

PUB4119 (PU4119), PUB4419 (PU4419)

Silicon NPN triple diffusion planar type darlington

For power amplification/switching

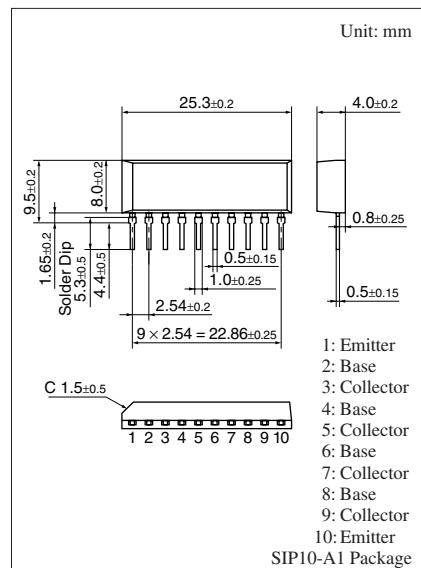
Complementary to PUB4219 (PU4219), PUB4519 (PU4519)

■ Features

- High forward current transfer ratio h_{FE}
- High-speed switching
- PUB4119 (PU4119): NPN 4 elements
PUB4419 (PU4419): 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	2	A
Peak collector current	I_{CP}	4	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}	$V_{CE} = 4 \text{ V}$, $I_C = 2 \text{ A}$			2.8	V
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{CB} = 60 \text{ V}$, $I_E = 0$			1	mA
Collector-emitter cutoff current (Base open)	I_{CEO}	$V_{CE} = 30 \text{ V}$, $I_B = 0$			2	mA
Emitter-base cutoff current (Collector open)	I_{EBO}	$V_{EB} = 5 \text{ V}$, $I_C = 0$			2	mA
Forward current transfer ratio	h_{FE1}	$V_{CE} = 4 \text{ V}$, $I_C = 1 \text{ A}$	1 000			—
	h_{FE2}^*	$V_{CE} = 4 \text{ V}$, $I_C = 2 \text{ A}$	1 000		10 000	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 2 \text{ A}$, $I_B = 8 \text{ mA}$			2.5	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}	$I_C = 2 \text{ A}$		0.5		μs
Storage time	t_{stg}	$I_{B1} = 8 \text{ mA}$, $I_{B2} = -8 \text{ mA}$		4.0		μs
Fall time	t_f	$V_{CC} = 50 \text{ V}$		1.0		μs

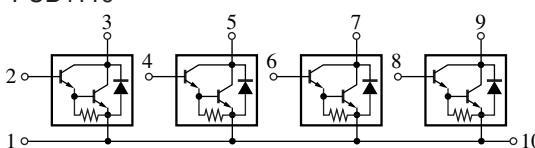
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. *: Rank classification

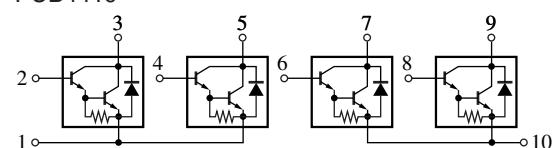
Rank	Free	P	Q
h _{EE}	1,000 to 10,000	2,000 to 10,000	1,000 to 5,000

■ Internal Connection

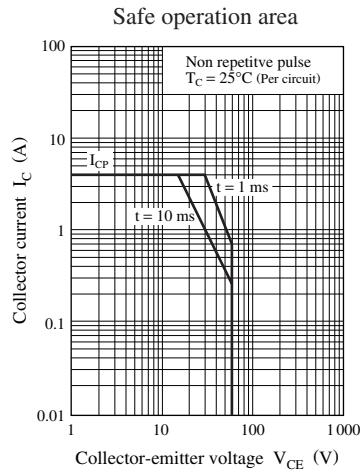
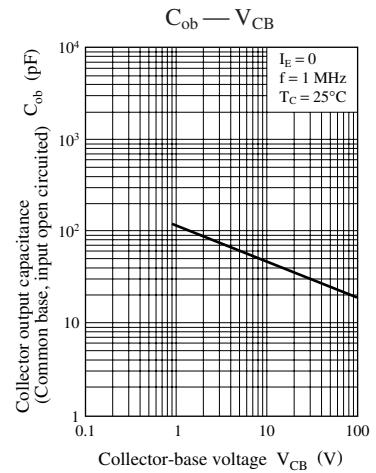
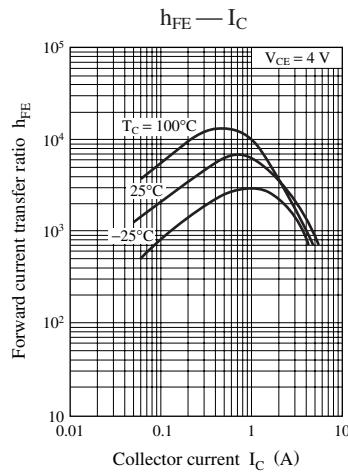
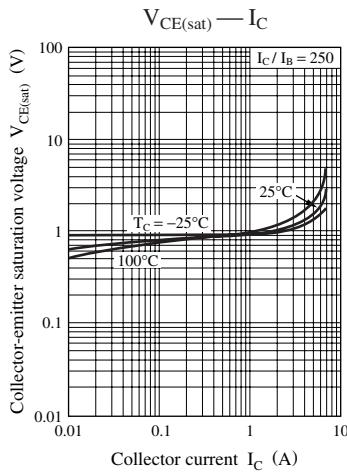
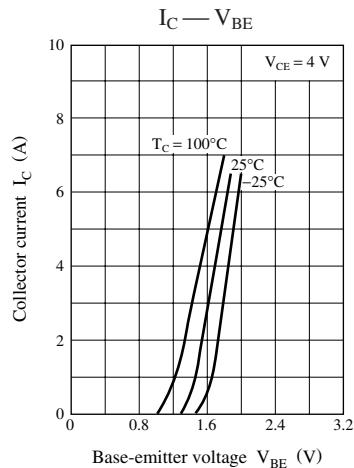
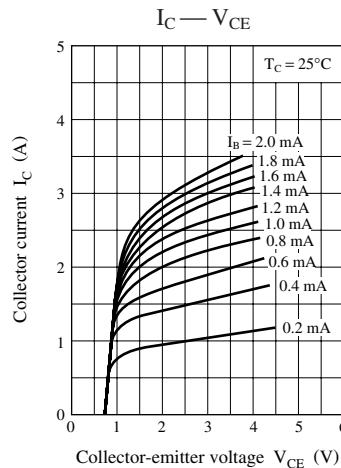
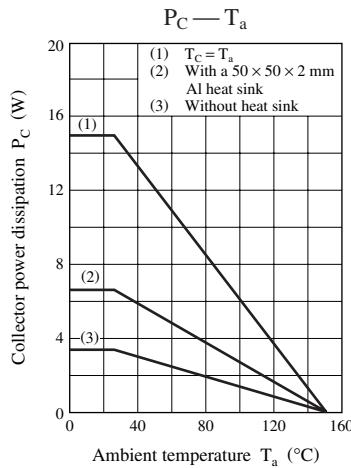
• PIJIB4119



• P11R4419



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



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