General purpose amplification (–30V, –1A)

2SB1694

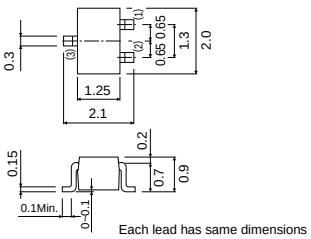
●Application

Low frequency amplifier
Driver

●Features

1) A collector current is large.
2) Collector saturation voltage is low.
   $V_{CE(sat)} \leq -380mV$
   At $I_C = -500mA / I_B = -25mA$

●External dimensions (Unit : mm)



ROHM : UMT3
EIAJ : SC-70
JEDEC : SOT-323
Abbreviated symbol : ES
(1) Emitter
(2) Base
(3) Collector

●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	A
	I_{CP}	–2	A *
Power dissipation	P_C	200	mW
Junction temperature	Tj	150	°C
Range of storage temperature	Tstg	–55 to +150	°C

*Single pulse, P_W=1ms

●Packaging specifications

Type	Package	Taping
	Code	T106
	Basic ordering unit (pieces)	3000
2SB1694		○

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	–30	–	–	V	I_C= –10μA
Collector-emitter breakdown voltage	BV_{CEO}	–30	–	–	V	I_C= –1mA
Emitter-base breakdown voltage	BV_{EBO}	–6	–	–	V	I_E= –10μA
Collector cutoff current	I_{CBO}	–	–	–100	nA	V_{CB}= –30V
Emitter cutoff current	I_{EBO}	–	–	–100	nA	V_{EB}= –6V
Collector-emitter saturation voltage	$V_{CE(sat)}$	–	–180	–380	mV	I_C= –500mA, I_B= –25mA
DC current gain	h_{FE}	270	–	680	–	V_{CE}= –2V, I_C= –100mA*1
Transition frequency	f_T	–	320	–	MHz	V_{CE}= –2V, I_E=100mA, f=100MHz *1
Corrector output capacitance	Cob	–	7	–	pF	V_{CB}= –10V, I_E=0A, f=1MHz

*1 Pulsed

●Electrical characteristic curves

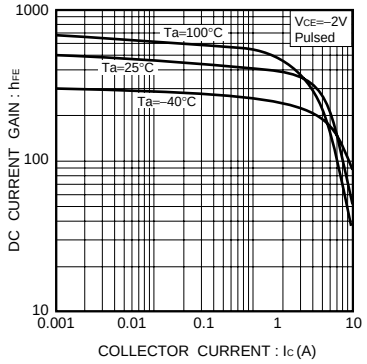


Fig.1 DC current gain vs. collector current

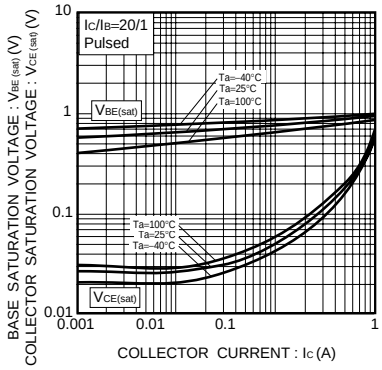


Fig.2 Collector-emitter saturation voltage base-emitter saturation voltage vs. collector current

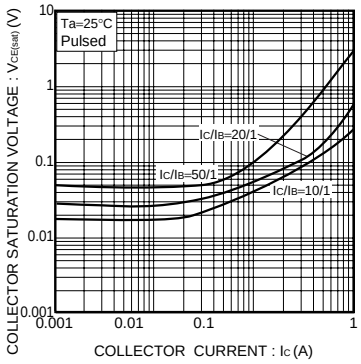


Fig.3 Collector-emitter saturation voltage vs. collector current

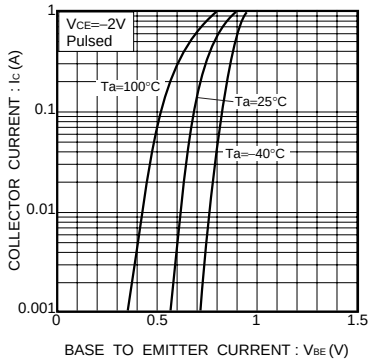


Fig.4 Grounded emitter propagation characteristics

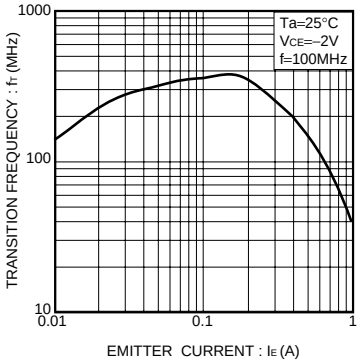


Fig.5 Gain bandwidth product vs. emitter current

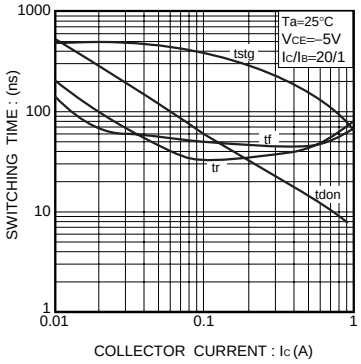


Fig.6 Switching time

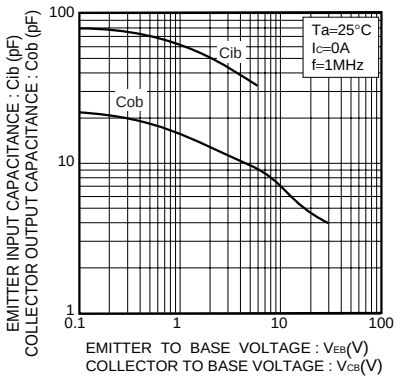


Fig.7 Collector output capacitance vs. collector-base voltage Emitter input capacitance vs. emitter-base voltage

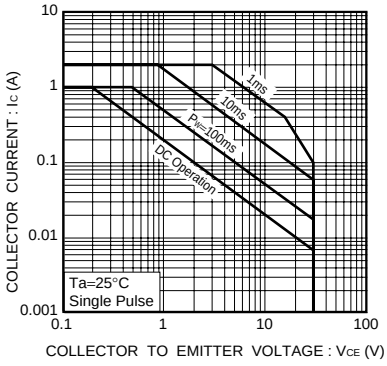


Fig.8 Safe Operating Area

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