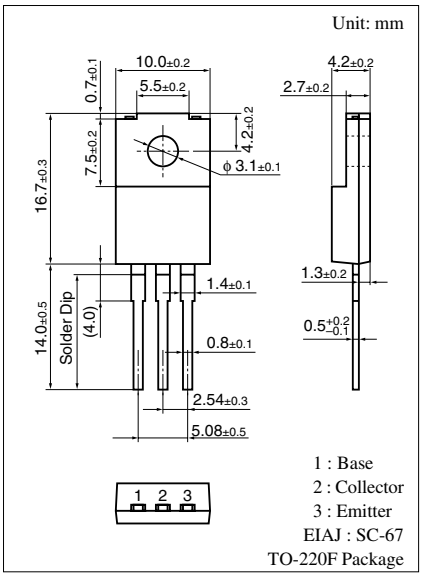
2SB1299

Silicon PNP epitaxial planar type

For power amplification

Complementary to 2SD1273



■ Features

- High forward current transfer ratio h_{FE}
- Satisfactory linearity of forward current transfer ratio h_{FE}
- Full-pack package which can be installed to the heat sink with one screw

■ Absolute Maximum Ratings $T_C = 25°C$

Parameter		Symbol	Rating	Unit
Collector to base voltage		V_{CBO}	−60	V
Collector to emitter voltage		V_{CEO}	−60	V
Emitter to base voltage		V_{EBO}	−6	V
Peak collector current		I_{CP}	−6	A
Collector current		I_C	−3	A
Base current		I_B	−1	A
Collector power dissipation	$T_C = 25°C$	P_C	40	W
	$T_a = 25°C$		2	
Junction temperature		T_j	150	°C
Storage temperature		T_{stg}	−55 to +150	°C

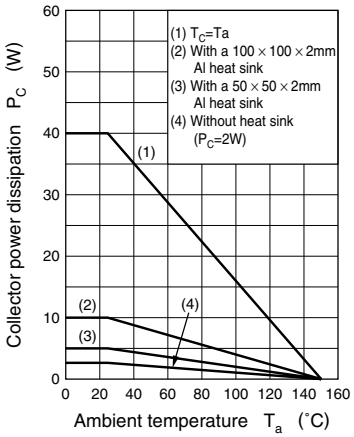
■ Electrical Characteristics $T_C = 25°C$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = -60$ V, $I_E = 0$			−100	μA
	I_{CEO}	$V_{CE} = -40$ V, $I_B = 0$			−100	μA
Emitter cutoff current	I_{EBO}	$V_{EB} = -6$ V, $I_C = 0$			−100	μA
Collector to emitter voltage	V_{CEO}	$I_C = -25$ mA, $I_B = 0$	−60			V
Forward current transfer ratio *	h_{FE}	$V_{CE} = -4$ V, $I_C = -0.5$ A	300		700	
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = -2$ A, $I_B = -0.05$ A			−1	V
Transition frequency	f_T	$V_{CE} = -12$ V, $I_C = -0.2$ A, f = 10 MHz		30		MHz

