

General purpose amplification(−12V, −2A)

2SB1690

●Applications

Low frequency amplifier
Driver

●Features

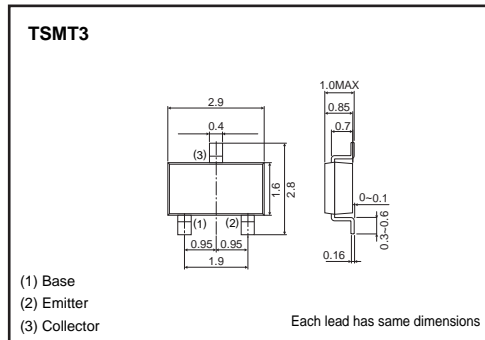
- 1) A collector current is large.
- 2) Collector saturation voltage is low.

$V_{CE(sat)}$: max. −180mV
at $I_C = -1A / I_B = -50mA$

●Packaging specifications

Type	Package	Taping
	Code	TL
	Basic ordering unit (pieces)	3000
2SB1690		○

●External dimensions (Unit : mm)



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	−15	V
Collector-emitter voltage	V_{CEO}	−12	V
Emitter-base voltage	V_{EBO}	−6	V
Collector current	I_C	−2	A
	I_{CP}	−4	A *1
Collector power dissipation	P_C	0.5	W *2
		1	W *3
Junction temperature	T_J	150	°C
Storage temperature	T_{stg}	−55 to +150	°C

*1 Single pulse $P_w=1ms$

*2 Each terminal mounted on a recommended land

*3 Mounted on a 25mm×25mm×1.0.8mm ceramic substrate

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	−15	−	−	V	$I_C = -10\mu A$
Collector-emitter breakdown voltage	BV_{CEO}	−12	−	−	V	$I_C = -1mA$
Emitter-base breakdown voltage	BV_{EBO}	−6	−	−	V	$I_E = -10\mu A$
Collector cutoff current	I_{CBO}	−	−	−100	nA	$V_{CB} = -15V$
Emitter cutoff current	I_{EBO}	−	−	−100	nA	$V_{EB} = -6V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	−	−120	−180	mV	$I_C = -1A, I_B = -50mA$
DC current transfer ratio	h_{FE}	270	−	680	−	$V_{CE} = -2V, I_C = -200mA^*$
Transition frequency	f_T	−	360	−	MHz	$V_{CE} = -2V, I_E = 200mA, f = 100MHz^*$
Output capacitance	C_{ob}	−	15	−	pF	$V_{CB} = -10V, I_E = 0mA, f = 1MHz$

* Pulsed

Transistors

●Electrical characteristic curves

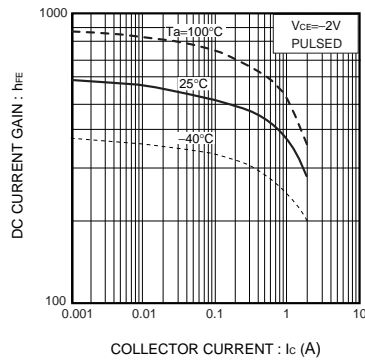


Fig.1 DC current gain vs. collector current

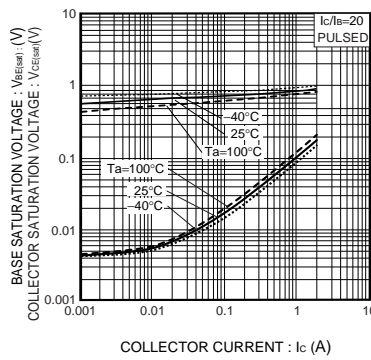


Fig.2 Collector-emitter saturation voltage base-emitter saturation voltage vs. collector current

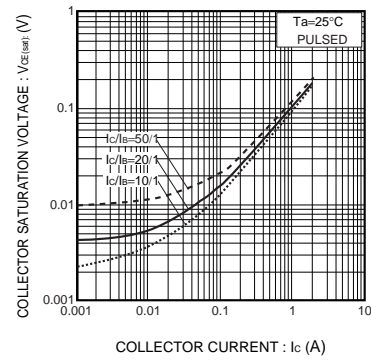


Fig.3 Collector-emitter saturation voltage vs. collector current

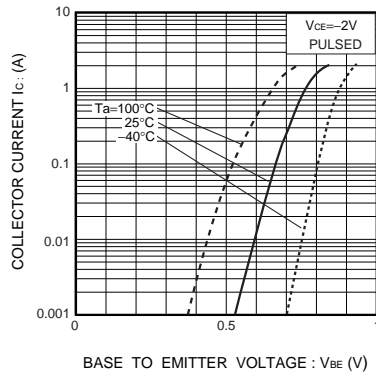


Fig.4 Grounded emitter propagation characteristics

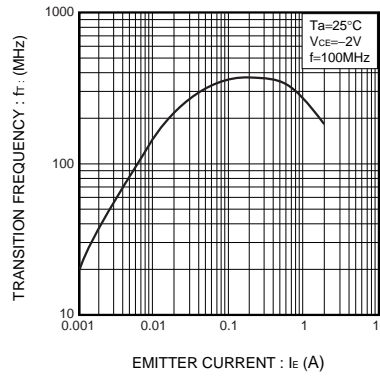


Fig.5 Gain bandwidth product vs. emitter current

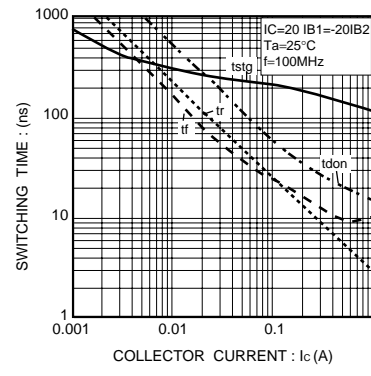


Fig.6 Switching time

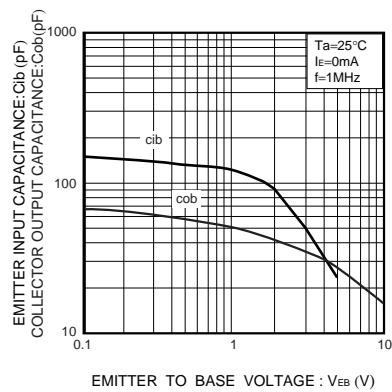


Fig.7 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

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