

# PU3120, PU4120, PU4420

Silicon NPN Triple-Diffused Planar Darlingtion Type

Power Amplifier, Switching  
Complementary Pair with PU3220, PU4220, PU4520

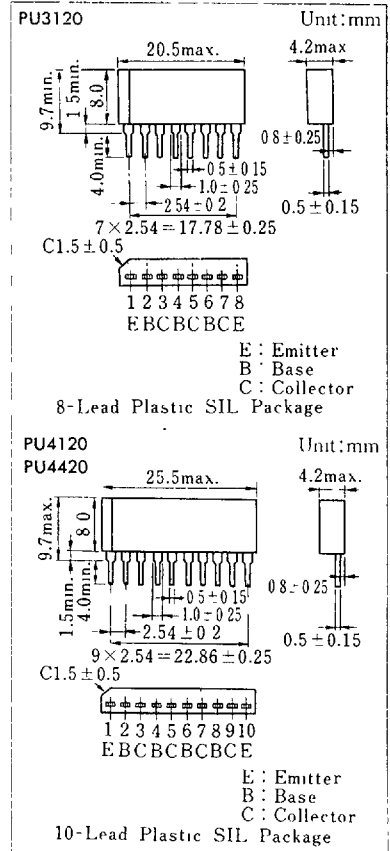
### ■ Features

- High DC current gain ( $h_{FE}$ )
- High speed switching
- PU3120: 3 NPN elements
- PU4120: 4 NPN elements
- PU4120: 2 NPN elements  $\times$  2 (4 elements in total)

### ■ Absolute Maximum Ratings ( $T_c=25^\circ\text{C}$ )

Item	Symbol	Value	Unit
Collector-base voltage	$V_{CBO}$	60	V
Collector-emitter voltage	$V_{CEO}$	60	V
Emitter-base voltage	$V_{EB0}$	5	V
Peak collector current	$I_{CP}$	8	A
Collector current	$I_C$	4	A
Power dissipation	$P_D$	15	W
Junction temperature	$T_J$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 ~ +150	$^\circ\text{C}$

### ■ Package Dimensions



### ■ Electrical Characteristics ( $T_c=25^\circ\text{C}$ )

Item	Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	$I_{CBO}$	$V_{CB}=60\text{V}, I_E=0$			200	$\mu\text{A}$
	$I_{CEO}$	$V_{CE}=30\text{V}, I_B=0$			500	$\mu\text{A}$
Emitter cutoff current	$I_{EB0}$	$V_{EB}=5\text{V}, I_C=0$			2	mA
Collector-emitter voltage	$V_{CEO}$	$I_C=30\text{mA}, I_B=0$	60			V
DC current gain	$h_{FE1}$	$V_{CE}=3\text{V}, I_C=0.5\text{A}$	1000			
	$h_{FE2}^*$	$V_{CE}=3\text{V}, I_C=3\text{A}$	1000		10000	
Base-emitter voltage	$V_{BE}$	$V_{CE}=3\text{V}, I_C=3\text{A}$			2.5	V
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=3\text{A}, I_B=12\text{mA}$			2	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	$t_{on}$	$I_C=3\text{A}, I_{B1}=12\text{mA}, I_{B2}=-12\text{mA}$		0.5		$\mu\text{s}$
Storage time	$t_{stg}$		4		$\mu\text{s}$	
Fall time	$t_f$		1		$\mu\text{s}$	

### \* $h_{FE2}$ Classifications

Class	Free	Q	P
$h_{FE2}$	1000 ~ 10000	1000 ~ 5000	2000 ~ 10000

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## Inner Circuit

