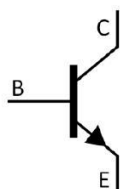


SOT-23 NPN Silicon NPN transistor in a SOT-23 Plastic Package.

High f_T , small NF.

High frequency amplifier applications.



PIN1 Base PIN 2 Emitter PIN 3 Collector

/ h_{FE} Classifications & Marking

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

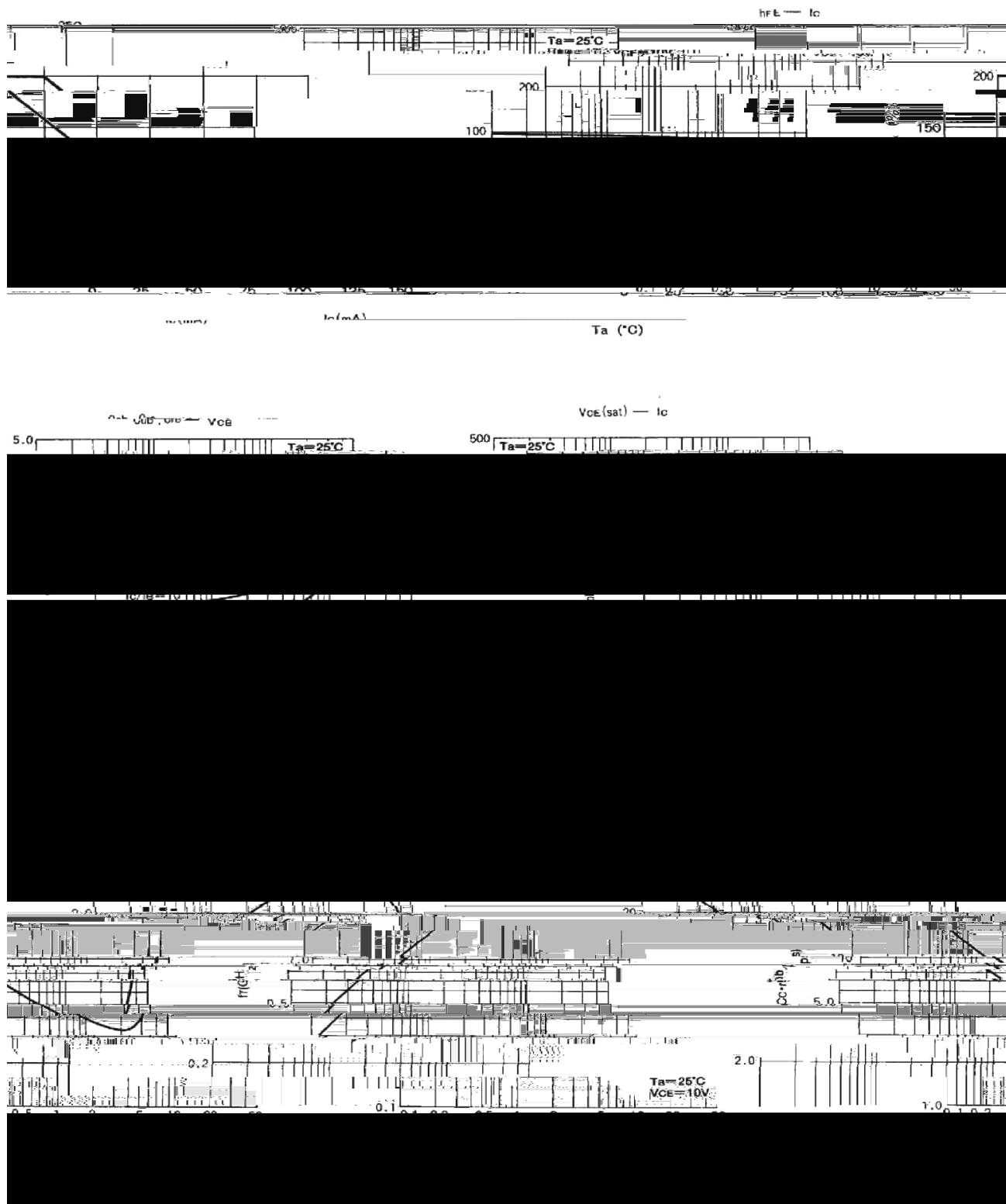
/ Absolute Maximum Ratings(Ta=25)

