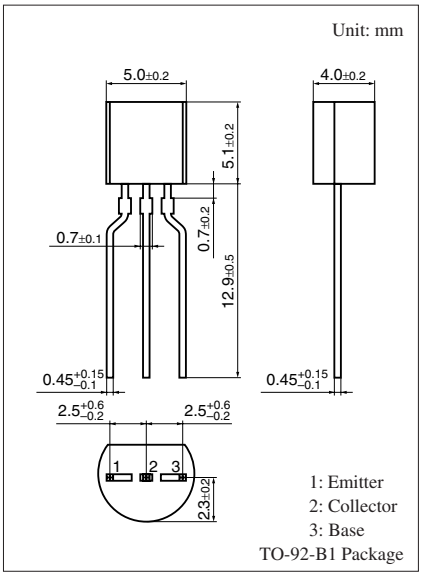
2SD0592A (2SD592A)

Silicon NPN epitaxial planar type

For low-frequency output amplification
Complementary to 2SB0621A (2SB621A)



■ Features

- Large collector power dissipation P_C
- Low collector-emitter saturation voltage $V_{CE(sat)}$

■ 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}	50	V
Emitter-base voltage (Collector open)	V_{EBO}	5	V
Collector current	I_C	1	A
Peak collector current	I_{CP}	1.5	A
Collector power dissipation	P_C	750	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	−55 to +150	°C

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

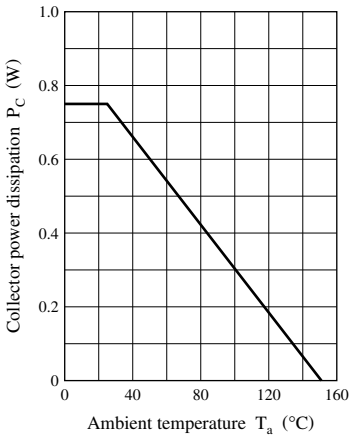
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	V_{CBO}	I_C = 10 µA, I_E = 0	60			V
Collector-emitter voltage (Base open)	V_{CEO}	I_C = 2 mA, I_B = 0	50			V
Emitter-base voltage (Collector open)	V_{EBO}	I_E = 10 µA, I_C = 0	5			V
Collector-base cutoff current (Emitter open)	I_{CBO}	V_{CB} = 20 V, I_E = 0			0.1	µA
Forward current transfer ratio	h_{FE1} *	V_{CE} = 10 V, I_C = 500 mA	85		340	—
	h_{FE2}	V_{CE} = 5 V, I_C = 1 A	50			
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C = 500 mA, I_B = 50 mA		0.2	0.4	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C = 500 mA, I_B = 50 mA		0.85	1.20	V
Transition frequency	f_T	V_{CB} = 10 V, I_E = −50 mA, f = 200 MHz		200		MHz
Collector output capacitance (Common base, input open circuited)	C_{ob}	V_{CB} = 10 V, I_E = 0, f = 1 MHz			20	pF

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.
2. *: Rank classification

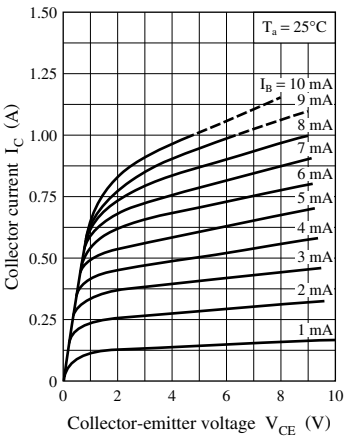
Rank	Q	R	S
h_{FE1}	85 to 170	120 to 240	170 to 340

Note) The part number in the parenthesis shows conventional part number.

