

# PUB4119 (PU4119), PUB4419 (PU4419)

Silicon NPN triple diffusion planar type darlington

For power amplification/switching

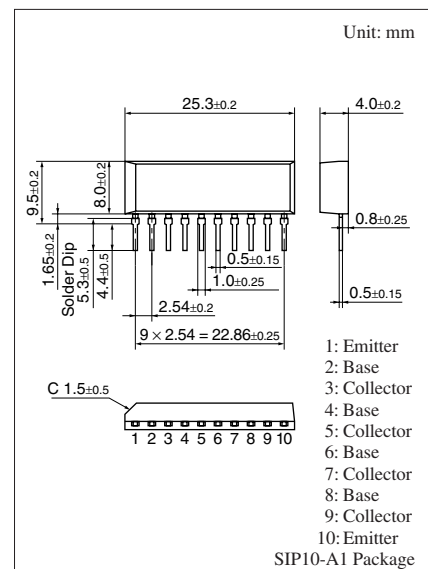
Complementary to PUB4219 (PU4219), PUB4519 (PU4519)

## ■ 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		$\mu\text{s}$
Storage time	$t_{stg}$	$I_{B1} = 8\text{ mA}, I_{B2} = -8\text{ mA}$		4.0		$\mu\text{s}$
Fall time	$t_f$	$V_{CC} = 50\text{ V}$		1.0		$\mu\text{s}$

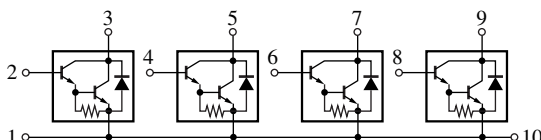
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. \*: Rank classification

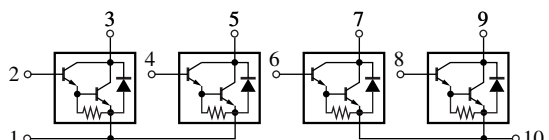
Rank	Free	P	Q
$h_{FE}$	1 000 to 10 000	2 000 to 10 000	1 000 to 5 000

## ■ Internal Connection

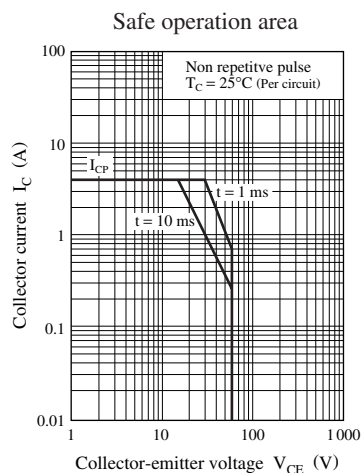
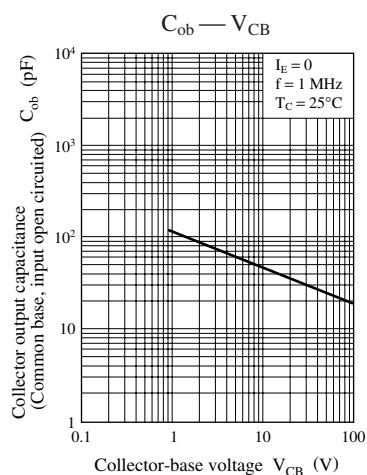
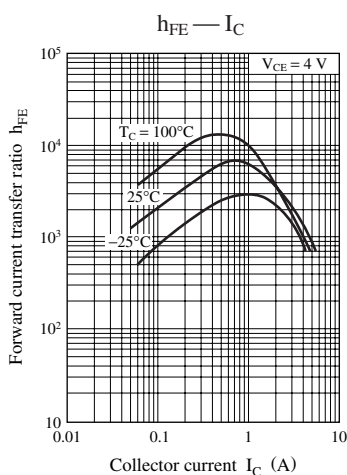
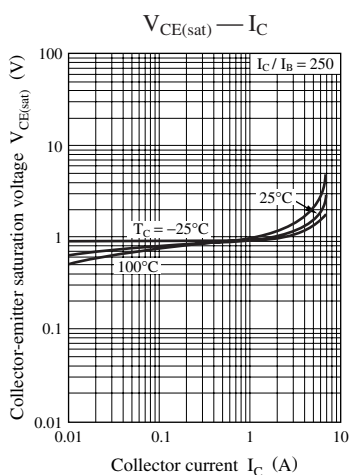
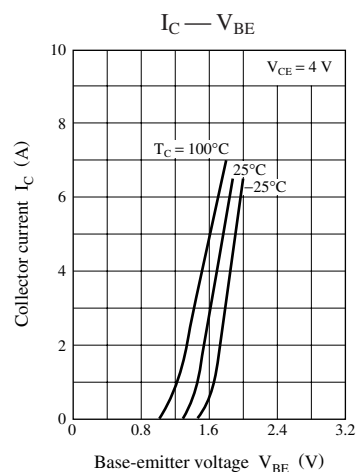
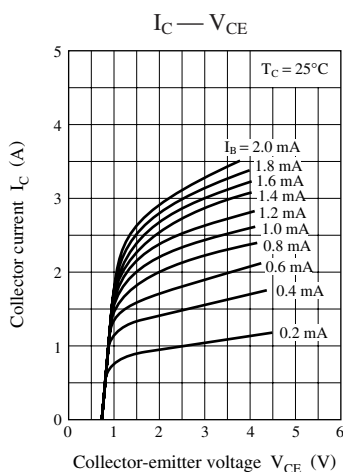
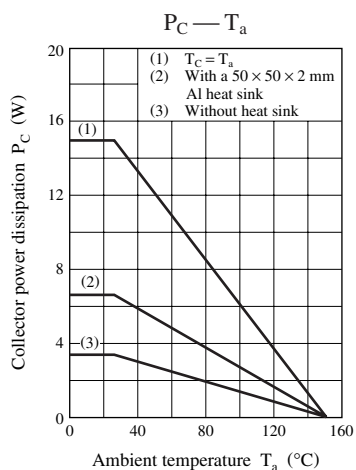
### • PUB4119



### • PUB4419



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



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