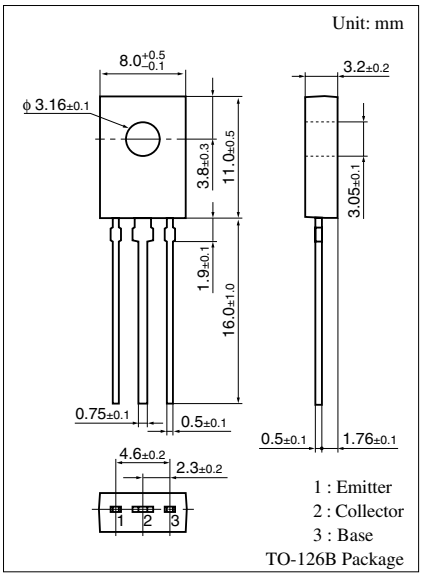
2SB1011

Silicon PNP triple diffusion planar type

For low-frequency amplification



■ Features

- High collector to base voltage V_{CBO}
- High collector to emitter V_{CEO}
- Large collector power dissipation P_C
- Low collector to emitter saturation voltage $V_{CE(sat)}$

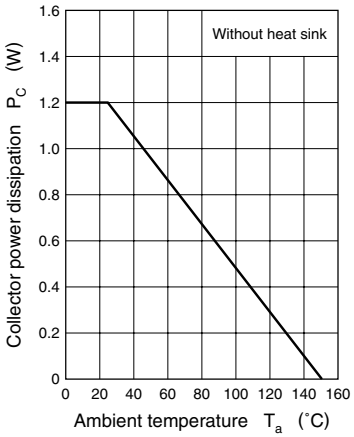
■ Absolute Maximum Ratings $T_C = 25°C$

Parameter	Symbol	Rating	Unit
Collector to base voltage	V_{CBO}	−400	V
Collector to emitter voltage	V_{CEO}	−400	V
Emitter to base voltage	V_{EBO}	−5	V
Peak collector current	I_{CP}	−200	mA
Collector current	I_C	−100	mA
Collector power dissipation	P_C	1.2	W
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	−55 to +150	°C

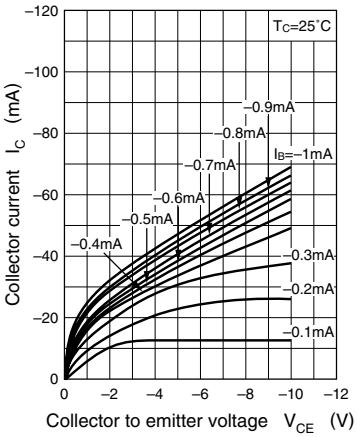
■ Electrical Characteristics $T_C = 25°C$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector to base voltage	V_{CBO}	I_C = −100 µA, I_E = 0	−400			V
Collector to emitter voltage	V_{CEO}	I_C = −500 µA, I_B = 0	−400			V
Emitter to base voltage	V_{EBO}	I_E = −100 µA, I_C = 0	−5			V
Forward current transfer ratio	h_{FE}	V_{CE} = −5 V, I_C = −30 mA	30			
Collector to emitter saturation voltage	$V_{CE(sat)}$	I_C = −50 mA, I_B = −5 mA			−2.5	V
Base to emitter saturation voltage	$V_{BE(sat)}$	I_C = −50 mA, I_B = −5 mA			−1.5	V
Transition frequency	f_T	V_{CB} = −30 V, I_E = 20 mA, f = 200 MHz		70		MHz
Collector output capacitance	C_{ob}	V_{CB} = −30 V, I_E = 0, f = 1 MHz			9	pF

