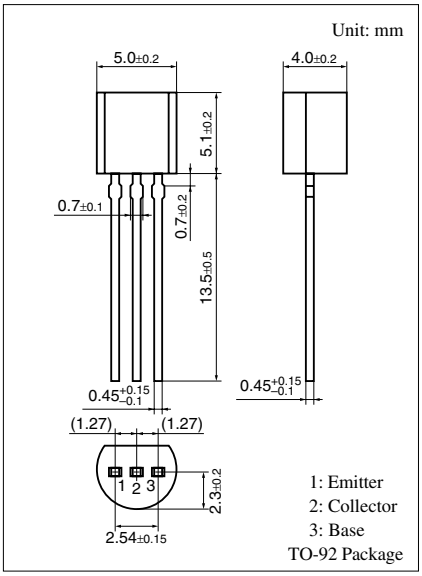
2SC1317, 2SC1318

Silicon NPN epitaxial planer type

For low-frequency power amplification and driver amplification
Complementary to 2SA719 and 2SA720



■ Features

- Low collector to emitter saturation voltage $V_{CE(sat)}$
- Complementary pair with 2SA719 and 2SA720

■ Absolute Maximum Ratings $T_a = 25°C$

Parameter		Symbol	Rating	Unit
Collector to base voltage	2SC1317	V_{CBO}	30	V
	2SC1318		60	
Collector to emitter voltage	2SC1317	V_{CEO}	25	V
	2SC1318		50	
Emitter to base voltage		V_{EBO}	7	V
Peak collector current		I_{CP}	1	A
Collector current		I_C	500	mA
Collector power dissipation		P_C	625	mW
Junction temperature		T_j	150	°C
Storage temperature		T_{stg}	−55 to +150	°C

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

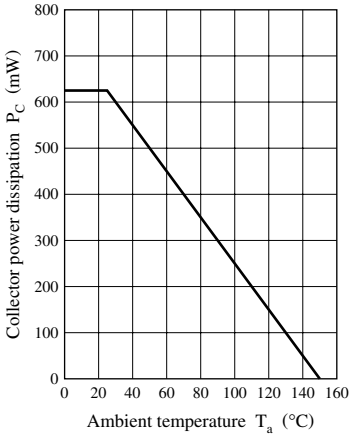
Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Collector cutoff current		I_{CBO}	V_{CB} = 20 V, I_E = 0			0.1	μA
Collector to base voltage	2SC1317	V_{CBO}	I_C = 10 μA, I_E = 0	30			V
	2SC1318			60			
Collector to emitter voltage	2SC1317	V_{CEO}	I_C = 10 mA, I_B = 0	25			V
	2SC1318			50			
Emitter to base voltage		V_{EBO}	I_E = 10 μA, I_C = 0	7			V
Forward current transfer ratio *1		h_{FE1} *2	V_{CE} = 10 V, I_C = 150 mA	85		340	
		h_{FE2}	V_{CE} = 10 V, I_C = 500 mA	40			
Collector to emitter saturation voltage *1		$V_{CE(sat)}$	I_C = 300 mA, I_B = 30 mA		0.35	0.6	V
Base to emitter saturation voltage *1		$V_{BE(sat)}$	I_C = 300 mA, I_B = 30 mA		1.1	1.5	V
Transition frequency		f_T	V_{CB} = 10 V, I_E = −50 mA, f = 200 MHz		200		MHz
Collector output capacitance		C_{ob}	V_{CB} = 10 V, I_E = 0, f = 1 MHz		6	15	pF

