SOT-23 NPN Silicon NPN transistor in a SOT-23 Plastic Package.

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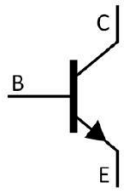
High $f_{T,}$ small NF.

High frequency amplifier applications.



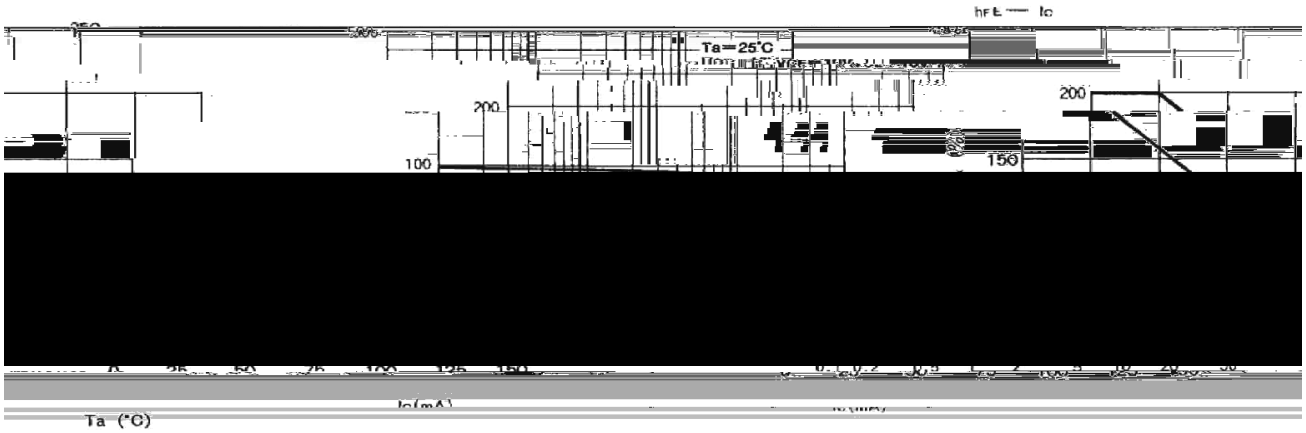


