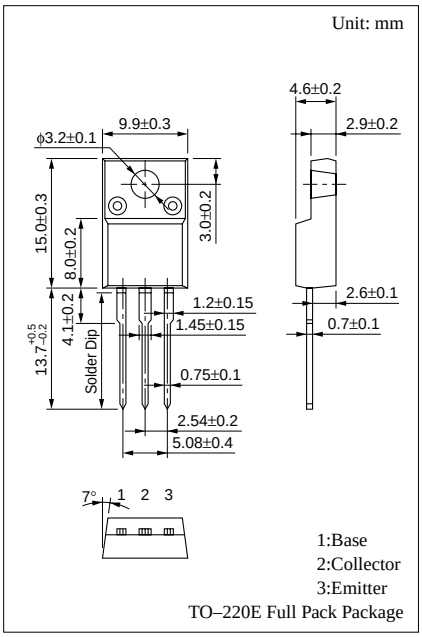
2SB1605, 2SB1605A

Silicon PNP epitaxial planar type

For low-freauency power amplification

Features

- High forward current transfer ratio h_{FE} which has satisfactory linearity
- Low collector to emitter saturation voltage $V_{CE(sat)}$
- Full-pack package with outstanding insulation, which can be installed to the heat sink with one screw



Absolute Maximum Ratings (T_C=25˚C)

Parameter		Symbol	Ratings	Unit
Collector to base voltage	2SB1605	V_{CBO}	–60	V
	2SB1605A		–80	
Collector to emitter voltage	2SB1605	V_{CEO}	–60	V
	2SB1605A		–80	
Emitter to base voltage		V_{EBO}	–5	V
Peak collector current		I_{CP}	–5	A
Collector current		I_C	–3	A
Collector power dissipation	T_C=25°C	P_C	35	W
	Ta=25°C		2	
Junction temperature		T_j	150	˚C
Storage temperature		T_{stg}	–55 to +150	˚C

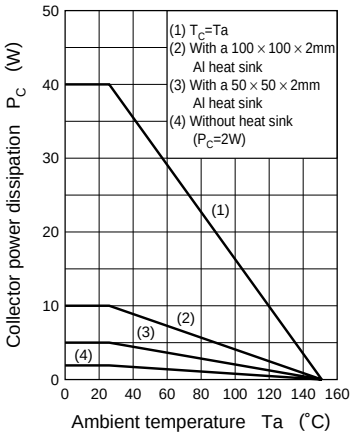
Electrical Characteristics (T_C=25˚C)

Parameter		Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	2SB1605	I_{CES}	V_{CE} = –60V, V_{BE} = 0			–200	μA
	2SB1605A		V_{CE} = –80V, V_{BE} = 0			–200	
Collector cutoff current	2SB1605	I_{CEO}	V_{CE} = –30V, I_B = 0			–300	μA
	2SB1605A		V_{CE} = –60V, I_B = 0			–300	
Emitter cutoff current		I_{EBO}	V_{EB} = –5V, I_C = 0			–1	mA
Collector to emitter voltage	2SB1605	V_{CEO}	I_C = –30mA, I_B = 0	–60			V
	2SB1605A			–80			
Forward current transfer ratio		h_{FE1}*	V_{CE} = –4V, I_C = –1A	70		250	
		h_{FE2}	V_{CE} = –4V, I_C = –3A	10			
Base to emitter voltage		V_{BE}	V_{CE} = –4V, I_C = –3A			–1.8	V
Collector to emitter saturation voltage		$V_{CE(sat)}$	I_C = –3A, I_B = – 0.375A			–1.2	V
Transition frequency		f_T	V_{CE} = –10V, I_C = – 0.5A, f = 10MHz		30		MHz
Turn-on time		t_{on}	I_C = –1A, I_{B1} = – 0.1A, I_{B2} = 0.1A		0.5		μs
Storage time		t_{stg}			1.2		μs
Fall time		t_f			0.3		μs

