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

2SB1690

●Applications

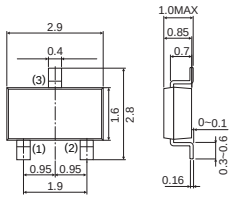
Low frequency amplifier
Deiver

●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

●External dimensions (Unit : mm)

TSMT3



(1) Base
(2) Emitter
(3) Collector

Each lead has same dimensions

●Packaging specifications

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

●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	Tj	150	°C	
Storage temperature	Tstg	–55 to +150	°C	

∗1 Single pulse Pw=1ms
∗2 Each terminal mounted on a recommended land
∗3 Mounted on a 25mm×25mm×t0.8mm ceramic substrate

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	–15	–	–	V	I_C=–10μA
Collector-emitter breakdown viltage	BV_{CEO}	–12	–	–	V	I_C=–1mA
Emitter-base breakdown voltage	BV_{EBO}	–6	–	–	V	I_E=–10μA
Collector cutoff current	I_{CBO}	–	–	–100	nA	V_{CB}=–15V
Emitter cutoff current	I_{EBO}	–	–	–100	nA	V_{EB}=–6V
Collerctor-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	Cob	–	15	–	pF	V_{CB}=–10V, I_E=0mA, f=1MHz

* Pulsed

●Electrical characteristic curves

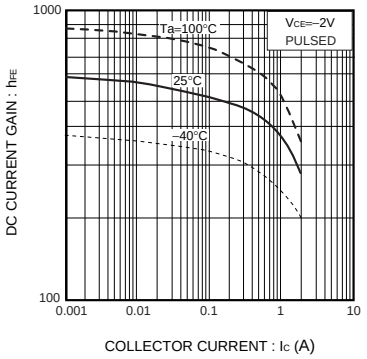


Fig.1 DC current gain vs. collector current

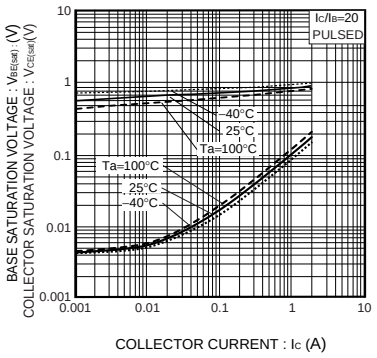


Fig.2 Collector-emitter saturation voltage base-emitter saturation voltage vs.collector current

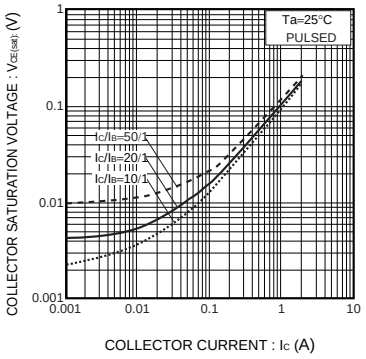


Fig.3 Collector-emitter saturation voltage vs. collector current

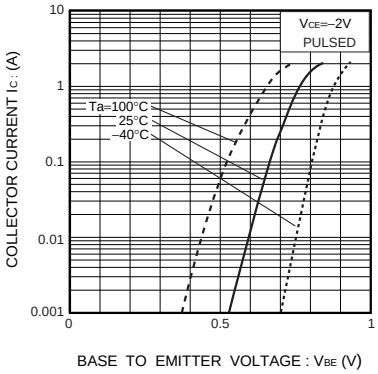


Fig.4 Grounded emitter propagation characteristics

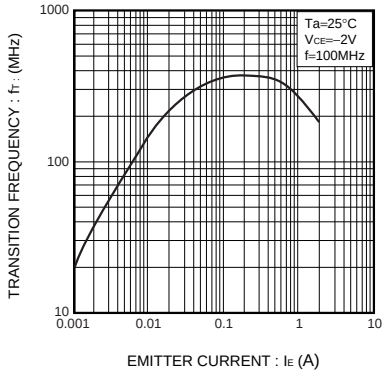


Fig.5 Gain bandwidth product vs. emitter current

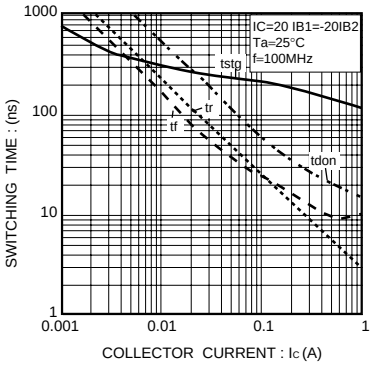


Fig.6 Switching time

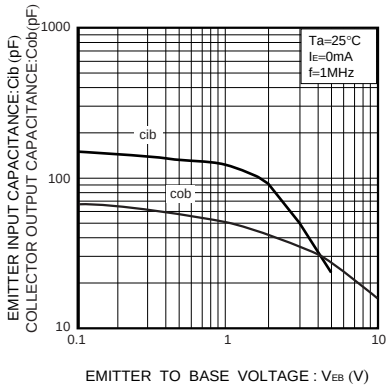


Fig.7 Collector output capacitance vs. collector-base voltage Emitter input capacitance vs. emitter-base voltage

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