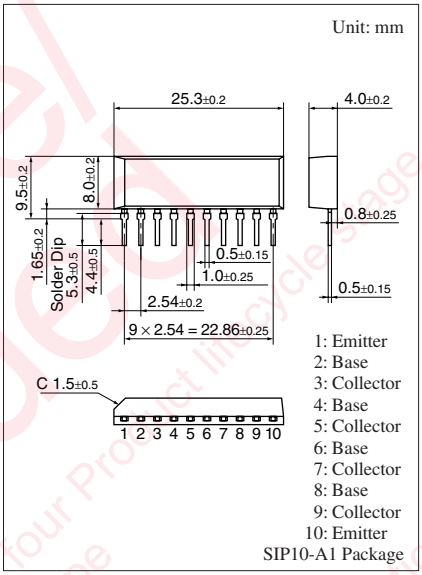
PUB4314 (PU4314)

Silicon NPN/PNP planar type

For low-voltage switching



■ Features

- Low collector-emitter saturation voltage $V_{CE(sat)}$
- Satisfactory linearity of forward current transfer ratio h_{FE}
- High-speed switching
- NPN 2 elements + PNP 2 elements

■ Absolute Maximum Ratings $T_C = 25°C$

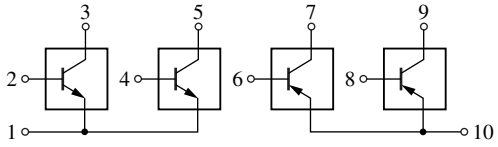
Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	V_{CBO}	±40	V
Collector-emitter voltage (Base open)	V_{CEO}	±20	V
Emitter-base voltage (Collector open)	V_{EBO}	±5	V
Collector current	I_C	±7	A
Peak collector current	I_{CP}	±12	A
Collector power dissipation	P_C	15	W
$T_a = 25°C$		3.5	
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	−55 to +150	°C

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

Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Collector-emitter voltage (Base open)		V_{CEO}	I_C = ±10 mA, I_B = 0	±20			V
Collector-base cutoff current (Emitter open)		I_{CBO}	V_{CB} = ±40 V, I_E = 0			±50	μA
Emitter-base cutoff current (Collector open)		I_{EBO}	V_{EB} = ±5 V, I_C = 0			±50	μA
Forward current transfer ratio		h_{FE1}	V_{CE} = ±2 V, I_C = ±0.1 A	45			—
		h_{FE2}	V_{CE} = ±2 V, I_C = ±2 A	60		260	
Collector-emitter saturation voltage		$V_{CE(sat)}$	I_C = ±5 A, I_B = ±0.16 A			±0.6	V
Base-emitter saturation voltage		$V_{BE(sat)}$	I_C = ±5 A, I_B = ±0.16 A			±1.5	V
Transition frequency		f_T	V_{CE} = ±10 V, I_C = ±0.5 A, f = 10 MHz		150		MHz
Turn-on time	NPN	t_{on}	I_C = ±2 A		0.3		μs
	PNP		I_{B1} = ±66 mA, I_{B2} = ±66 mA		0.1		
Storage time	NPN	t_{stg}	V_{CC} = ±20 V		0.3		μs
	PNP				0.5		
Fall time	NPN	t_f			0.1		μs
	PNP				0.1		

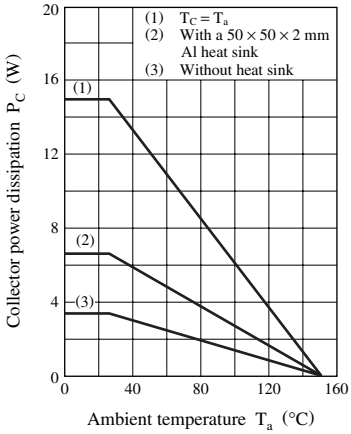
Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

■ Internal Connection

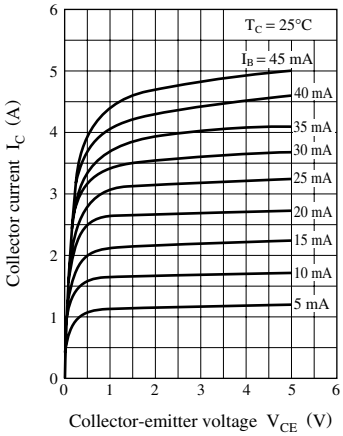


Note) The part number in the parenthesis shows conventional part number.