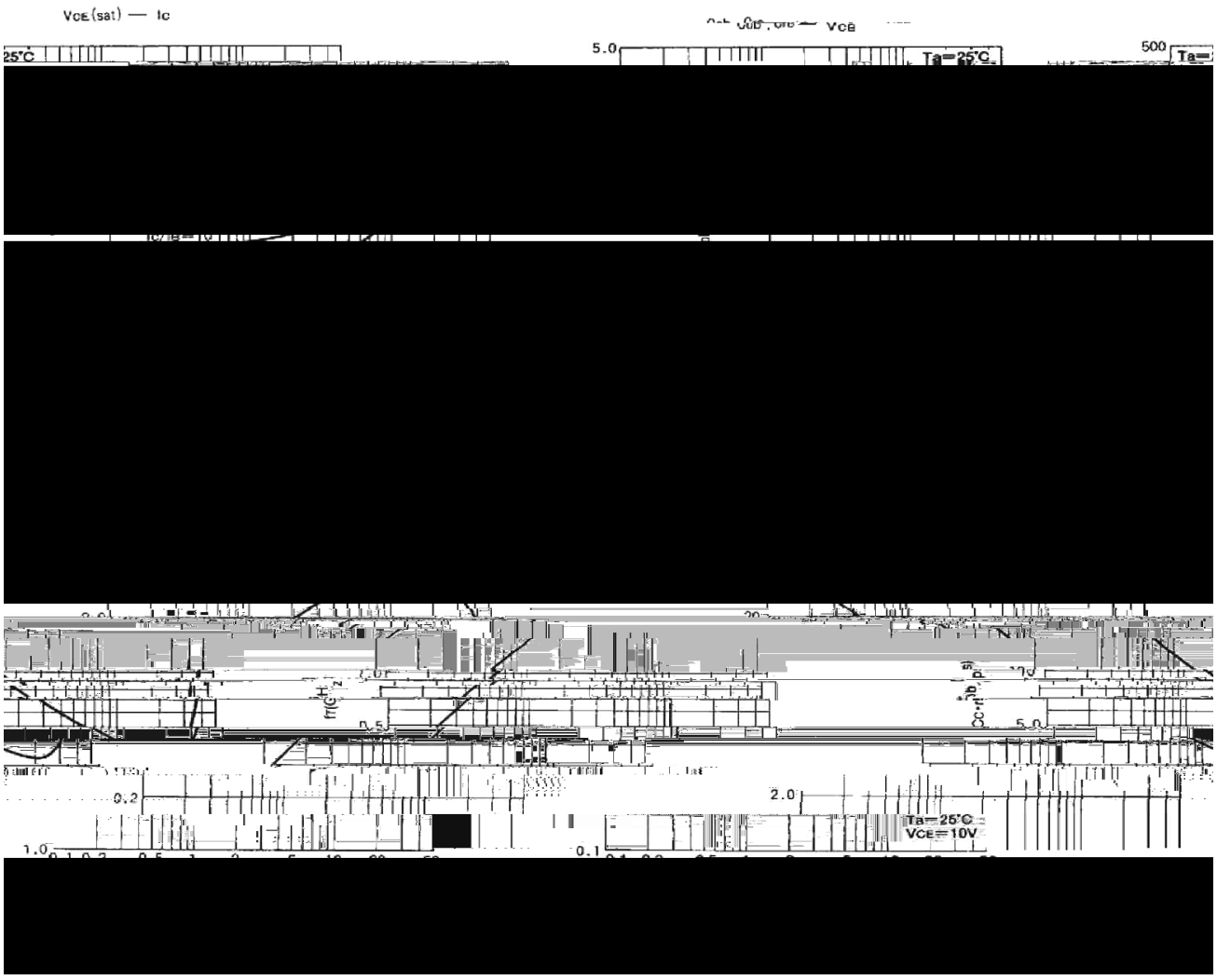
PIN1 Base PIN 2 Emitter PIN 3 Collector

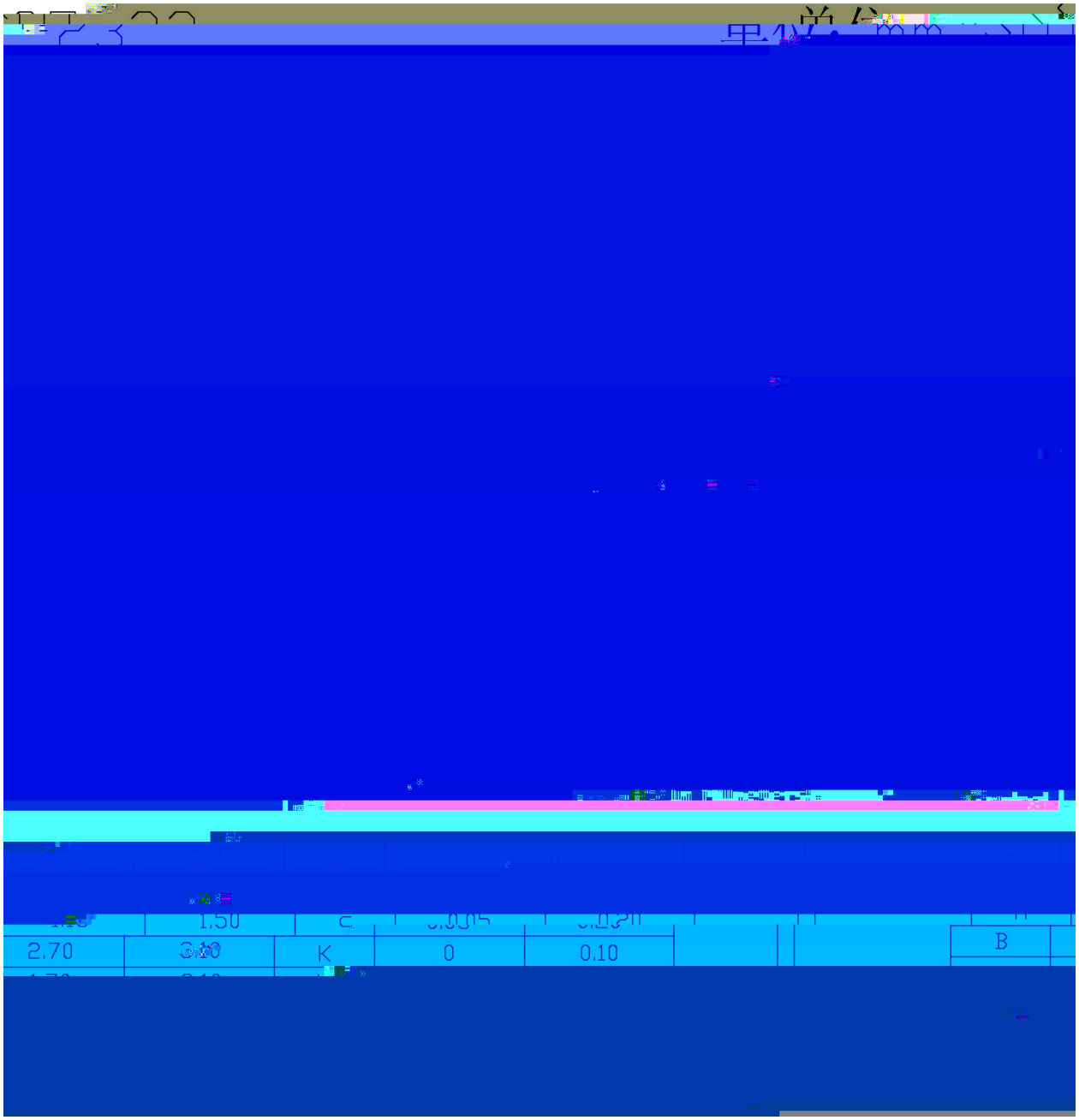
h_{FE} Classifications Symbol	N	P
h_{FE} Range	56 120	82 180
Marking	HADN	HADP

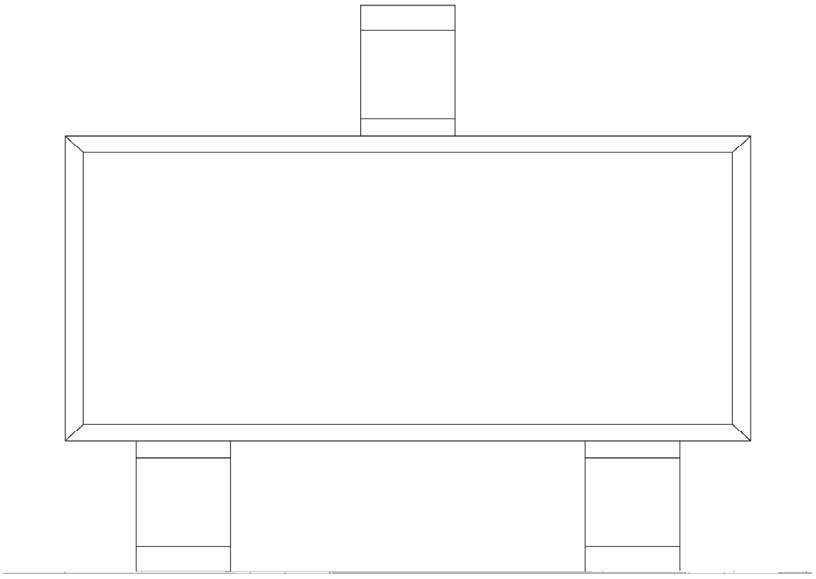
Parameter	Symbol	Rating	Unit
Collector to Base Voltage	V_{CBO}	20	V
Collector to Emitter Voltage	V_{CEO}	11	V
Emitter to Base Voltage	V_{EBO}	3.0	V
Collector Current	I_C	50	mA
Collector Power Dissipation	P_C	200	mW
Junction Temperature	T_j	150	
Storage Temperature Range	T_{stg}	-55 150	

