

PUB4120 (PU4120), PUB4420 (PU4420)

Silicon NPN triple diffusion planar type darlington

For power amplification

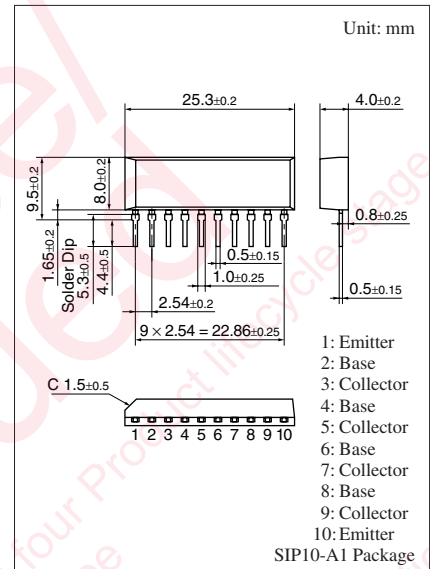
Complementary to PUB4220 (PU4220), PUB4520 (PU4520)

■ Features

- High forward current transfer ratio h_{FE}
- High-speed switching
- PUB4120 (PU4120): NPN 4 elements
- PUB4420 (PU4420): NPN 2 elements $\times 2$

■ Absolute Maximum Ratings $T_C = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	V_{CBO}	60	V
Collector-emitter voltage (Base open)	V_{CEO}	60	V
Emitter-base voltage (Collector open)	V_{EBO}	5	V
Collector current	I_C	4	A
Peak collector current	I_{CP}	8	A
Collector power dissipation	P_C	15	W
	$T_a = 25^\circ\text{C}$	3.5	
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$



■ Electrical Characteristics $T_C = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-emitter voltage (Base open)	V_{CEO}	$I_C = 30 \text{ mA}, I_B = 0$	60			V
Base-emitter voltage	V_{BE}	$V_{CE} = 3 \text{ V}, I_C = 3 \text{ A}$			2.5	V
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{CB} = 60 \text{ V}, I_E = 0$			200	μA
Collector-emitter cutoff current (Base open)	I_{CEO}	$V_{CE} = 30 \text{ V}, I_B = 0$			500	μA
Emitter-base cutoff current (Collector open)	I_{EBO}	$V_{EB} = 5 \text{ V}, I_C = 0$			2	mA
Forward current transfer ratio	h_{FE1}	$V_{CE} = 3 \text{ V}, I_C = 0.5 \text{ A}$	1 000			—
	h_{FE2}^*	$V_{CE} = 3 \text{ V}, I_C = 3 \text{ A}$	1 000		10 000	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 3 \text{ A}, I_B = 12 \text{ mA}$			2.0	V
Transition frequency	f_T	$V_{CE} = 10 \text{ V}, I_C = 0.5 \text{ A}, f = 1 \text{ MHz}$		20		MHz
Turn-on time	t_{on}	$I_C = 3 \text{ A}$		0.5		μs
Storage time	t_{stg}	$I_{B1} = 12 \text{ mA}, I_{B2} = -12 \text{ mA}$		4.0		μs
Fall time	t_f	$V_{CC} = 50 \text{ V}$		1.0		μs

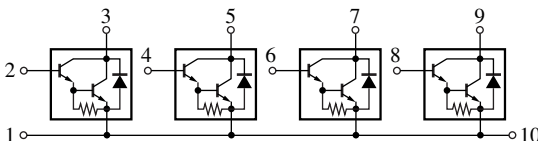
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. *: Rank classification

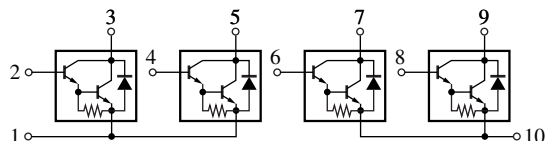
Rank	Free	P	Q
h_{FE}	1 000 to 10 000	2 000 to 10 000	1 000 to 5 000

