

Transistors

# Low frequency amplifier

## 2SB1707

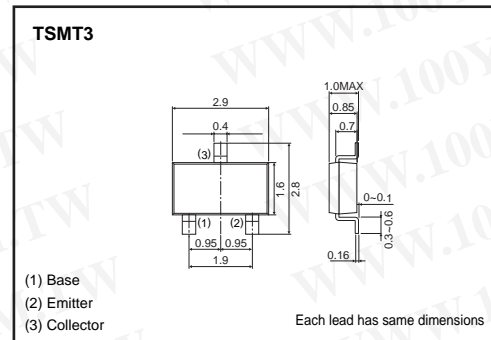
●Application

Low frequency amplifier  
 Driver

●Features

- 1) A collector current is large. (4A)
- 2)  $V_{CE(sat)} \leq -250\text{mV}$   
 At  $I_C = -2\text{A} / I_B = -40\text{mA}$

●External dimensions (Unit : mm)



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CB0}$	-15	V
Collector-emitter voltage	$V_{CE0}$	-12	V
Emitter-base voltage	$V_{EB0}$	-6	V
Collector current	$I_C$	-4	A
	$I_{CP}$	-8	A*
Power dissipation	$P_C$	500	mW
Junction temperature	$T_j$	150	°C
Range of storage temperature	$T_{stg}$	-55 to +150	°C

\*Single pulse,  $P_W=1\text{ms}$

●Packaging specifications

Type	Package	Taping
	Code	TL
	Basic ordering unit (pieces)	3000
2SB1707		○

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CB0}$	-15	-	-	V	$I_C = -10\mu\text{A}$
Collector-emitter breakdown voltage	$BV_{CE0}$	-12	-	-	V	$I_C = -1\text{mA}$
Emitter-base breakdown voltage	$BV_{EB0}$	-6	-	-	V	$I_E = -10\mu\text{A}$
Collector cutoff current	$I_{CBO}$	-	-	-100	nA	$V_{CB} = -15\text{V}$
Emitter cutoff current	$I_{EBO}$	-	-	-100	nA	$V_{EB} = -6\text{V}$
Collector-emitter saturation voltage	$V_{CE(sat)}$	-	-150	-250	mV	$I_C = -2\text{A}, I_B = -40\text{mA}$
DC current gain	$h_{FE}$	270	-	680	-	$V_{CE} = -2\text{V}, I_C = -200\text{mA}^*$
Transition frequency	$f_T$	-	250	-	MHz	$V_{CE} = -2\text{V}, I_E = 200\text{mA}, f = 100\text{MHz}^*$
Collector output capacitance	$C_{ob}$	-	60	-	pF	$V_{CB} = -10\text{V}, I_E = 0\text{A}, f = 1\text{MHz}$

\* Pulsed

Transistors

●Electrical characteristic curves

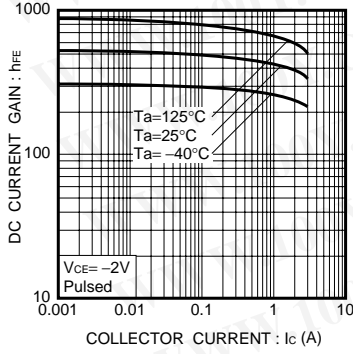


Fig.1 DC Current Gain vs. Collector Current

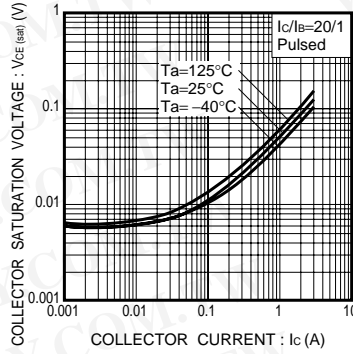


Fig.2 Collector-Emitter Saturation Voltage vs. Collector Current

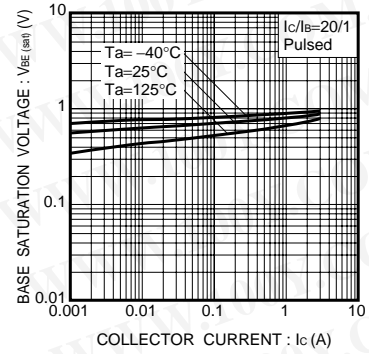


Fig.3 Base-emitter saturation voltage vs. Collector Current

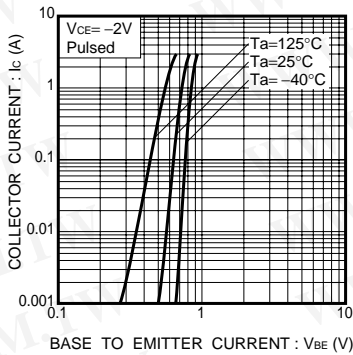


Fig.4 Grounded Emitter Propagation Characteristics

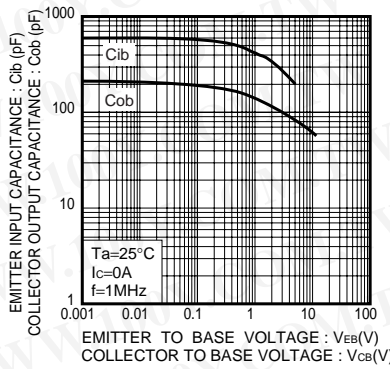


Fig.5 Collector Output Capacitance vs. Collector-Base Voltage  
Emitter Input Capacitance vs. Emitter-Base Voltage

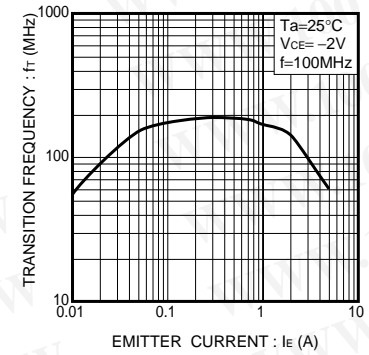


Fig.6 Gain Bandwidth Product vs. Emitter Current

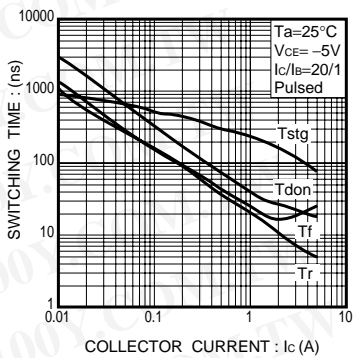


Fig.7 Switching Time

## Appendix

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