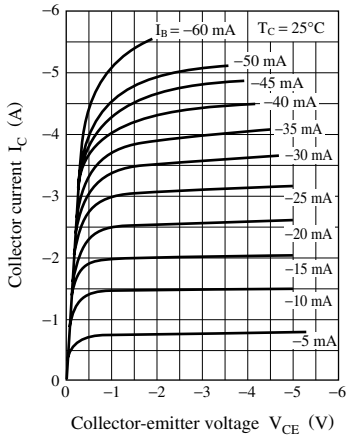
P_C — T_a



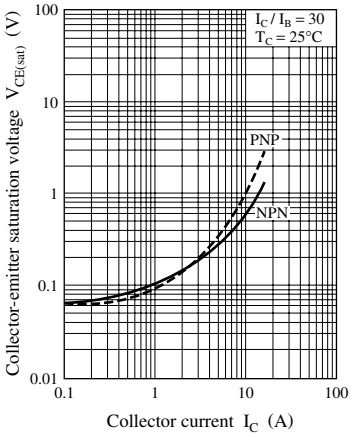
I_C — V_{CE} (NPN)



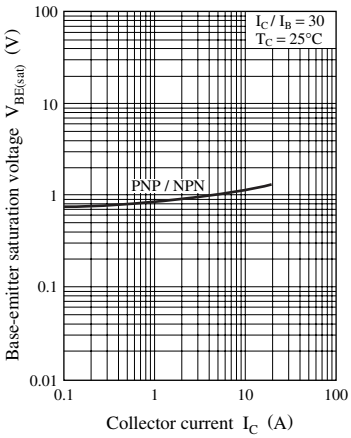
I_C — V_{CE} (PNP)



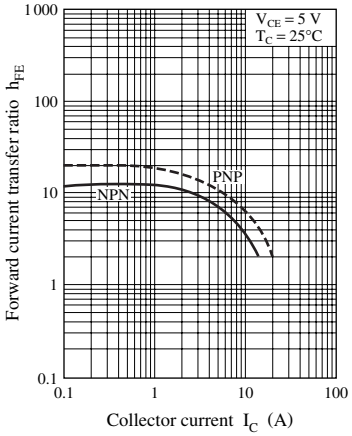
$V_{CE(sat)}$ — I_C



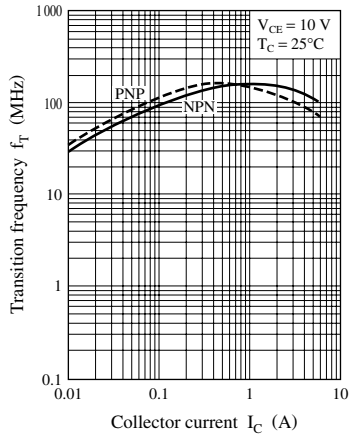
$V_{BE(sat)}$ — I_C



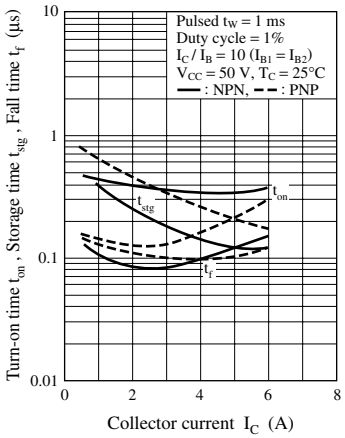
h_{FE} — I_C



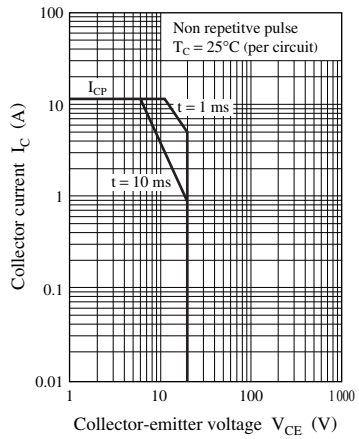
f_T — I_C



t_{on} , t_{stg} , t_f — I_C



Safe operation area



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