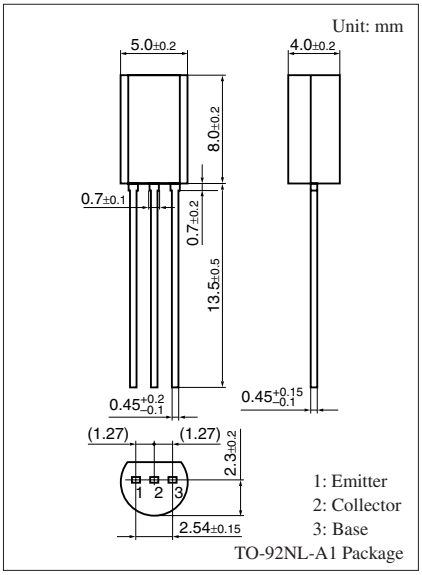
2SC3940, 2SC3940A

Silicon NPN epitaxial planar type

For low-frequency output amplification and driver amplification
Complementary to 2SA1534, 2SA1534A



■ Features

- Low collector-emitter saturation voltage $V_{CE(sat)}$
- Allowing supply with the radial taping

■ Absolute Maximum Ratings $T_a = 25°C$

Parameter		Symbol	Rating	Unit
Collector-base voltage (Emitter open)	2SC3940	V_{CBO}	30	V
	2SC3940A		60	
Collector-emitter voltage (Base open)	2SC3940	V_{CEO}	25	V
	2SC3940A		50	
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	1	W
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)	2SC3940	V_{CBO}	I_C = 10 µA, I_E = 0	30			V
	2SC3940A			60			
Collector-emitter voltage (Base open)	2SC3940	V_{CEO}	I_C = 2 mA, I_B = 0	25			V
	2SC3940A			50			
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 *1		h_{FE1} *2	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*1		$V_{CE(sat)}$	I_C = 500 mA, I_B = 50 mA		0.2	0.4	V
Base-emitter saturation voltage*1		$V_{BE(sat)}$	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		11	20	pF

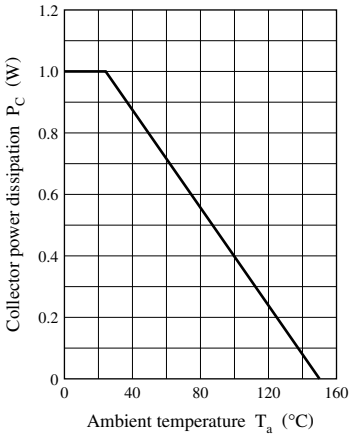
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. ∗1: Pulse measurement

