

Low frequency amplifier

2SB1708

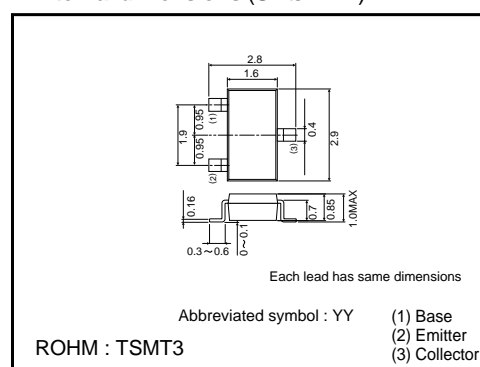
●Application

Low frequency amplifier
Driver

●Features

- 1) A collector current is large. (3A)
- 2) $V_{CE(sat)} \leq -250\text{mV}$
At $I_C = -1.5\text{A} / I_B = -30\text{mA}$

●External dimensions (Units : mm)



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	-30	V
Collector-emitter voltage	V_{CEO}	-30	V
Emitter-base voltage	V_{EBO}	-6	V
Collector current	I_C	-3	A
	I_{CP}	-6	A *
Power dissipation	P_C	500	mW
Junction temperature	T_j	150	°C
Range of storage temperature	T_{stg}	-55~+150	°C

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

●Packaging specifications

Type	Package	Taping
	Code	T146
	Basic ordering unit (pieces)	3000
2SB1708		○

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	-30	-	-	V	$I_C = -10\mu\text{A}$
Collector-emitter breakdown voltage	BV_{CEO}	-30	-	-	V	$I_C = -1\text{mA}$
Emitter-base breakdown voltage	BV_{EBO}	-6	-	-	V	$I_E = -10\mu\text{A}$
Collector cutoff current	I_{CBO}	-	-	-100	nA	$V_{CB} = -30\text{V}$
Emitter cutoff current	I_{EBO}	-	-	-100	nA	$V_{EB} = -6\text{V}$
Collector-emitter saturation voltage	$V_{CE(sat)}$	-	-180	-250	mV	$I_C = -1.5\text{A}, I_B = -30\text{mA}$
DC current gain	h_{FE}	270	-	680	-	$V_{CE} = -2\text{V}, I_C = -200\text{mA}^*$
Transition frequency	f_T	-	200	-	MHz	$V_{CE} = -2\text{V}, I_E = 200\text{mA}, f = 100\text{MHz}^*$
Collector output capacitance	C_{ob}	-	40	-	pF	$V_{CB} = -10\text{V}, I_E = 0\text{A}, f = 1\text{MHz}$

* Pulsed

Transistors

●Electrical characteristic curves

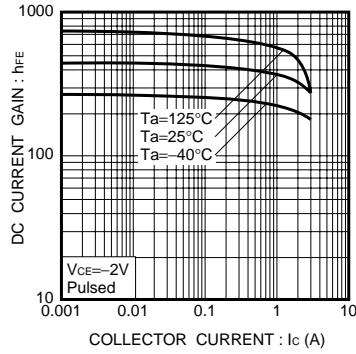


Fig.1 DC Current Gain vs. Collector Current

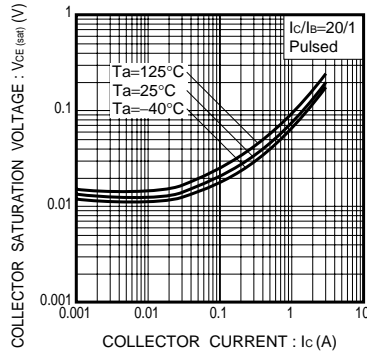


Fig.2 Collector-Emitter Saturation Voltage vs. Collector Current

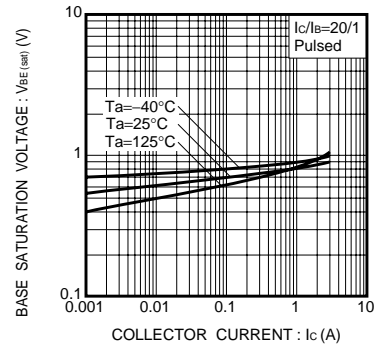


Fig.3 Base-emitter saturation voltage vs. Collector Current

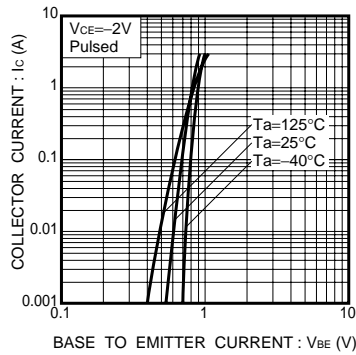


Fig.4 Grounded Emitter Propagation Characteristics

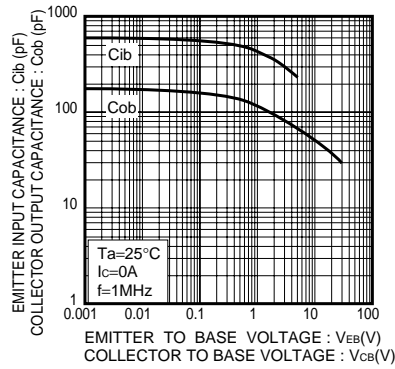


Fig.5 Collector Output Capacitance vs. Collector-Base Voltage
Emitter Input Capacitance vs. Emitter-Base Voltage

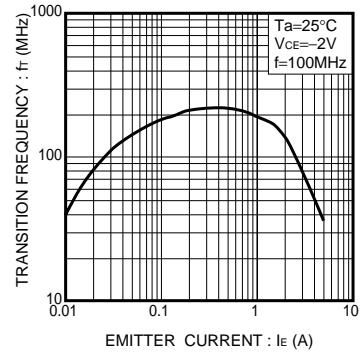


Fig.6 Gain Bandwidth Product vs. Emitter Current

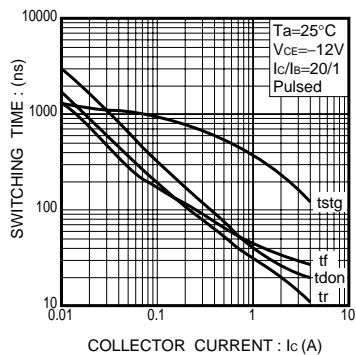


Fig.7 Switching Time