2SA733

Low Frequency Amplifier
PNP Epitaxial Silicon Transistor

1. Synopsis

1-1. Feature List

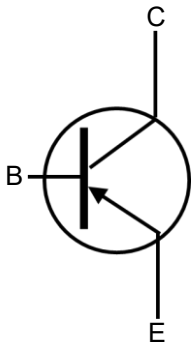
- BV_{CEO}: -50V (Min.)
- Low Saturation Voltage $V_{CE(sat)}$ < -0.3V @ -0.1A
- I_C = -100mA Continuous Collector Current
- Complementary to 2SC945

1-2. Mechanical Characteristics

- Molded JEDEC Package: TO-92
- Packing: Tape Box
- Flammability rating UL 94V-0
- Halogen Free
- JEDEC MSL Classification: LEVEL 1



TO-92



Device Symbol

1-3. Device Characteristics

Maximum Ratings@25°C Unless Otherwise Specified

Parameter	Symbol	Values	Units
Collector-Base Voltage	V_{CBO}	-60	V
Collector-Emitter Voltage	V_{CEO}	-50	
Emitter-Base Voltage	V_{EBO}	-5.0	
Continuous Collector Current	I_C	-100	mA
Collector Power Dissipation	P_C	250	mW
Junction Temperature	T_J	-55 ~ +150	°C
Storage Temperature	T_{STG}		

1-4. Classification of h_{FE}

Rank	R	O	Y	P	L
Range	40-80	70-140	120-240	200-400	350-700

Download from alldatasheet.com

2. Contents

1. Synopsis 1

1-1. Feature List 1
1-2. Mechanical Characteristics 1
1-3. Device Characteristics 1
1-4. Classification of h_{FE} 1

2. Contents 2

3. Electrical Property 3

3-1. Electrical Characteristics (@TA = 25°C, Unless Otherwise Specified) 3
3-2. Ratings and Characteristics Curve-Fig 1~2 (@TA = 25°C, Unless Otherwise Specified) 3
3-2. Ratings and Characteristics Curve-Fig 3~6 (@TA = 25°C, Unless Otherwise Specified) 4

4. Soldering Parameters 5

5. Package Information 6

6. Ordering Information 7

7. Version 7

7-1. History 7
7-2. Company Profile 7

Download from alldatasheet.com

3. Electrical Property

3-1. Electrical Characteristics (@TA = 25°C, Unless Otherwise Specified)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Units
Collector-Base Breakdown Voltage	V_{BR-CBO}	I_C = -50uA, I_E = 0	-60	-	-	V
Collector-Emitter Breakdown Voltage	V_{BR-CEO}	I_C = -1mA, I_B = 0	-50	-	-	
Emitter-Base Breakdown Voltage	V_{BR-EBO}	I_E = -50uA, I_C = 0	-5.0	-	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = -100mA, I_B = -10mA	-	-0.18	-0.3	
Collector Cut-off Current	I_{CBO}	V_{CB} = -60V, I_E = 0	-	-	-100	nA
Emitter Cut-off Current	I_{EBO}	V_{EB} = -5V, I_C = 0	-	-	-100	
Static Forward Current Transfer Ratio	h_{FE}	I_C = -1mA, V_{CE} = -6V	90	200	600	-
Transition Frequency	f_T	I_C = -10mA, V_{CE} = -6V	100	190	-	MH_Z
Output Capacitance	C_{OBO}	V_{CB} = -10V, f = $1MH_Z$	-	-	6.0	pF
Noise Figure	N_F	I_C = -0.3mA, V_{CE} = -6V, R_G = 10kΩ, f = $100MH_Z$	-	-	20	dB

3-2. Ratings and Characteristics Curve-Fig 1~2 (@TA = 25°C, Unless Otherwise Specified)