■ Internal Connection

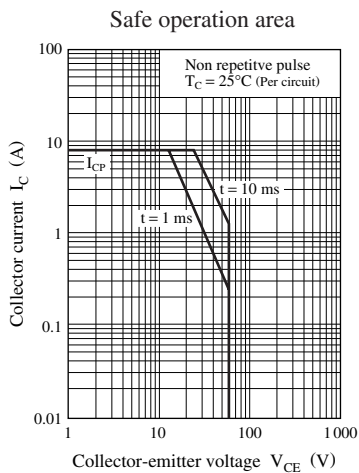
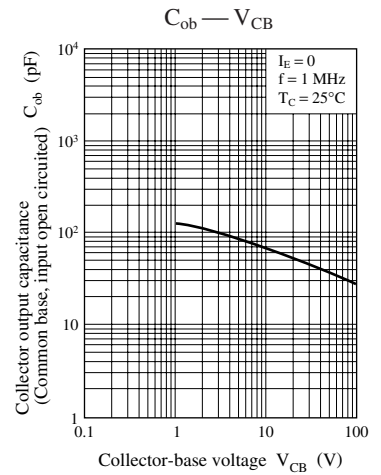
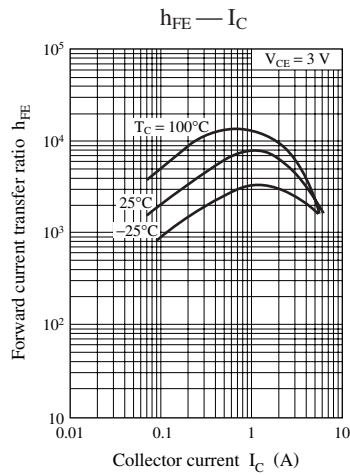
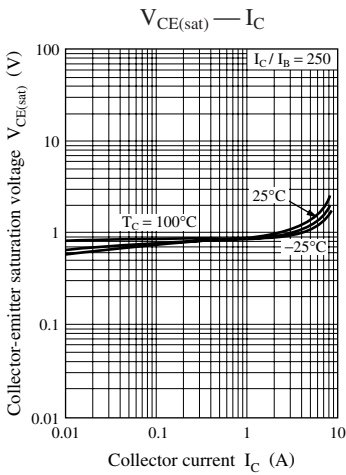
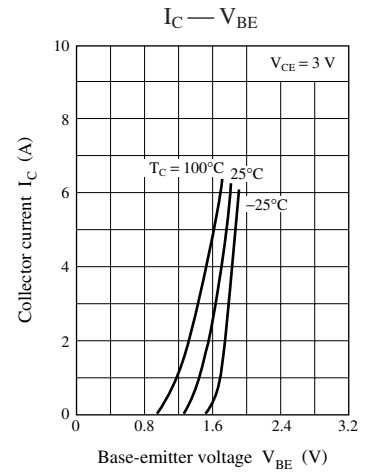
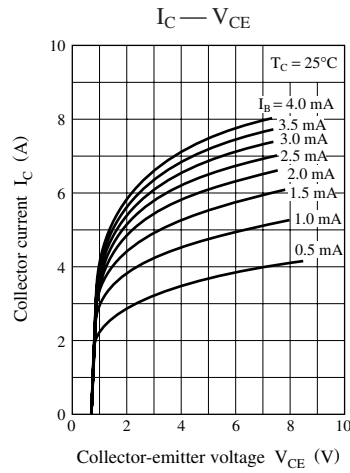
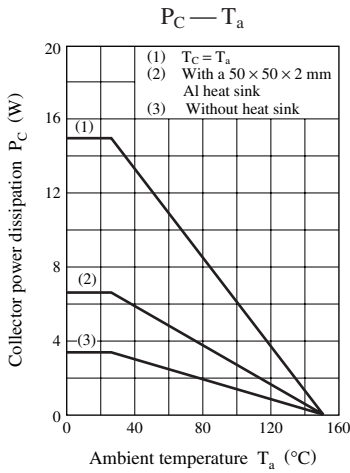
• PUB4120



• PUB4420



Note) The part numbers in the parenthesis show conventional part number.



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