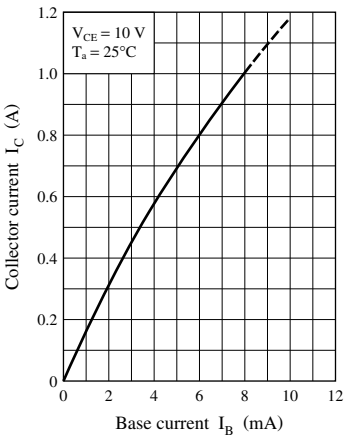
P_C — T_a



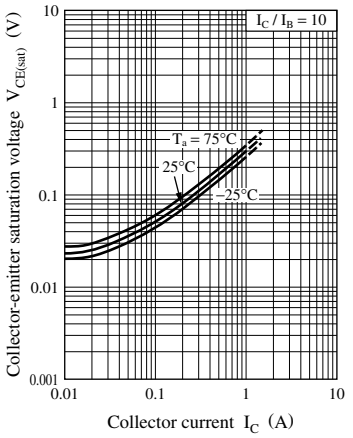
I_C — V_{CE}



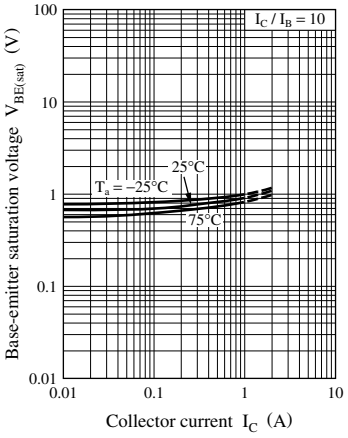
I_C — I_B



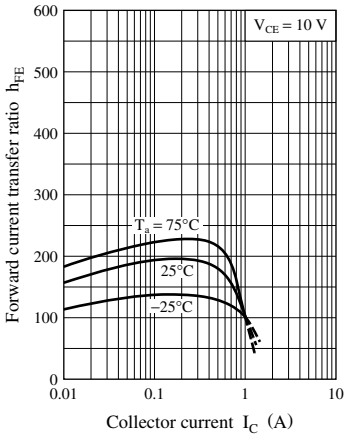
$V_{CE(sat)}$ — I_C



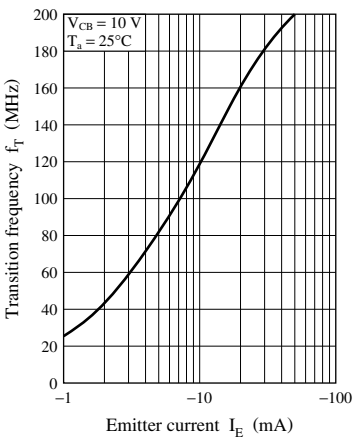
$V_{BE(sat)}$ — I_C



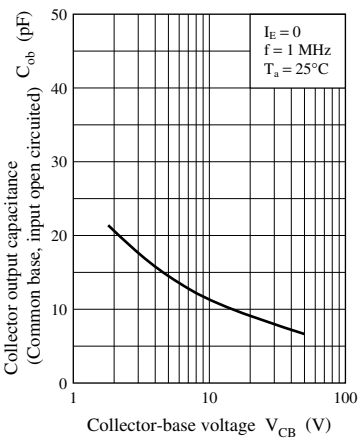
h_{FE} — I_C



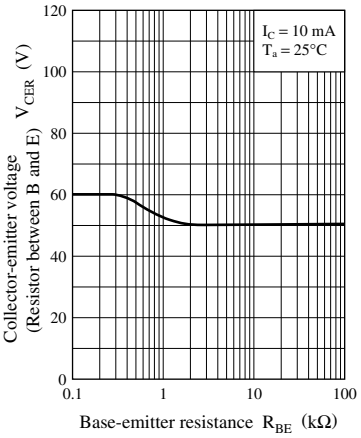
f_T — I_E



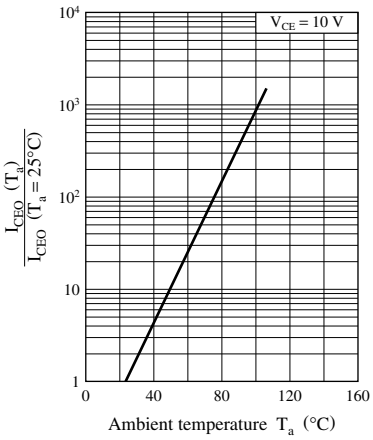
C_{ob} — V_{CB}



V_{CER} — R_{BE}



I_{CEO} — T_a


V_{CE} = 10 V
10^4
10^3
10^2
10
1
0
40
80
120
160
$\frac{I_{CEO}\ (T_a)}{I_{CEO}\ (T_a = 25°C)}$
Ambient temperature T_a (°C)

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