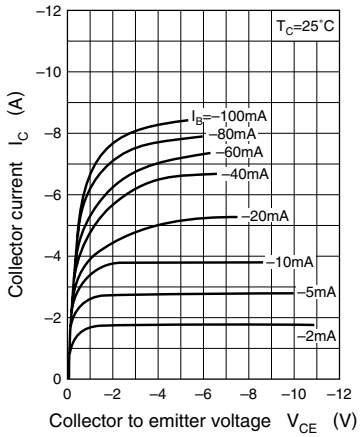
Note) ∗: Rank classification

Rank	Q	P
h_{FE}	300 to 500	400 to 700

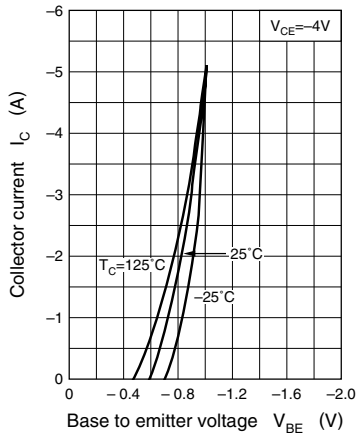
P_C — T_a



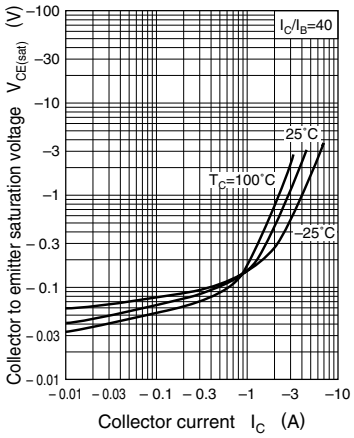
I_C — V_{CE}



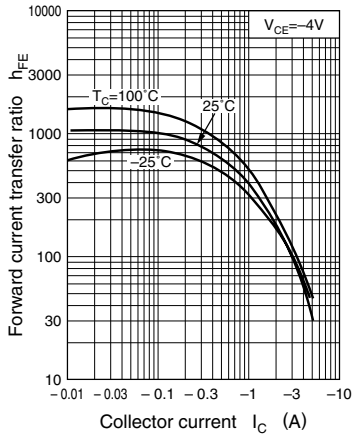
I_C — V_{BE}



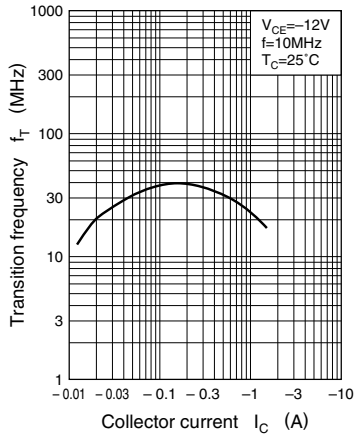
$V_{CE(sat)}$ — I_C



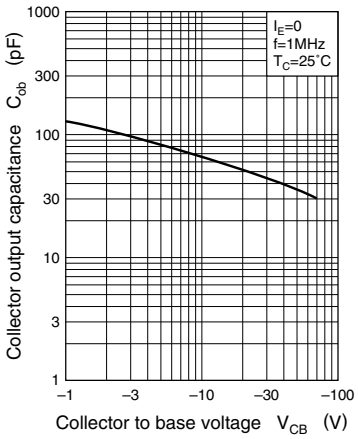
h_{FE} — I_C



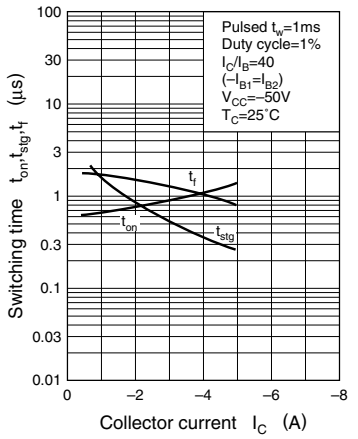
f_T — I_C



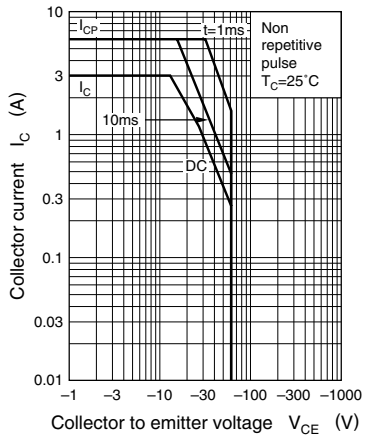
C_{ob} — V_{CB}



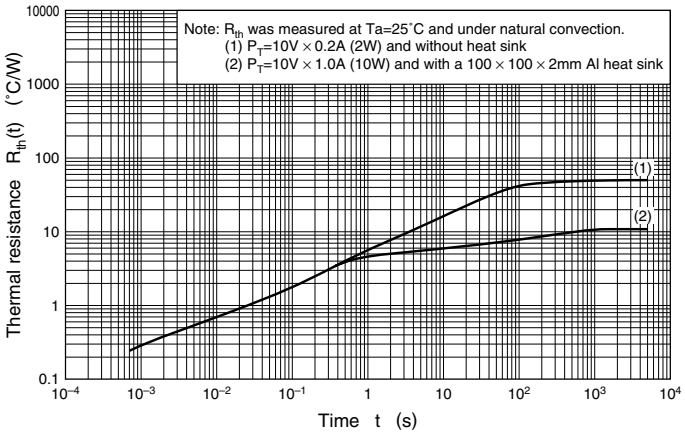
t_{on}, t_{stg}, t_f — I_C



Area of safe operation (ASO)



$R_{th(t)}$ — t


Note: R_{th} was measured at Ta=25°C and under natural convection.
(1) P_T=10V × 0.2A (2W) and without heat sink
(2) P_T=10V × 1.0A (10W) and with a 100 × 100 × 2mm Al heat sink
Thermal resistance R_{th}(t) (°C/W)
10000
1000
100
10
1
0.1
(1)
(2)
10^{-4}
10^{-3}
10^{-2}
10^{-1}
1
10
10^{2}
10^{3}
10^{4}
Time t (s)

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