimensions In Millmeters		Symbol	Dimensions In Millmeters	
	Min	Max		Min	Max
L	2.2	2.7	C	1.30Max	
L1	0.45	0.65	C1	0.90	1.20
A	1.15	1.50	c	0.05	0.20
B	2.70				



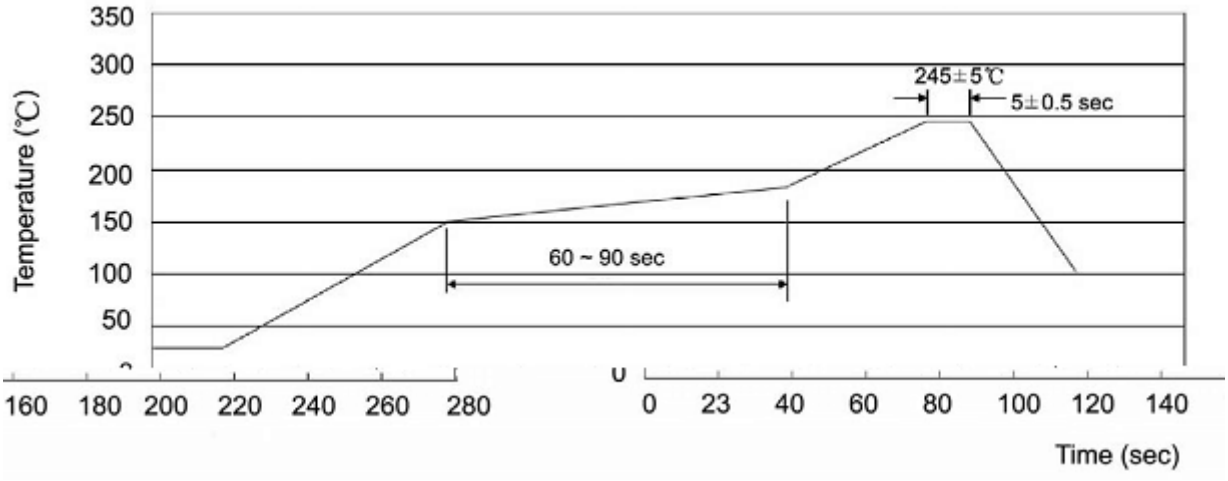
h_{FE}

Note:

Company Code

Product Type Code

h_{FE} Classifications Symbol Code



1 25 150 60 90sec;	1.Preheating:25~150 , Time:60~90sec.
2 245 5 5 0.5sec;	2.Peak Temp.:245 5 , Duration:5 0.5sec.
3 2 10 /sec.	3. Cooling Speed: 2~10 /sec.

Note:

260±5℃ 10±1 sec. Temp.:260±5℃ Time:10±1 sec

/ REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm^3)		
	只 卷盘	卷盘 盒	只 盒	盒 箱	只 箱		盒	箱