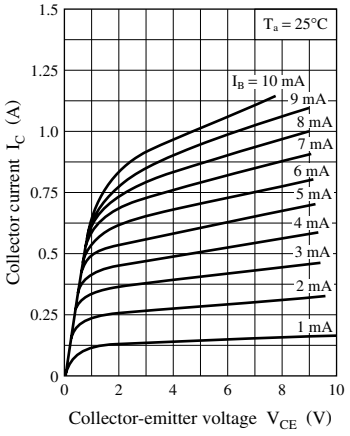
∗2: Rank classification

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

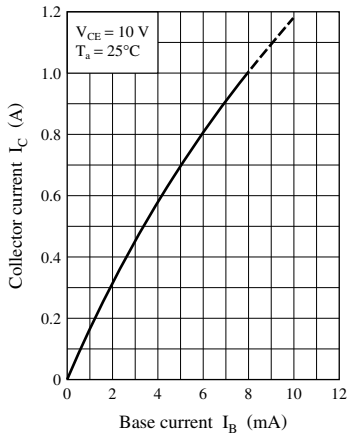
P_C — T_a



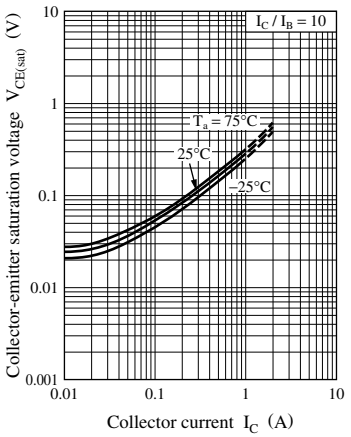
I_C — V_{CE}



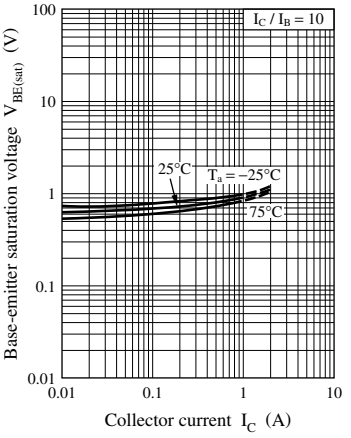
I_C — I_B



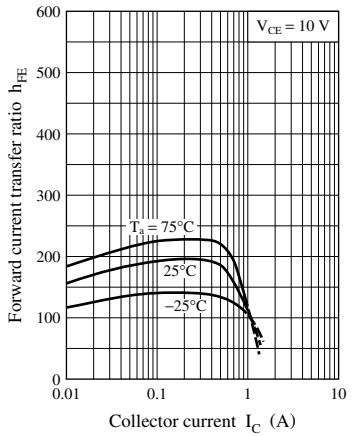
$V_{CE(sat)}$ — I_C



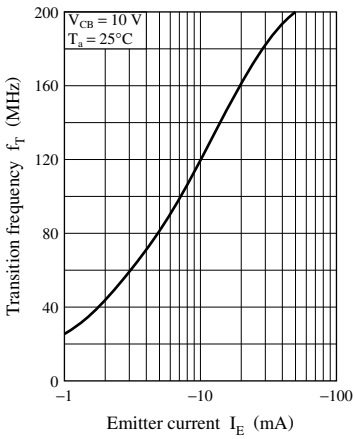
$V_{BE(sat)}$ — I_C



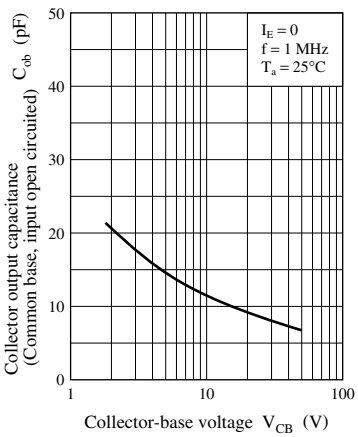
h_{FE} — I_C



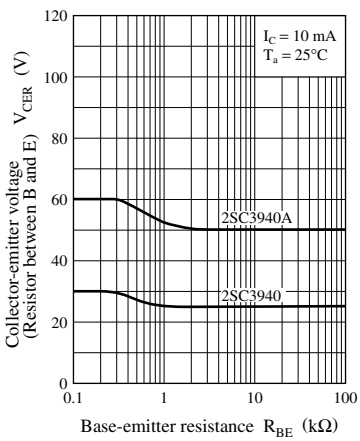
f_T — I_E



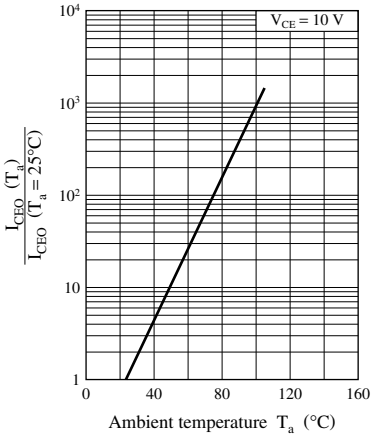
C_{ob} — V_{CB}



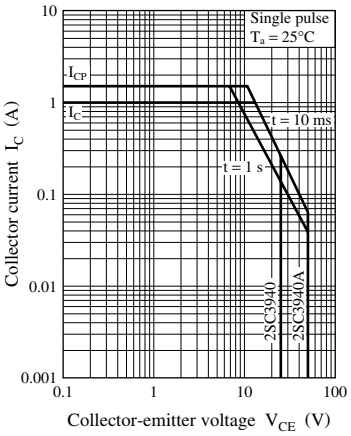
V_{CER} — R_{BE}



I_{CEO} — T_a



Safe operation area



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