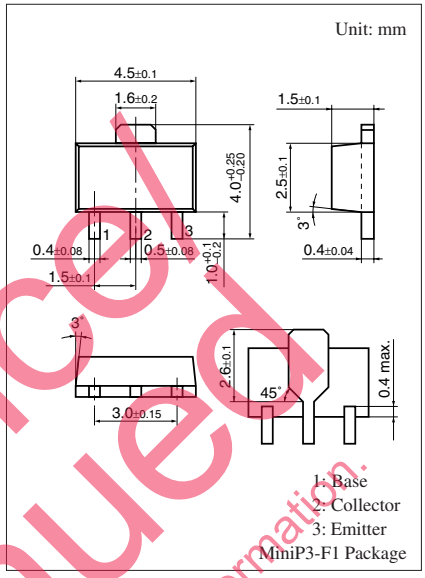
2SB1699

Silicon PNP epitaxial planar type

For power amplification



Marking Symbol: 3A

■ Features

- Low collector-emitter saturation voltage $V_{CE(sat)}$
- Mini Power type package, allowing downsizing of the equipment and automatic insertion through the tape packing and the magazine packing.

■ Absolute Maximum Ratings $T_a = 25°C$

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	V_{CBO}	−60	V
Collector-emitter voltage (Base open)	V_{CEO}	−60	V
Emitter-base voltage (Collector open)	V_{EBO}	−6	V
Collector current	I_C	−2	A
Peak collector current	I_{CP}	−4	A
Collector power dissipation *	P_C	1	W
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	−55 to +150	°C

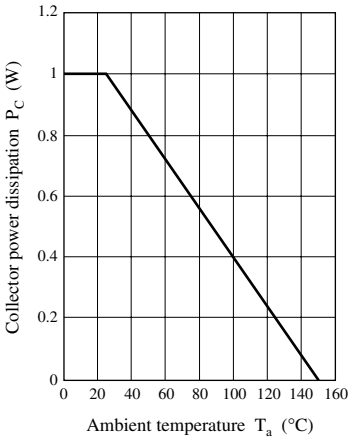
Note) ∗: Print circuit board: Copper foil area of 1 cm² or more, and the board thickness of 1.7 mm for the collector portion

■ Electrical Characteristics $T_a = 25°C \pm 3°C$

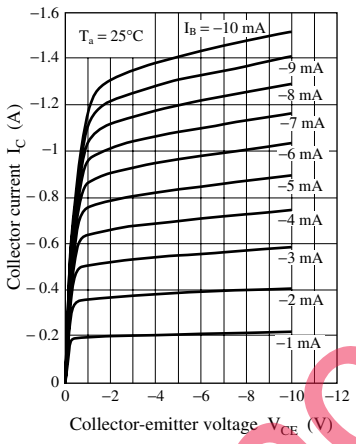
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-emitter voltage (Base open)	V_{CEO}	$I_C = -1$ mA, $I_B = 0$	−60			V
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{CB} = -60$ V, $I_E = 0$			−100	µA
Collector-emitter cut-off current (Base open)	I_{CEO}	$V_{CE} = -60$ V, $I_B = 0$			−100	µA
Forward current transfer ratio *	h_{FE1}	$V_{CE} = -4$ V, $I_C = -1$ A	80		250	—
	h_{FE2}	$V_{CE} = -4$ V, $I_C = -0.2$ A	60			
	h_{FE3}	$V_{CE} = -4$ V, $I_C = -2$ A	30			
Collector-emitter saturation voltage *	$V_{CE(sat)}$	$I_C = -2$ A, $I_B = -250$ mA			− 0.5	V
Turn-on time	t_{on}	$I_C = -1$ A, $I_{B1} = 0.1$ A		0.2		µs
Storage time	t_{stg}	$I_{B2} = -0.1$ A, $V_{CC} = -50$ V		0.4		µs
Fall time	t_f			0.1		µs
Transition frequency	f_T	$V_{CB} = -10$ V, $I_E = 50$ mA, f = 200 MHz		180		MHz

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.
2. ∗: Pulse measurement

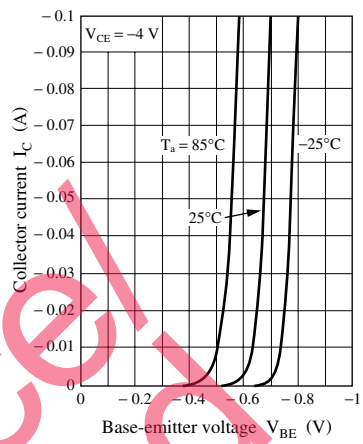
P_C — T_a



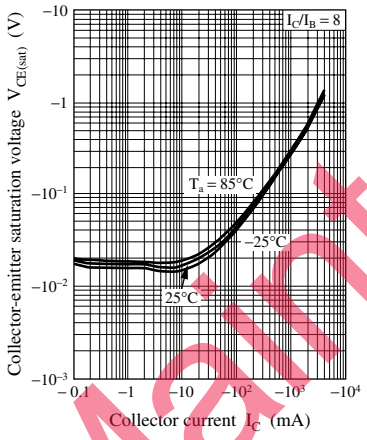
I_C — V_{CE}



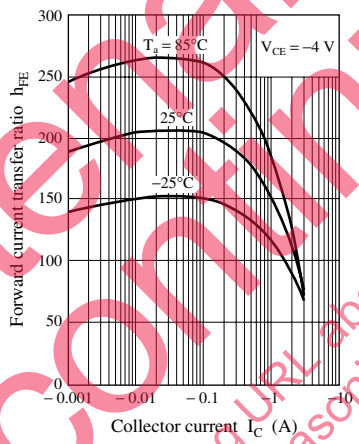
I_C — V_{BE}



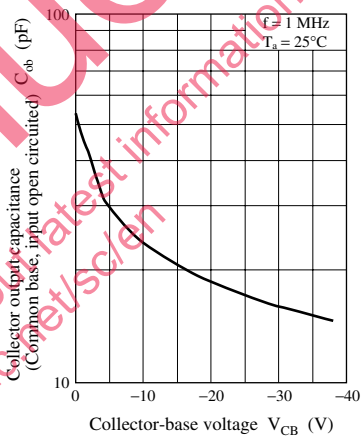
$V_{CE(sat)}$ — I_C



h_{FE} — I_C



C_{ob} — V_{CB}



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