Fig 1. DC Current Gain

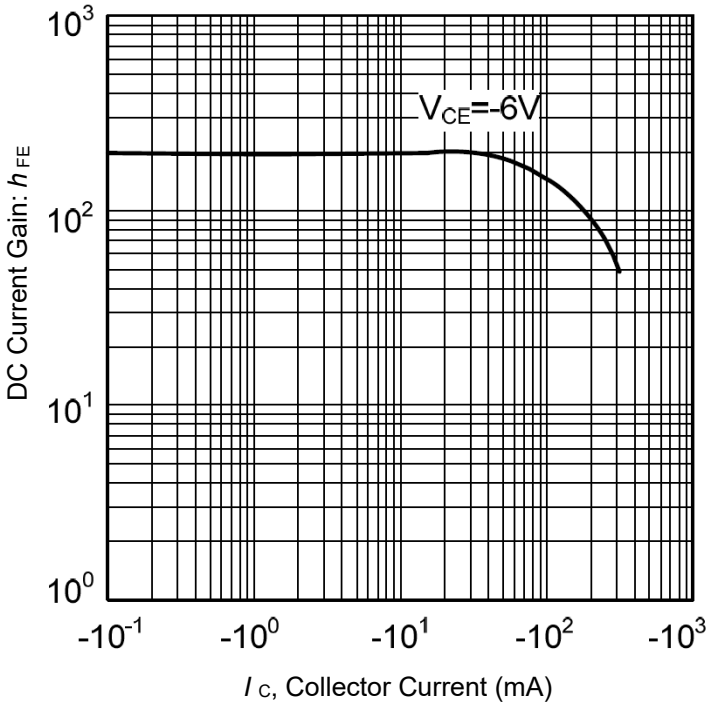
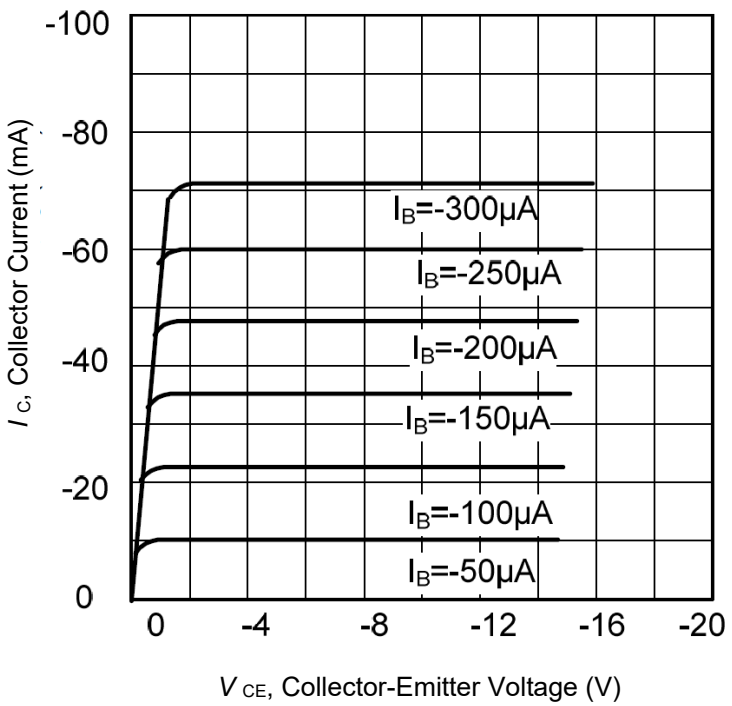


Fig 2. Static Characteristics



Download from alldatasheet.com

3-2. Ratings and Characteristics Curve-Fig 3~6 (@TA = 25°C, Unless Otherwise Specified)