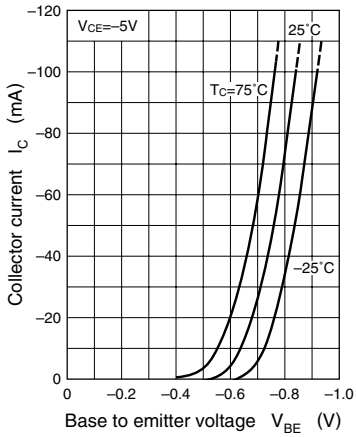
P_C — T_a



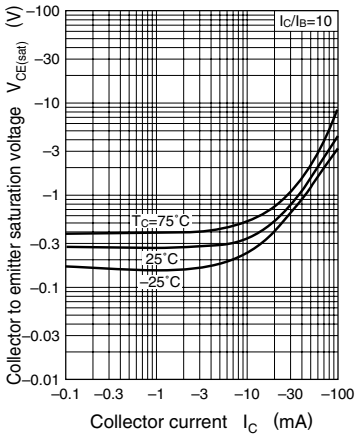
I_C — V_{CE}



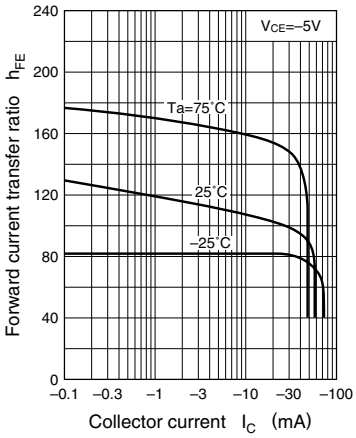
I_C — V_{BE}



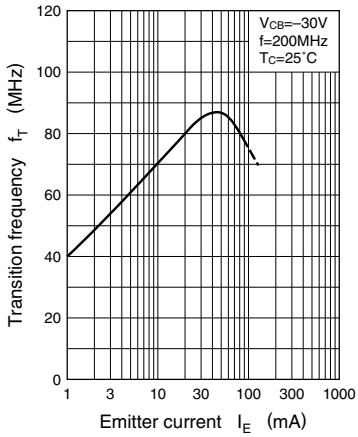
$V_{CE(sat)}$ — I_C



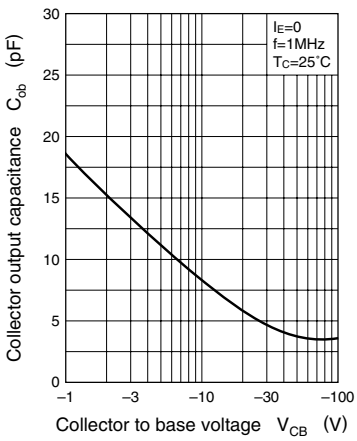
h_{FE} — I_C



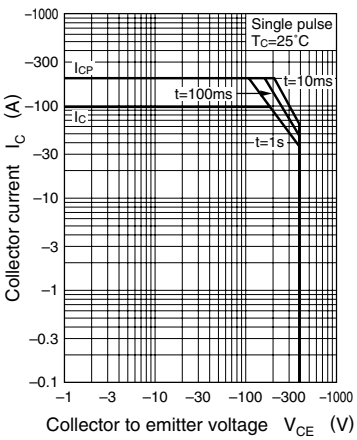
f_T — I_E



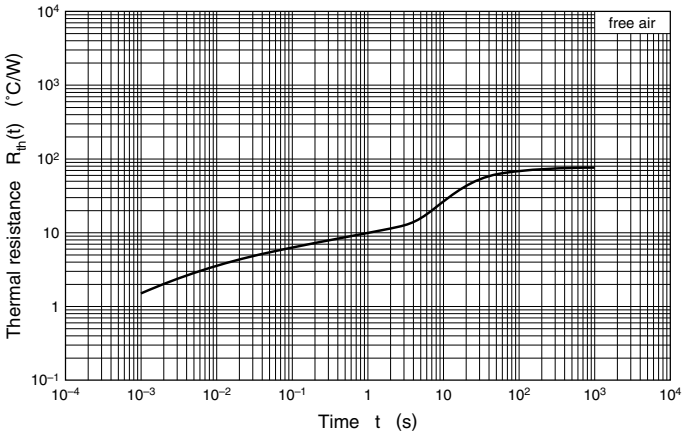
C_{ob} — V_{CB}



Area of safe operation (ASO)



$R_{th(t)}$ — t


free air
Thermal resistance $R_{th}(t)$ (°C/W)
10^4
10^3
10^2
10
1
10^{-1}
10^{-4}
10^{-3}
10^{-2}
10^{-1}
1
10
10^2
10^3
10^4
Time t (s)

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