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector to Base Breakdown Voltage	V_{CBO}	I_C=10μA	20			V
Collector to Emitter Breakdown Voltage	V_{CEO}	I_C=1.0mA	11			V
Emitter to Base Breakdown Voltage	V_{EBO}	I_E=10μA	3.0			V
Collector Cut-Off Current	I_{CBO}	V_{CB}=10V			0.5	μA
Emitter Base Cut-Off Current	I_{EBO}	V_{EB}=2.0V			0.5	μA
DC Current Gain	h_{FE}	V_{CE}=10V I_C=5.0mA	56		180	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=10mA I_B=5.0mA			0.5	V
Transition Frequency	f_T	V_{CE}=10V I_C=10mA f=500MHz	1.4	3.2		GHz
Collector output capacitance	C_{ob}	V_{CB}=10V I_E=0 f=1.0MHz		0.8	1.5	pF
Collector to Base Time Constant	$C_{C.rbb'}$	V_{CB}=10V I_C=10mA f=31.8MHz		4.0	12	pS
Noise Figure	NF	V_{CB}=6.0V I_C=2.0mA f=500MHz Rg=50Ω		3.5		dB

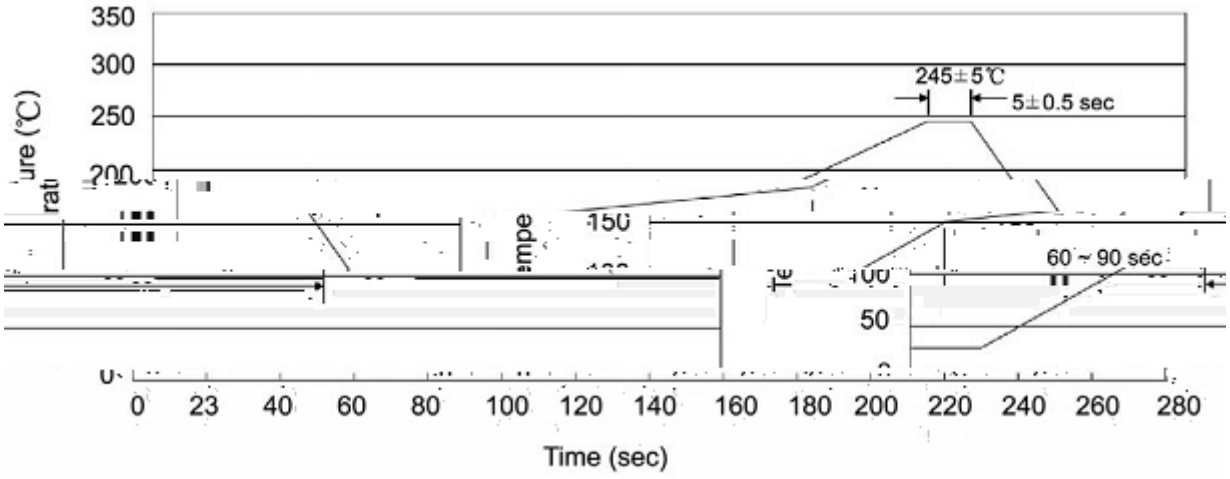

Ta=25°C
100
200
150
Ta (°C)


VCE(sat) — IC
25°C
5.0
Ta=25°C
500
0.2
2.0
Ta=25°C
VCE=10V
1.0
0.1


1.50
2.70
K
0
0.10
B



Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

1 25 150 60 90sec;

2 245±5 5±0.5sec;

3 2 10 /sec.

1.Preheating:25~150 , Time:60~90sec.

2.Peak Temp.:245±5 , Duration:5±0.5sec.

3. Cooling Speed: 2~10 /sec.

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)		
	Units/Reel 只/卷盘	Reels/Inner Box 卷盘/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Reel	Inner Box 盒	Outer Box 箱
SOT-23	3,000	10	30,000	6	180,000	7 ×8	180×120×180	390×385×205