Fig 3. Collector Output Capacitance

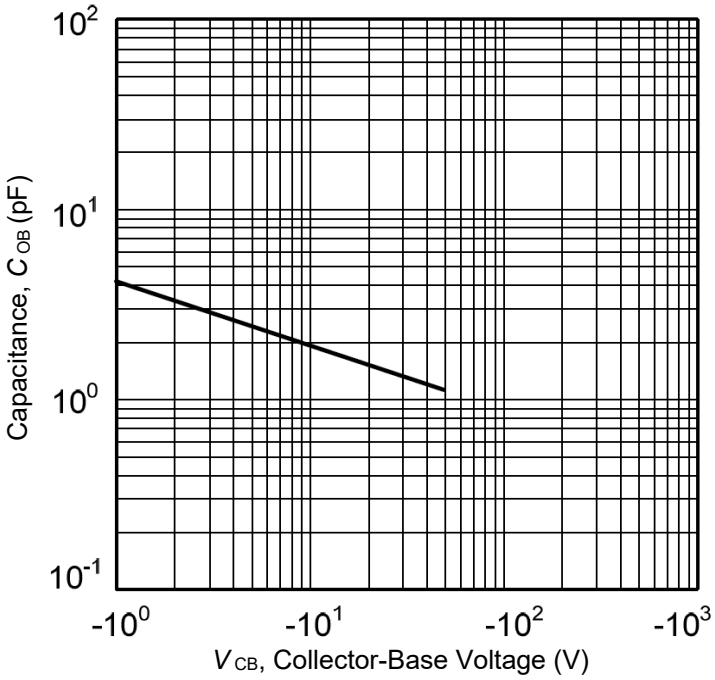


Fig 4. Base-Emitter On Voltage

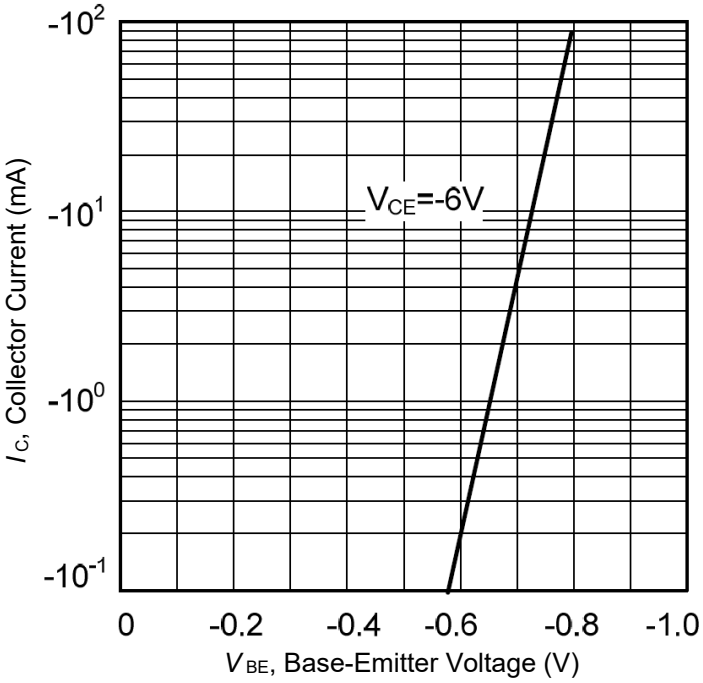


Fig 5. Saturation Voltage

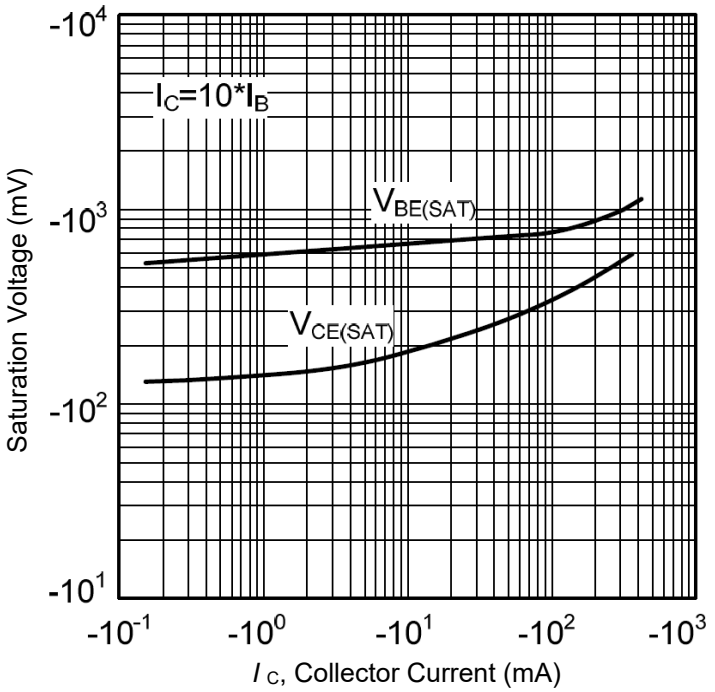
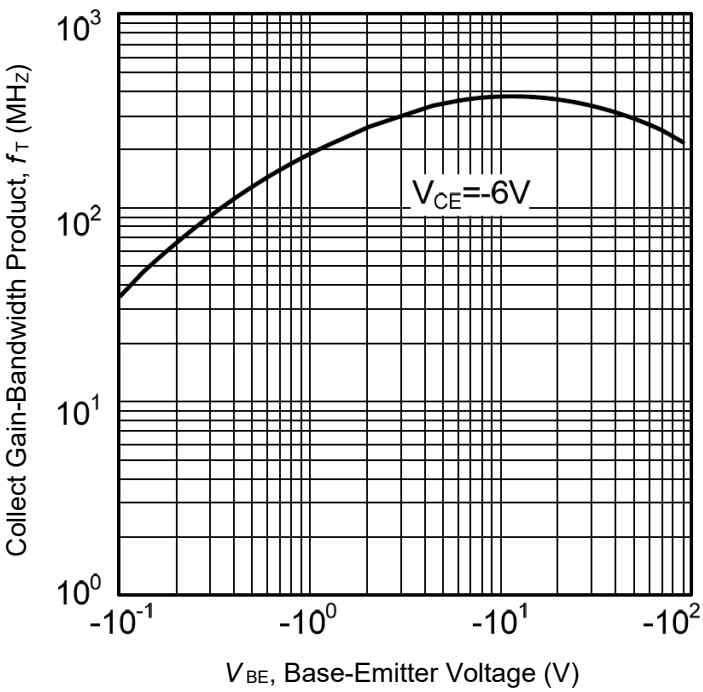