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	

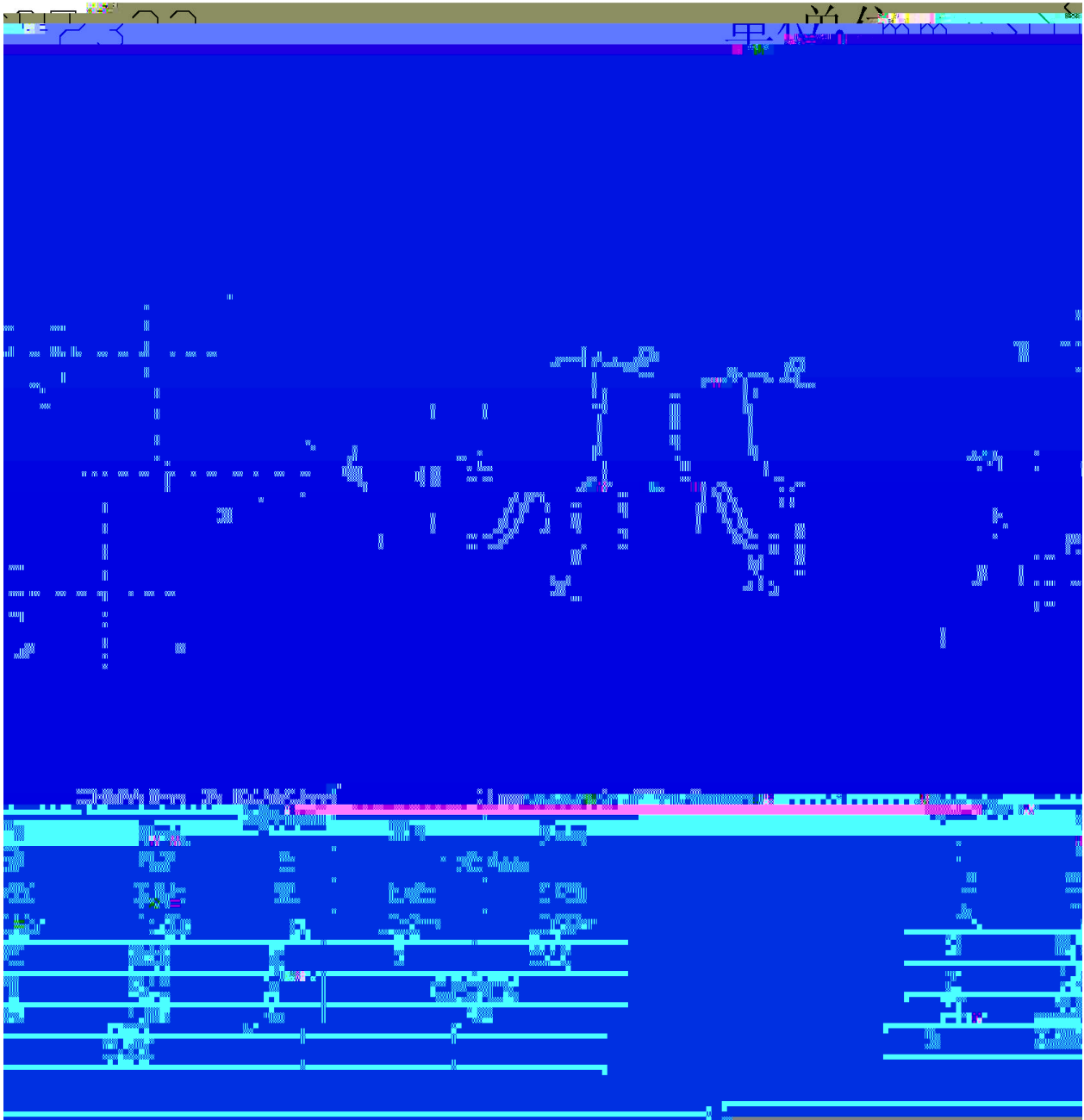
/ Electrical Characteristics(Ta=25)

