

Low frequency amplifier

2SB1698

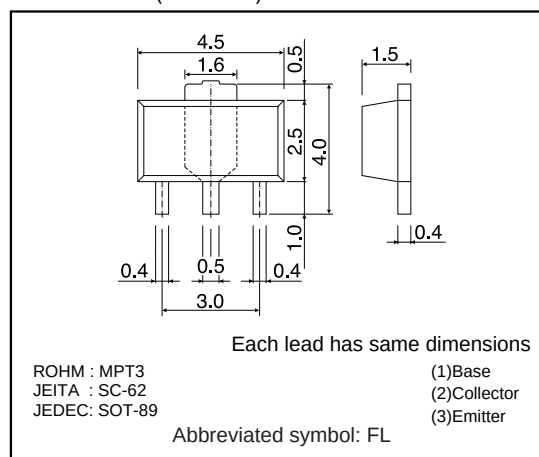
●Application

Low frequency amplifier
Driver

●Features

- 1) A collector current is large.
- 2) $V_{CE(sat)} \leq -370\text{mV}$
at $I_C = -1\text{A}$ / $I_B = -50\text{mA}$

●Dimensions (Unit : 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	-1.5	A
	I_{CP}	-3	A ^{*1}
Power dissipation	P_C	500	mW
		2	W ^{*2}
Junction temperature	t_j	150	°C
Range of storage temperature	t_{stg}	-55 to +150	°C

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

*2 Mounted on a 40×40×0.7(mm) CERAMIC SUBSTRATE

●Packaging specifications

Type	Package	Taping
	Code	T100
	Basic ordering unit (pieces)	1000
2SB1698		○

●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	$V_{CE(sat)}$	-	-200	-370	mV	$I_C = -1\text{A}$, $I_B = -50\text{mA}$
DC current gain	h_{FE}	270	-	680	-	$V_{CE} = -2\text{V}$, $I_C = -100\text{mA}$ *
Transition frequency	f_T	-	280	-	MHz	$V_{CE} = -2\text{V}$, $I_E = 100\text{mA}$, $f = 100\text{MHz}$ *
Collector output capacitance	C_{ob}	-	13	-	pF	$V_{CB} = -10\text{V}$, $I_E = 0\text{A}$, $f = 1\text{MHz}$

* Pulsed

Transistors

●Electrical characteristic curves

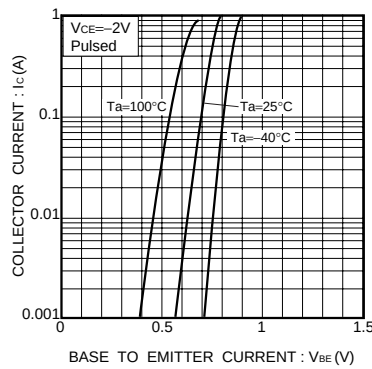


Fig.1 Grounded emitter propagation characteristics

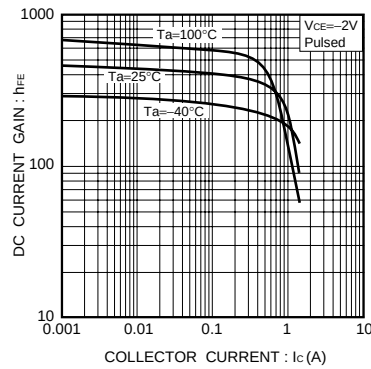


Fig.2 DC current gain vs. collector current

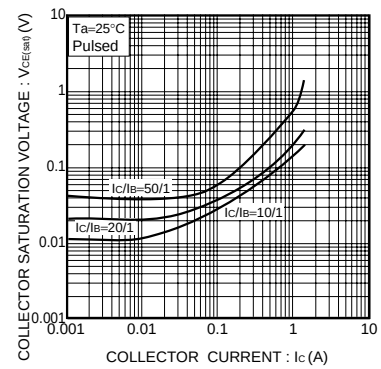


Fig.3 Collector-emitter saturation voltage vs. collector current

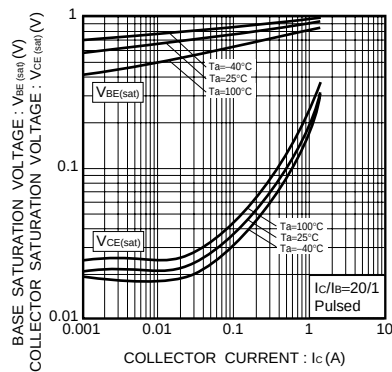


Fig.4 Collector-emitter saturation voltage base-emitter saturation voltage vs. collector current

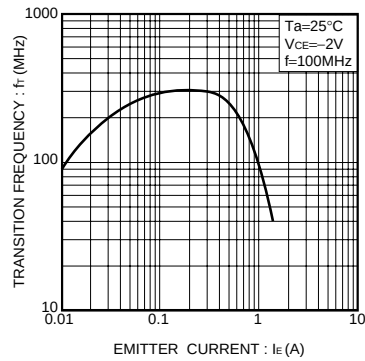


Fig.5 Gain bandwidth product vs. emitter current

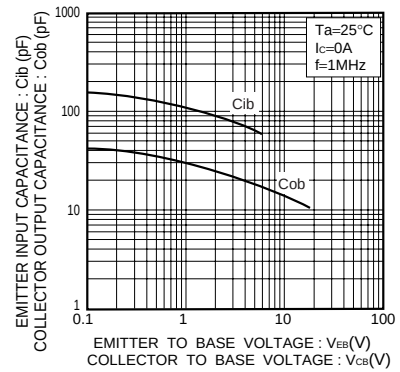
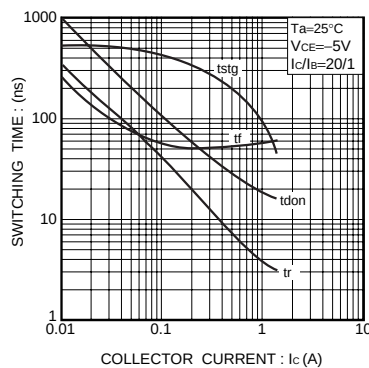
Fig.6 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

Fig.7 Switching time

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