Note) ∗1: Pulse measurement

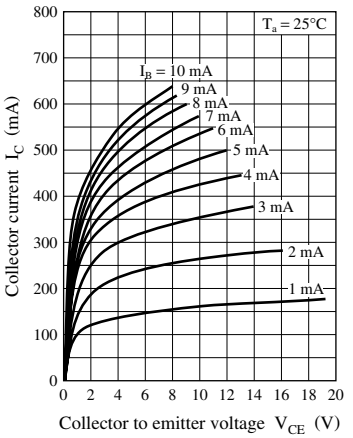
∗2: Rank classification

Rank	Q	R	S
h_{FE1}	85 to 170	120 to 240	170 to 340

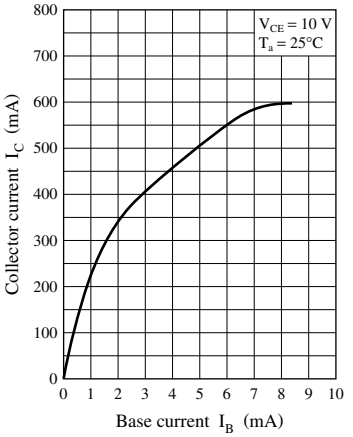
P_C — T_a



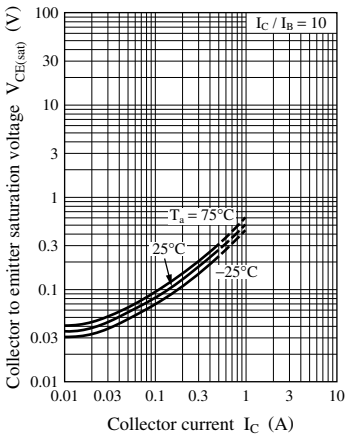
I_C — V_{CE}



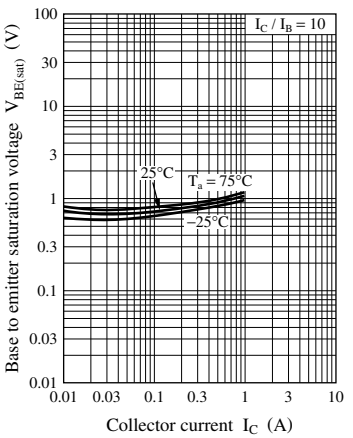
I_C — I_B



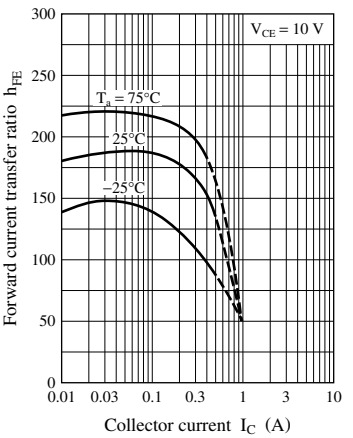
$V_{CE(sat)}$ — I_C



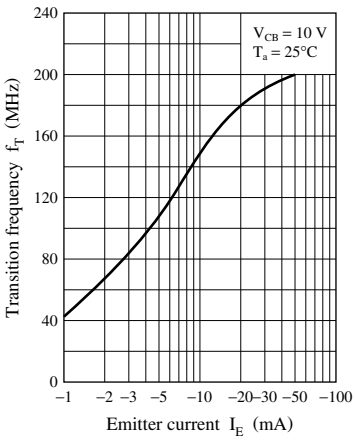
$V_{BE(sat)}$ — I_C



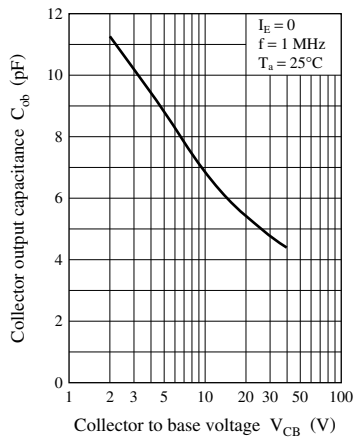
h_{FE} — I_C



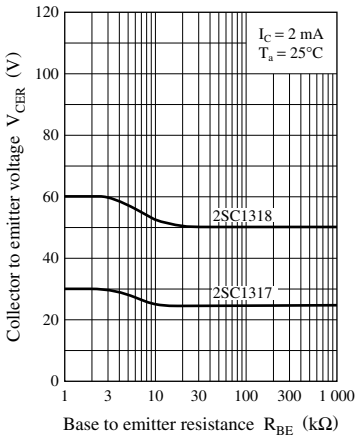
f_T — I_E



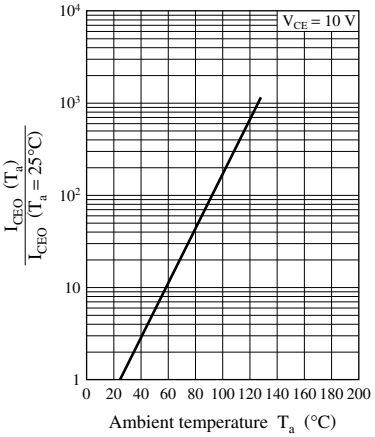
C_{ob} — V_{CB}



V_{CER} — R_{BE}



I_{CEO} — T_a



Area of safe operation (ASO)