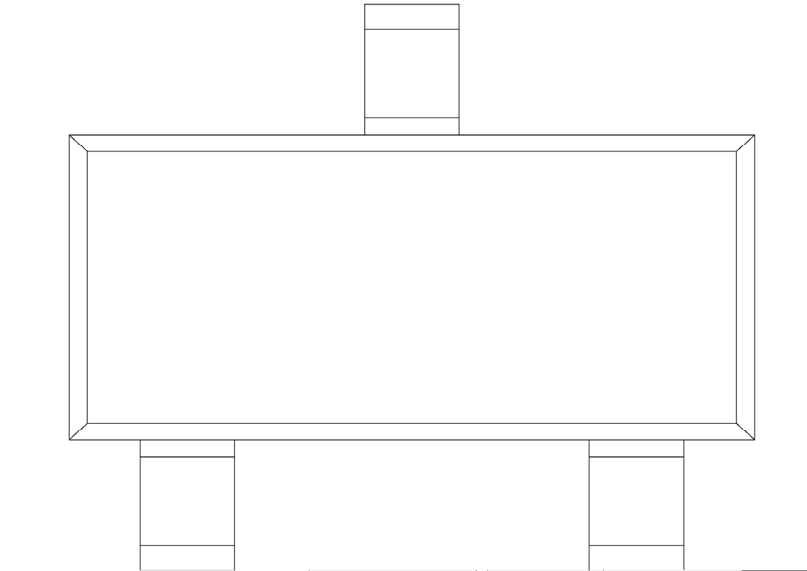
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector to Base Breakdown Voltage	V_{CBO}	$I_C=10\mu A$	20			V
Collector to Emitter Breakdown Voltage	V_{CEO}	$I_C=1.0mA$	11			V
Emitter to Base Breakdown Voltage	V_{EBO}	$I_E=10\mu A$	3.0			V
Collector Cut-Off Current	I_{CBO}	$V_{CB}=10V$			0.5	μA
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	$C_{C,rb\bar{b}}$	$V_{CB}=10V$ $I_C=10mA$ $f=31.8MHz$		4.0	12	pS
Noise Figure	NF	$V_{CB}=6.0V$ $I_C=2.0mA$ $f=500MHz$ $R_g=50\Omega$		3.5		dB

/ Electrical Characteristic Curve

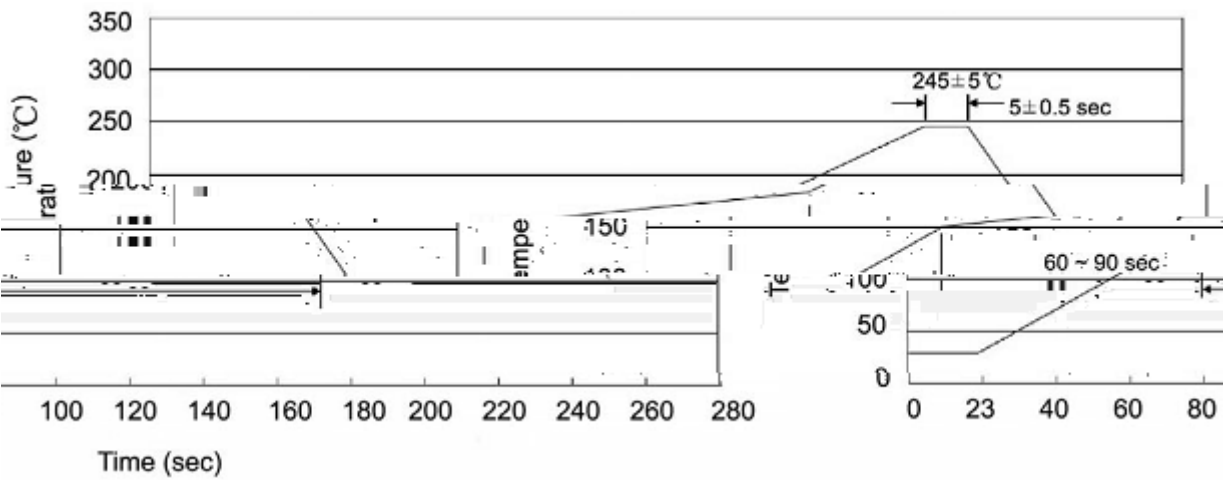


/ Package Dimensions





() / Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

- | | | | | | |
|---|-------|-----|----|-----------|---|
| 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. |

/ Resistance to Soldering Heat Test Conditions

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

/ Packaging SPEC.

/ 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

/ Notices