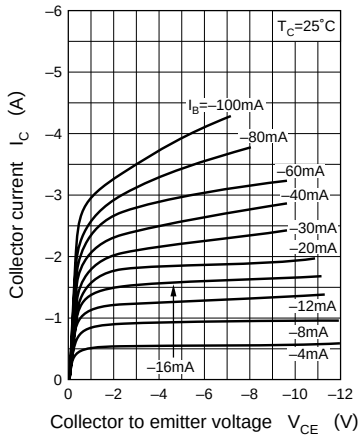
*h_{FE1} Rank classification

Rank	Q	P
h_{FE1}	70 to 150	120 to 250

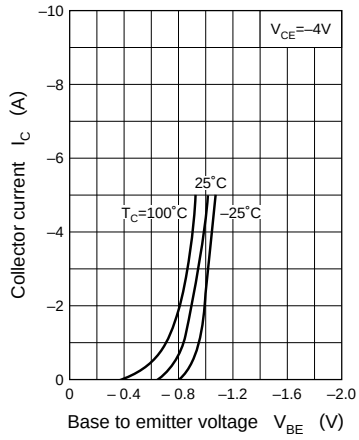
P_C — Ta



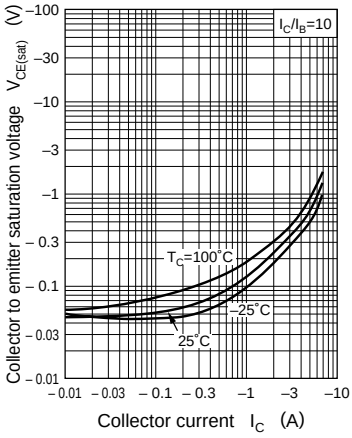
I_C — V_{CE}



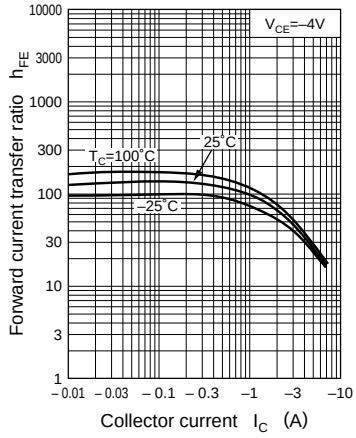
I_C — V_{BE}



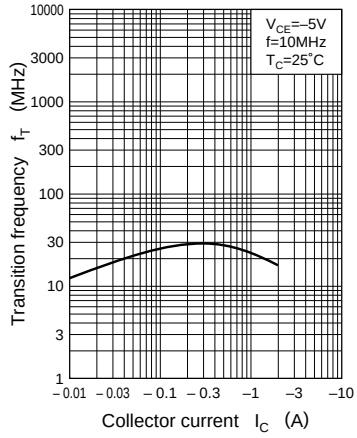
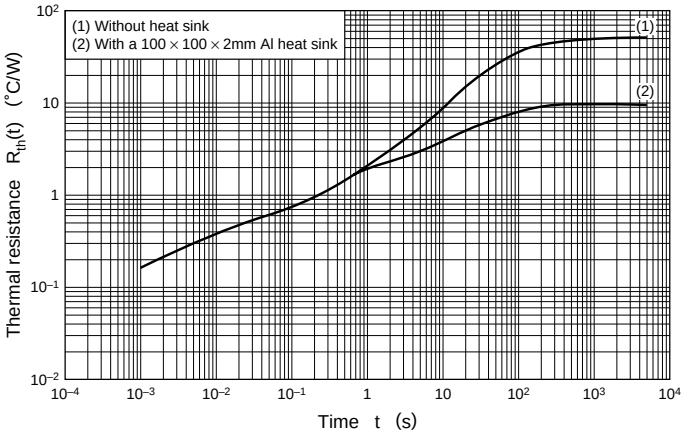
$V_{CE(sat)}$ — I_C



h_{FE} — I_C



f_T — I_C



$R_{th(t)}$ — t