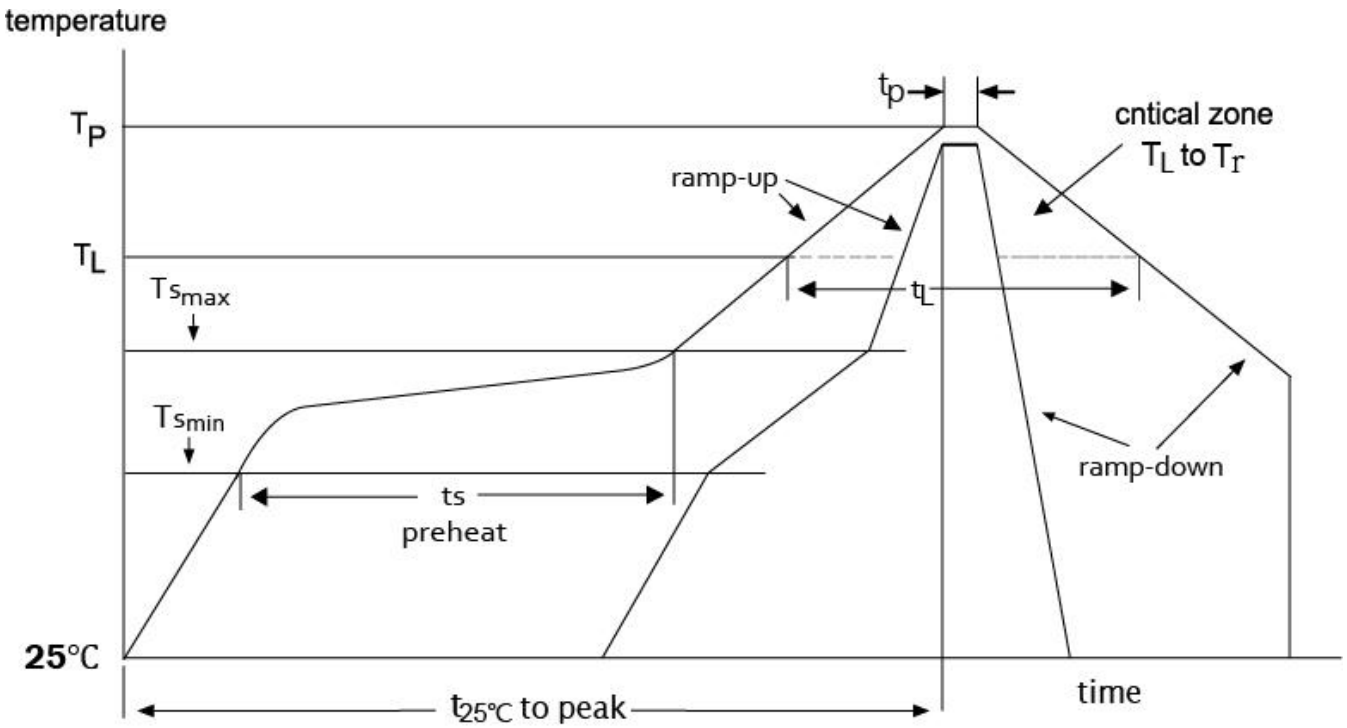
Fig 6. Collect Current vs. V_{BE}



Download from alldatasheet.com

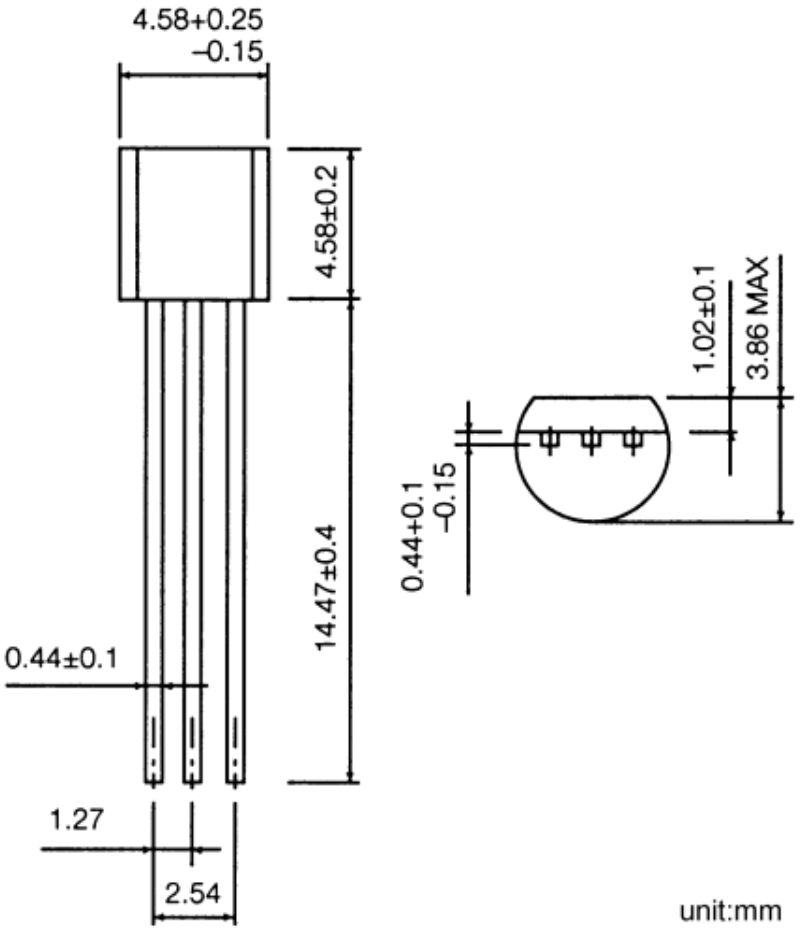
4. Soldering Parameters

Profile Feature	SnPb eutectic assembly	Pb-free assembly
Average ramp-up rate (Tsmax to Tp)	3 °C/s maximum	3 °C/s maximum
Preheat		
Temperature minimum (Tsmin)	100 °C	150 °C
Temperature maximum (Tsmax)	150 °C	200 °C
Time (tsmin to tsmax)	60 s to 120 s	60 s to 180 s
Time maintained above		
Temperature (TL)	183 °C	217 °C
Time (tL)	60 s to 150 s	60 s to 150 s
Peak/classificationtemperature(T)	235 °C	260 °C
Number of allowed reflow cycles	3	3
Time within 5 °C of actual peak temperature (tp)	10 s to 30 s	20 s to 40 s
Ramp-down rate	6 °C/s maximum	6 °C/s maximum
Time 25 °C to peak temperature	6 minutes maximum	8 minutes maximum



Download from alldatasheet.com

5. Package Information



Download from alldatasheet.com

6. Ordering Information

Part Number	Marking Code	Quantity	Component Package	Packaging Option
2SA733T-R	ST2SA733RB	2,000PCS	TO-92	Tape Box
2SA733T-O	ST2SA733OB			
2SA733T-Y	ST2SA733YB			
2SA733T-P	ST2SA733PB			
2SA733T-L	ST2SA733LB			

Note: 2SA733T-X, X = h_{FE} Rank

7. Version

7-1. History

Version	Date	File No.	Recording	Basis
A	01-Jul-2019	F51936S	New Create	Market
2.0	27-Nov-2021		Update Version	System

FUTURE WAFER

Futurewafer Tech Co., Ltd. 台灣未來芯科技股份有限公司
TEL: +886-3-3350161 / FAX: +886-3-3350172
cherry@futurewafer.com.tw
No. 286-11F, Sec. 3, Sanmin Rd., Taoyuan Dist., Taoyuan City 330, Taiwan

Download from alldatasheet.com