

Transistors

Low frequency amplifier

2SB1731

●Application

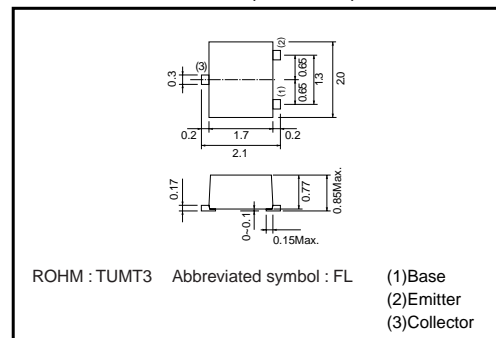
Low frequency amplifier

Driver

●Features

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

●External dimensions (Unit : mm)



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CB0}	-30	V
Collector-emitter voltage	V_{CE0}	-30	V
Emitter-base voltage	V_{EB0}	-6	V
Collector current	I_C	-1.5	A
	I_{CP}	-3	A *
Power dissipation	P_C	400	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
2SB1731		○

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CB0}	-30	-	-	V	$I_C = -10\mu\text{A}$
Collector-emitter breakdown voltage	BV_{CE0}	-30	-	-	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	$V_{CB} = -30\text{V}$
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	$V_{CE} = -2\text{V}$, $I_E = 100\text{mA}$, $f = 100\text{MHz}$ *
Corrector 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

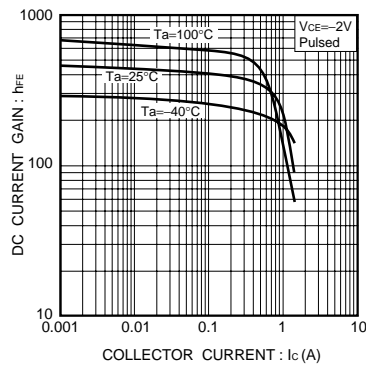


Fig.1 DC current gain
vs. collector current

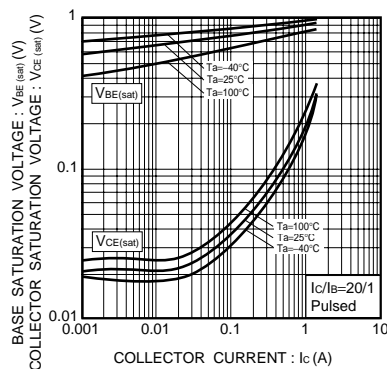


Fig.2 Collector-emitter saturation voltage
base-emitter saturation voltage
vs. collector current

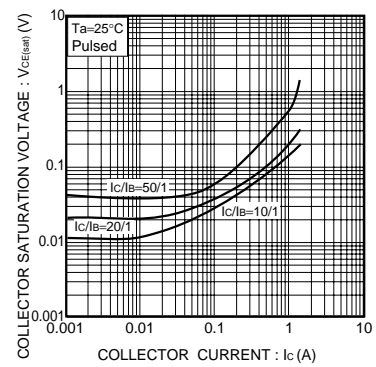


Fig.3 Collector-emitter saturation voltage
vs. collector current

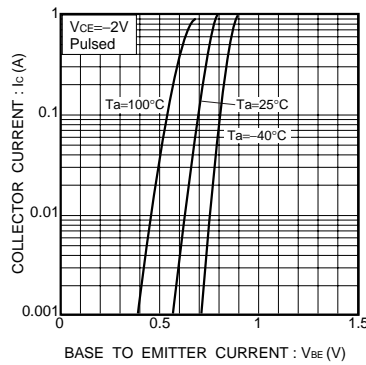


Fig.4 Grounded emitter propagation
characteristics

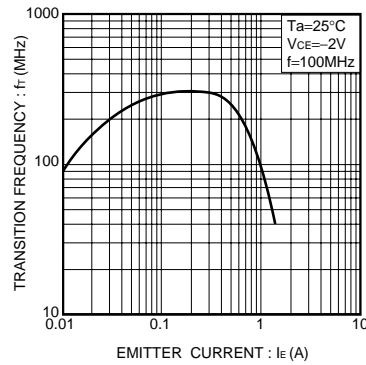


Fig.5 Gain bandwidth product
vs. emitter current

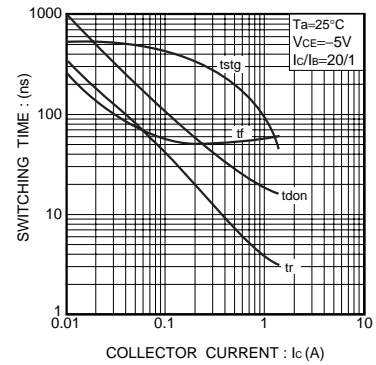


Fig.6 Switching time

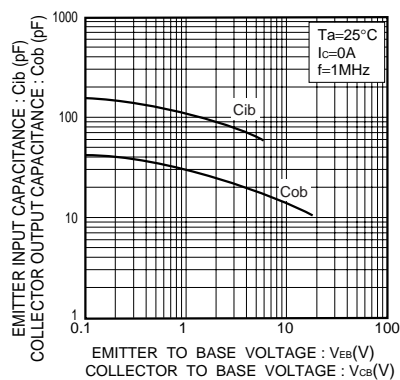


Fig.7 Collector output capacitance
vs. collector-base voltage
Emitter input capacitance
vs. emitter-base voltage

Appendix

Notes

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